



YORKHILL NHS TRUST
INFORMATION SYSTEMS DEVELOPMENT
FULL BUSINESS CASE
DRAFT V1.0
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MANAGEMENT SUMMARY

Introduction

The Yorkhill NHS Trust currently faces a number of significant limitations in the capability of its information systems to support key business priorities including:

- little integration between the existing information systems, including the absence of a single Trust-wide patient index;
- lack of support for the actual operational delivery of clinical care to patients;
- poor support for a Trust-wide approach to clinical audit based on common clinical information systems across specialties;
- a lack of systems to support resource management, including case mix based activity analysis, episode costing and cost and volume variance analysis;
- financial and contracting systems which, although they provide some support for current requirements, lack both the integration with other systems and the analysis capabilities likely to be required as purchaser numbers increase and contract costing becomes more sophisticated;
- a general lack of facilities to support electronic data recording and communication throughout the Trust and a reduction in existing paper based systems.

Despite the above, the Trust's current IS/IT expenditure currently amounts to some £464,000 per annum. In view of this, the Trust has reviewed its approach to information systems and has prepared a business case for future information systems development to meet the Trust's IS/IT and business objectives.

Strategic Options

Three strategic options for information systems development were identified for detailed consideration:

- a "do minimum" option (option 1). This involves maintenance and development of existing systems and implementation of a small number of essential new systems;
- an incremental Hospital Information Support System (HISS) option (option 2). This involves the "do minimum" option with the addition of a number of significant operational systems and the implementation of a CRIS. Effectively, this option meets the Trust's requirements through procuring a range of systems from different suppliers and integrating these systems to allow communication and exchange of data where appropriate;

- a Single Supplier Package HISS option (option 3). This involves the implementation of a comprehensive HISS package, procured from a single supplier and operated in-house by the Trust, covering the majority of the Trust's information system requirements.

Comparison of Options

The table below shows a summary of the analysis of the key aspects of the three options.

SUMMARY OF OPTIONS

Assessment Factor	Do Minimum (option 1)	Incremental HISS (option 2)	Single Supplier HISS (option 3)
Capital cost over 8 years	£593k	£1,635k	£2,970k
Revenue cost over 8 years	£4,036k	£4,944k	£3,333k
Total cost over 8 years	£4,629k	£6,579k	£6,303k
Total cost over 8 years including cash releasing benefits.	£4,440	£6,350	£5,697
Discounted cash flow present cost, including cash releasing benefits (6% discount rate)	£3,743	£5,366	£5,203
Financial cost (revenue costs and capital charges, including cash releasing benefits)	£4,500	£6,295	£5,898
Anticipated cash releasing benefits (per annum after full implementation at current costs)	£29,295	£37,170	£98,315
Peak impact on prices and year of occurrence.	Baseline	0.49% 2000/01	0.63% 1998/99
Average impact on prices over 8 years.	Baseline	0.37%	0.29%
Comparative qualitative benefits score (derived in workshop with staff, higher score indicates greater anticipated qualitative benefits)	52	165	260
Comparative risk score (higher score indicates greater risk)	18	33	37
Target date for completion of implementation	April 1998	Oct 1999	July 1998

The analysis indicates that the Do Minimum option (option 1) would be unlikely to provide the support required to allow the Trust to meet its IS/IT and business objectives.

The Single Supplier HISS option (option 3) was selected as the preferred option over the Incremental HISS option (option 2). This was based on the anticipated greater benefits it will deliver and the comparable costs in both financial and discounted cash flow terms.

It should also be noted that as a result of the high costs associated with the Trust's current IS/IT arrangements, the additional cost of the Single Supplier HISS option over the Do Minimum option are not excessive over an eight year period.

The Single Supplier HISS Option

The preferred Single Supplier HISS option will involve procuring a largely integrated system to meet the majority of the Trust's information system requirements. There are a number of suppliers of such systems and the business case has been based on quotes from one of these suppliers, HBO & Company, which is currently implementing its HISS in the South Ayrshire NHS Trust. However, the final choice of supplier, which is a critical decision, has still to be determined.

The capital investment required for a HISS is considerable. However, in the longer term it will result in reduced revenue expenditure to offset the upfront capital costs. Nevertheless, it will represent a major commitment by the Trust and once initiated there will be little opportunity to reduce this investment should other financial issues or priorities arise.

It is anticipated that investment in a HISS will result in an increase of approximately 0.57% in prices to purchasers in 1997/98 and 0.80% in 1998/99, dropping to 0.29% in 1999/00 and reducing further thereafter.

It is envisaged that a HISS will result in substantial benefits in a number of areas including:

- qualitative improvements in the services provided by the Trust for patients, for example in relation to clinical decision making, the responsiveness of services and the integration of care;
- improved communication throughout the Trust;
- improved information for clinical and management purposes, including clinical audit and resource management;
- time savings for staff in relation to existing routine and administrative tasks. Although it is not anticipated that these time savings can result in staff reductions and cash savings, it is expected that it will result in additional time that can be used to improve the nature of clinical staff contact with patients;
- elimination of some existing tasks which can result in some small staff reductions and cash savings.

There is, however, substantial risk associated with the Single Supplier HISS option, indeed it has been assessed as the highest risk option. The key risks relate to:

- the requirement for strong overall project management;

- dependence upon a single key supplier;
- the requirement to achieve significant procedural and cultural change to make the best use of new systems.

The overall conclusion is that the scale of risk associated with the Single Supplier HISS option is high, but acceptable if appropriate risk avoidance strategies are implemented. This has been recognised in the business case, in particular in the allowances made for IS/IT staffing, user input during implementation and adequate training for staff in the use of the new system.

Private Finance

The Trust considered private finance to fund a HISS and it was concluded that there are advantages to be gained from a private finance scheme. Accordingly, the Trust has conducted a major procurement exercise seeking a private finance solution.

The Private Finance Option involves the contractor in providing a managed HISS service to the Trust. The key elements of this service will be:

- ownership by the contractor of the central system hardware and operating system software;
- provision by the contractor of facilities management services to operate the HISS and the Trust's internal communications network;
- provision by the contractor of access for Trust staff to the application systems required to meet the Trust's specified requirements;
- provision by the contractor of implementation, core training and ongoing support services;
- arrangements for disaster recovery;
- provision of software updates and general upgrades, and bespoke software development to meet specific Trust requirements.

The projected costs for the Public Sector Comparator and the Private Finance Option are summarised below.

Option	Capital Cost (£000s)	Revenue Cost (£000s)	Total Cost (£000s)	Total Cost inc. Cash Releasing Benefits (£000s)	Discounted Cash Flow Present Cost (6% discount rate)
Public Sector Comparator (option 3)	2,549	2,812	5,361	4,756	4,367
Private Finance Option (option 4)	0	5,177	5,177	4,533	3,861

Based on the cost summary it is apparent that the private finance option offers superior value for money. This is particularly the case for the economic assessment, as the Private Finance Option avoids a major upfront capital payment and spreads the payments to the contractor into later years.

The Trust's analysis has also demonstrated that the private finance option will transfer significant risk to the private sector and that it is affordable by the Trust.

Preferred Solution

The Trust's analysis has demonstrated that the Private Finance Option:

- secures a wide range of services for the Trust in addition to HISS functionality;
- provides improved value for money;
- achieves the transfer of significant risk to the private sector.

Based on this, the Private Finance Option is superior to the alternative public sector capital funded option, and is, therefore, the Trust's preferred information systems solution.

The Trust has prepared benefits realisation plans and a post-project evaluation framework.

1. INTRODUCTION

1.1 The Yorkhill NHS Trust

The Yorkhill NHS Trust (the Trust) was established in April 1993 and includes The Royal Hospital for Sick Children, The Queen Mother's Hospital and the Community Child Health Services. The Royal Hospital for Sick Children presently provides 305 beds for paediatric care and The Queen Mother's Hospital provides 78 maternity beds and 31 intensive care cots for neonatal care. The Trust provides almost all community and hospital based child health services for Glasgow and is a paediatric tertiary referral centre for the West of Scotland. The Trust employs over 1,800 WTE staff, its capital base is £45m and the anticipated contract income for 1995/96 is £55m.

1.2 Background To The Business Case

The development of information systems within the Trust has in the past been guided by the policies of Greater Glasgow Health Board. The Trust currently operates a range of computerised information systems selected by Greater Glasgow Health Board, including a number that have been promoted nationally as preferred systems within Scotland.

The Trust has a small Information Systems/Information Technology (IS/IT) department. However, at present the majority of IS/IT services are provided by Computer Sciences Corporation (CSC) which provides system support and advisory services. In addition, CSC provides facilities management services for a number of systems as part of a contract covering the whole of Greater Glasgow Health Board which is itself a component of a Scotland-wide contract.

The vast majority of the Trust's current IS/IT expenditure is currently directed towards the above organisation and amounts to some £464,000 in 1995/96.

Currently, there are a number of significant limitations in the capability of the Trust's information systems to support key business priorities including:

- little integration between the existing information systems, including the absence of a single Trust-wide patient index;
- lack of support for the actual operational delivery of clinical care to patients;
- poor support for a Trust-wide approach to clinical audit based on common clinical information systems across specialties;
- no computerised information system support for human resources management;
- a lack of systems to support resource management, including case mix based activity analysis, episode costing and cost and volume variance analysis;

- financial and contracting systems which, although they provide some support for current requirements, lack both the integration with other systems and the analysis capabilities likely to be required as purchaser numbers increase and contract costing becomes more sophisticated;
- a general lack of facilities to support electronic data recording and communication throughout the Trust and a reduction in existing paper based systems.

The Trust is participating in the resource management programme within Scotland and as part of this did propose to procure a clinical resource information system (CRIS). However, this proposal was suspended following concerns within the Trust about the difficulties experienced by other Scottish sites with developing interfaces to CRIS systems. It was felt that the acceptability of a CRIS solution within the Trust would be low and would possibly not meet clinical staff expectations.

The Trust has, therefore, re-evaluated its information system requirements and the options available by which to address them. This document presents a business case for a substantial development of the Trust's information systems. The development is proposed as part of the Trust's approach to delivering its strategic objectives, including implementation of a Clinical Management Programme which addresses resource management.

2. STRATEGIC CONTEXT AND OBJECTIVES

2.1 National Strategies

There are a number of national initiatives/strategies of relevance to the Trust and this business case. These are:

- the bringing together of all child health services, both hospital and community, under a single organisational and management structure (recommendation from British Paediatric Association, 1991). The creation of the Yorkhill NHS Trust achieved this within Glasgow. However, the Trust recognises that to achieve the greatest benefits for patients from this development there is an ongoing requirement to promote joint working between hospital and community staff, including integrated administrative and clinical practices and procedures, and sharing of patient based information;
- the promotion of community care and the emphasis on developing community-based services and links with general practitioners and other agencies. Increasingly the hospital service will concentrate on those things it can do best, ensuring minimum disruption for families whilst providing quality care for patients, with many services and post-hospital care follow-up provided in the community. However, development of this approach will require:
 - effective procedures within the hospital, based on improved inter-departmental communication and access to administrative and clinical information;
 - better access to clinical information and hospital support services from the community;
 - facilities for the rapid exchange and sharing of information;
- clinical audit which is now well established with many staff evaluating their procedures and clinical practice. The Trust is committed to clinical audit and, in addition, clinical research as a tertiary referral centre with close University links. The key role of information systems to support clinical audit is recognised. However, these are frequently implemented on a stand-alone, specialty by specialty, basis with limited integration of patient data and inefficiencies in data input and system support. The promotion of ongoing and efficient clinical audit requires core integrated clinical systems to provide Trust-wide data for audit purposes;

- resource management is a well established national initiative. This promotes the involvement in Trust management of clinical staff, who have daily contact with patients. The Trust has implemented its own Clinical Management Programme and has a clinical directorate structure with devolved planning and budgetary responsibilities. However, to progress this initiative further, which involves devolving decision making based on relevant, accurate and timely information, the Trust will require to improve its information base. In particular, this includes better support for casemix analysis and service costing, and the planning and evaluation of the use of resources, both staff and non-staff.

All of the above require the development of information systems within the Trust to improve information gathering, reporting and analysis, and communication facilities.

2.2 Purchaser Strategies and Priorities

Greater Glasgow Health Board's purchasing intentions for 1996/97 - 1998/99 have recently been published. However, these are subject to ongoing consultation on the Health Board's proposals for "The Purchasing of Acute and Maternity Services to the year 2001". Notwithstanding this, the Health Board has indicated an intention for significant concentration of specialist services into fewer in-patient units and a requirement for a maximum of 3 maternity units within Greater Glasgow. The Trust's hospitals are viewed as being key institutions within these proposals.

In addition, the Health Board indicates that:

- there will be continuing growth within the acute sector;
- meeting inpatient and day case waiting time guarantees in full remains an immediate priority, with a target of 12 months to be met from April 1996;
- a target of 9 weeks is anticipated for outpatient consultations from April 1996;
- a cash releasing revenue savings target of 3% for 1996/97 is likely, together with a move to differential responsibilities between Trusts for achieving these according to relative cost-effectiveness;
- there will be a continuing emphasis on process and outcome indicators and use of protocols;
- there will be a move to contracts of longer duration, together with clearer indication of prices for services purchased and implementation of recommendations from the national costing project.

The above are all information intensive areas, requiring effective information systems in both administrative and clinical functions. Development of information systems will be a key component in enabling the Trust to meet purchaser expectations.

2.3 Trust Strategy and Objectives

The Yorkhill NHS Trust's strategic aim is:

"to maintain and develop an efficient and effective integrated range of quality health care services".

The strategic objectives are to:

- develop community-based services, and links with general practitioners and other providers of care and services to children, in order to transfer the care of children from a hospital to a community setting whenever possible;
- continue to promote and market the advantages of the concentration of paediatric hospital services at The Royal Hospital for Sick Children and links with an on-site maternity service;
- support staff and to ensure that they feel involved in, and committed to, the Trust and its organisational objectives;
- maximise the Trust's income to support the achievement of its strategic aims and ensure financial success;
- ensure that clinical management decisions are made on the basis of timely and accurate information;
- create a culture of continuous quality improvement.

The above objectives will lead towards the Trust's vision of how it will be organised as it approaches the year 2000. It is anticipated that:

- the Royal Hospital for Sick Children will have about the same number of beds as now and will continue to be a tertiary referral centre, but will be treating an extra seven thousand children each year. This increased throughput will be achieved through:
 - many more simple operations being undertaken as day cases;
 - emergency admissions spending less time in hospital with follow-up in the community;
- maternity services will continue to be provided on the Yorkhill site where the care of the sick new-born child can be provided best;
- community services will expand and there will be real growth in medical, nursing and paramedical staff.

In particular, the distinction between hospital and community care will be increasingly reduced as staff co-ordinate their activities to deliver seamless care geared to the needs of individual children and their families.

Achieving the above vision will require well organised, efficient delivery of services. This will involve:

- simple, but effective, administrative procedures;
- access to information as required to enable clinical management decisions and organisation of further care to be made on a timely basis;
- effective communication between departments and staff groups to allow work to be efficiently planned and scheduled.

This approach will require to be underpinned by mechanisms to evaluate the effects of changes in practice and procedures and to ensure standards are maintained and wherever possible raised.

All of the above will require to be supported by effective information systems and information management. Systems will be required to ensure that:

- data is effectively captured;
- data accuracy and integrity can be assured;
- information can be accessed, analysed and shared as required for both clinical and management purposes.

2.4 Trust IS/IT Objectives

The project to which this business case relates is intended to deliver the information systems infrastructure required to support the significant changes planned in the delivery of services and the roles of staff.

At present there is a very limited set of computerised information systems to support the operations of the Trust. The Trust's Information Management and Technology Strategy has highlighted the following key developments required to support delivery of the Trust's strategic service objectives:

- the rapid implementation of information technology;
- improvements in the quality of information;
- improvements in the integration of systems.

Key objectives within the Information Management and Technology Strategy are to:

- ensure that managers and clinicians are provided with access to the information they require to purchase, manage and operate services in the most effective manner and ensure the best use of resources to the direct benefit of patients through improved care;

- support and encourage the analysis of clinical activity data and the development of clinical audit to ensure the provision of outcome measures;
- ensure that systems development is focused on the patient or client through the use of a unique patient identifier such as the Community Health Index (CHI) number which will facilitate event linkage which is essential for clinical audit, costing and health care monitoring;
- co-ordinate and standardise data capture, coding and validation systems using a common basic specification through the use of the Read clinical classification of clinical coding. This will ensure data consistency and to facilitate the integration of systems and to minimise duplication of effort;
- cultivate the necessary skills, through education and training, to enable health care professionals and managers to use effectively the information available to them;
- ensure that systems development is carried out to provide a fully integrated system.

2.5 Project Objectives

The purpose of this project is to deliver the above objectives through the development of information systems within the Trust. Specifically, the objectives of the project are to:

- develop integrated information systems to support the work of the Trust which:
 - support "once-only" entry of data;
 - utilise common coding systems;
 - avoid data duplication;
 - support the linkage of patient based data;
- deliver a Trust Patient Master Index, accessible by staff throughout the Trust and other patient based information systems, including a single unique patient identifier which will be used to label all patient based information;
- provide administrative systems to manage all patient contacts with the Trust and the use of associated resources, such as beds. In addition, operation of these systems will be undertaken at the points of contact with patients, to facilitate the work of staff and to improve data ownership and timeliness;

- provide electronic communication between the various departments and locations within the Trust to improve access to data and the speed with which information flows around the organisation. In particular, this relates to requests for services and the communication of results, but also all other types of communication currently undertaken through paper based systems. A key component of this will be the flow of information between hospital and community locations;
- develop the ability to link and analyse the patient based data generated by the different parts of the organisation in order to support:
 - clinical decision making;
 - clinical audit and research;
 - workload analysis;
 - service costing and contracting;
- provide automated support to staff in undertaking routine administrative and clinical tasks, in order to achieve time saving efficiencies. This will ensure staff are primarily engaged in tasks appropriate to their skills and experience, that is direct patient care. Key areas included in this are:
 - clinical management planning;
 - initiating care processes, such as diagnostic procedures, theatre bookings, outpatient appointments and referrals;
 - staff rostering;
 - generation of discharge summaries, including key clinical and coding information;
 - generation of activity and other performance monitoring information;
- provide facilities to support the effective and efficient utilisation of key Trust resources, including:
 - beds and clinic facilities;
 - theatres;
 - diagnostic investigation facilities;
- improve the available financial monitoring and reporting facilities, including contracting performance, to support the Trust's new organisational structure and the devolvement of budgetary and contractual responsibilities.

3. BUSINESS CASE - OPTIONS

3.1 Nature and Specification of Options

It should be recognised that this business case addresses the strategic approach to the long term development and provision of information systems within the Trust. The choice of the preferred option will commit the Trust to a particular way forward and will preclude other approaches and opportunities.

However, within each option there is clearly scope for variations according to developments and opportunities in the IT industry generally and more specifically in the market for healthcare information systems during the period covered by this business case. In the discussion that follows, the options have been specified to the level of detail required for comparison purposes. However, specific information system products and detailed individual system facilities/features have not been described in detail, as this is inappropriate for the business case and would be addressed separately in an operational requirement. For example, order/communications or casemix may be identified as required systems/modules, but the detailed data and reporting functions that may be included in an individual system are not discussed.

3.2 Long List of Options

Five options were initially identified for consideration:

- a "do nothing" option. This involves continuing with the existing information systems on a maintenance only basis;
- a "do minimum" option. This involves maintenance and development of existing systems and implementation of a small number of essential new systems;
- an incremental Hospital Information Support System (HISS) option. This involves the "do minimum" option with the addition of a number of significant operational systems and the implementation of a CRIS. Effectively, this option meets the Trust's requirements through procuring a range of systems from different suppliers and integrating these systems to allow communication and exchange of data where appropriate;
- a single supplier package HISS option. This involves the implementation of a comprehensive HISS package, procured from a single supplier, covering the majority of the Trust's information system requirements;
- a bespoke HISS option. This would entail working with a software supplier to develop a HISS solution tailored to a set of detailed system requirements developed specifically for the Trust.

3.3 Initial Assessment of Options

On initial assessment it is immediately clear that it will not be feasible for the Trust to adopt a "do nothing" option. This option will not meet the Trust's IS/IT objectives or support the achievement of its business objectives. For example:

- the patient administration system is based on a PICK platform. The supplier has now ported this product to a UNIX platform which will be the future development route for this system, including the addition of outpatients functionality which is a key gap in the Trust's information systems portfolio;
- the Trust's maternity system operates on obsolete hardware and cannot be maintained in the medium term;
- the Trust will lack key systems, including a personnel system to support human resources management which is a key area of opportunity under NHS Trust arrangements.

Clearly, from the above, it is apparent that the Trust already relies significantly on a number of computerised information systems and as a minimum these will require to be maintained and developed, and in some cases replaced. The baseline for the Trust, therefore, is a "do minimum" option which addresses the above areas.

It is also clear that development of a bespoke HISS solution will be impractical for the Trust as:

- the Trust lacks the skills and experience to procure and manage a large, complex systems development project. Consequently, the risk of failure will be very high;
- the timescales for such a development will be much longer than a package based approach;
- the cost will certainly be significantly higher than a package based approach.

In view of the above, the bespoke HISS solution was also discarded as not being a practical solution.

Three options were, therefore, shortlisted for further consideration:

- a "Do Minimum" option;
- an "Incremental" HISS option;
- a "Single Supplier" HISS option.

The above are shown described in greater detail and shown diagrammatically in the following sections.

3.4 Descriptions of Shortlisted Options

3.4.1 "Do Minimum" Option

The Do Minimum option (option 1) is based on the least practical development of information systems, consistent with ensuring that:

- existing information systems remain functionally and technically viable with reasonable integration to ensure efficiency of data capture and data integrity;
- current projects/developments are taken forward;
- the Trust's basic information requirements can be met.

Although the Do Minimum option will significantly improve the Trust's information systems infrastructure, it will not meet the project objectives in full. This is due to the significant gaps that will remain in the Trust's information systems portfolio.

In describing the Do Minimum option, the key developments are described under the following areas:

- existing systems;
- new systems.

3.4.1.1 Existing Systems

Patient Administration System

The existing patient administration system, COMPAS, is a key information system within the Trust, particularly for the provision of a Trust patient master index. However, there are a number of concerns regarding its effectiveness. To ensure the Trust has adequate patient administration support, significant enhancement of COMPAS will be required. As COMPAS is a core information system, this will be required in the immediate future to allow effective development of the Trust's other information systems to proceed. The developments that would be required are to:

- port COMPAS from its existing technical platform to a UNIX platform. This is an established development of COMPAS and would be required to ensure the Trust has the mainstream COMPAS product, based on an open platform with facilities for communication with other information systems;
- expand access to COMPAS through introduction of terminals (PCs) in ward and clinical areas. This is required to improve access to, and ownership of, COMPAS data and facilitate more timely updating of COMPAS to allow it to be used for actual patient and bed management;
- implement casenote tracking facilities, using barcoding, to support casenote management;

- implement an outpatients system to support the administration of clinics and the assessment and monitoring of performance against Patients' Charter, Purchaser and Trust standards. This would most likely be the Perihelian system which is being developed to meet Scottish requirements operating in conjunction with COMPAS;
- implement interfaces between COMPAS and:
 - the contract management system for activity data;
 - other clinical systems to provide access to demographic data from the patient master index.

Radiology System

A Radiology Management System has been implemented within the Trust. However it lacks functionality and will require further development to ensure it adequately supports the Radiology Department and the reporting requirements of clinical staff. This will include:

- provision of appointment scheduling and administration functionality;
- provision of ward/clinic area terminal access for results reporting;
- interfacing to the patient master index for access to patient demographic data.

Laboratory System

The Telepath system has been successfully implemented in Biochemistry and Haematology and is being developed in Medical Genetics. The development of the Telepath system requires to be completed. This will involve:

- extension to cover the Microbiology Department;
- extension to cover Pathology;
- interfacing to the patient master index for access to patient demographic data;
- provision of ward/clinic area terminal access for results reporting.

Clinical Audit/Specialty Systems

The Trust already has a number of stand-alone systems which support specialties both operationally and with clinical audit (intensive care, cardiology, renal unit, diabetes). These will continue on a stand-alone basis with some ongoing development. In addition, further small scale stand-alone systems will be implemented to support other areas.

Finance System

The existing C.A. Masterpiece product provides little integration between the financial ledgers. It is, therefore, being upgraded to an integrated version of the product. In addition, significant work to revise the chart of accounts will be required to support the Trust's clinical directorate structure and the need for increased support in cost allocation and cross-charging. Under any option this work will be required on an interim basis, as replacement finance systems are not envisaged for some years. The associated cost is minimal, and the upgrade will be completed within the current financial year.

Contract Management System

The existing contract management information system does not support current requirements effectively and will require development to support future requirements including:

- interfacing to the patient administration system;
- enhancement of functionality to support increasing complexity in contract make-up and pricing.

3.4.1.2 New Systems

Maternity System

The maternity system is key to supporting extensive data recording and statutory reporting requirements. The existing system is old, can no longer be supported, and must be replaced. The Trust will require a replacement system, which includes requirements for ultrasound administration and data recording and reporting in the immediate future. It will be preferable that the replacement system is integrated with the Trust patient master index.

Personnel System

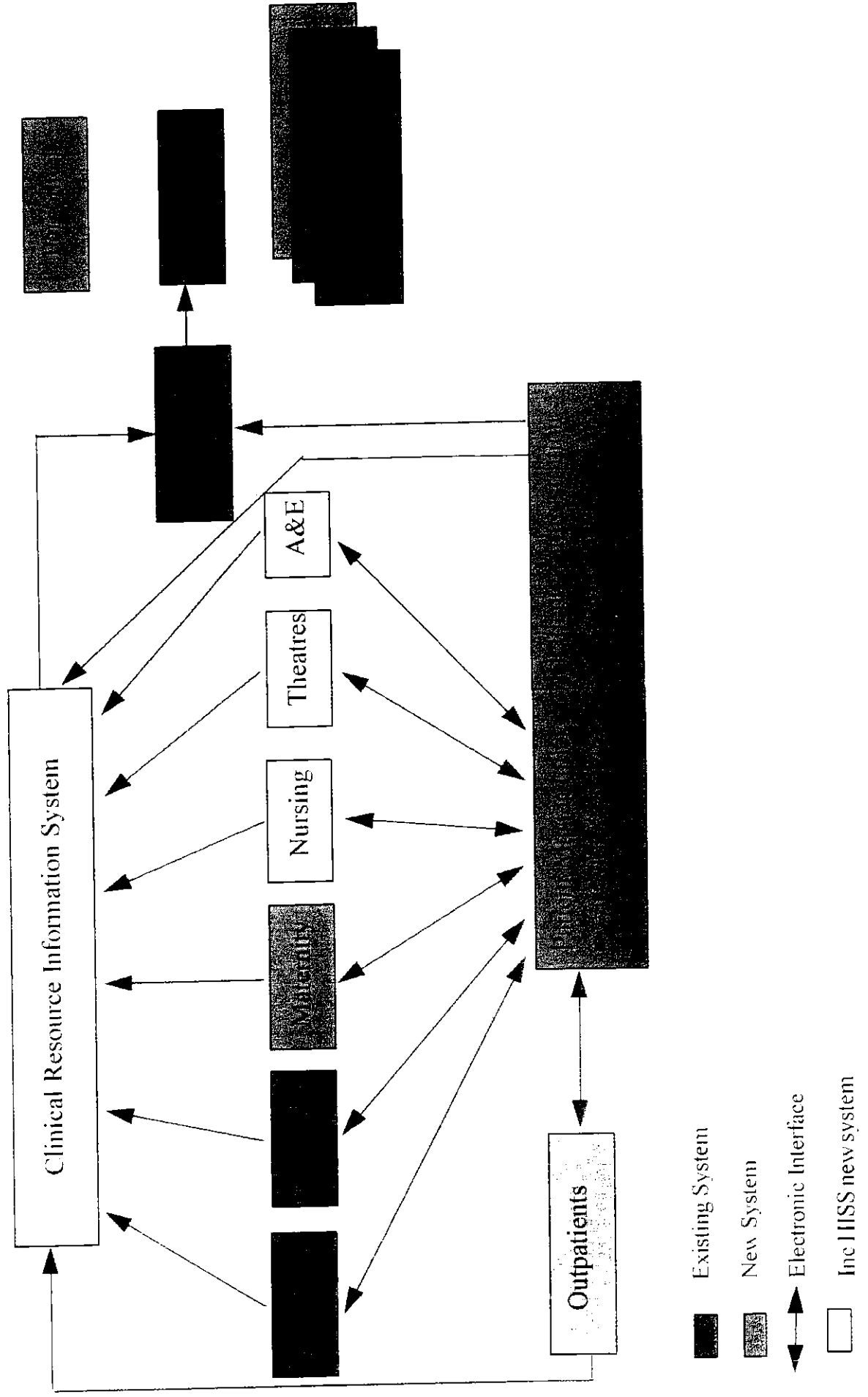
The Trust does not have computerised support for personnel and manpower planning. This is a fundamental gap in the portfolio of information systems and an exercise is currently being undertaken to define requirements in this area. Provision of such a system must be taken forward in view of the vital role of effective personnel management to the performance of the Trust.

3.4.2 "Incremental HISS" Option

Under the Incremental HISS option (option 2) the developments described under the Do Minimum option will still be required. However, the Incremental HISS option extends the scope of information systems investment in order to:

- increase the area of operational activity within the Trust covered by comprehensive, computerised information system support;
- improve the facilities to integrate patient based data to support casemix analysis and management, clinical audit and contract costing and management.

Incremental HISS (Option 2)



The Incremental HISS option is based around the introduction of a range of departmental/specialty information systems. Clearly, a multitude of permutations are possible within this option, according to the specific systems that are included and the timescales that are adopted. The approach that has been used is to recognise that this business case is effectively concerned with the strategic decision as to how the Trust will progress towards comprehensive computerised information systems. The CRIS option will lead to an incremental development of information systems, for which the logical end point is eventual comprehensive computer system coverage within the Trust. This end point of comprehensive coverage has, therefore, been selected as the appropriate option to compare against a single supplier HISS option.

3.4.2.1 New Systems

The Trust will require a number of new systems to support various operational areas and to act as feeder systems to a CRIS. The following new operational systems will be required:

- theatre management system;
- nursing management and information system;
- accident and emergency system.

In addition to the above, consideration would also be given to replacing the PAS, depending upon the ongoing performance of COMPAS and the support for COMPAS.

In addition, a CRIS will be required. The CRIS will receive patient based data from feeder systems and link it to provide actual patient care profiles for casemix analysis, clinical audit, costing and contracting purposes. Implementation of the CRIS will require extensive interfacing with feeder systems, of which there will be in the region of eight to ten.

3.4.2.2 Other Developments

It will be key to the integration of patient based data within the CRIS that it can be linked through accurate identification of individual patients. To achieve this successfully, two developments will be required:

- use of a single patient identifier throughout the Trust. In view of the large community component of the Trust's work this will require to be the Community Health Index (CHI) number. All patient based systems will require to hold this key patient identifier;

- electronic linkage of patient based information systems to the Trust's patient master index maintained on the patient administration system. This will be required to ensure accurate patient identification and consistency between the patient indexes maintained separately on the individual feeder systems.

3.4.3 Single Supplier HISS Option

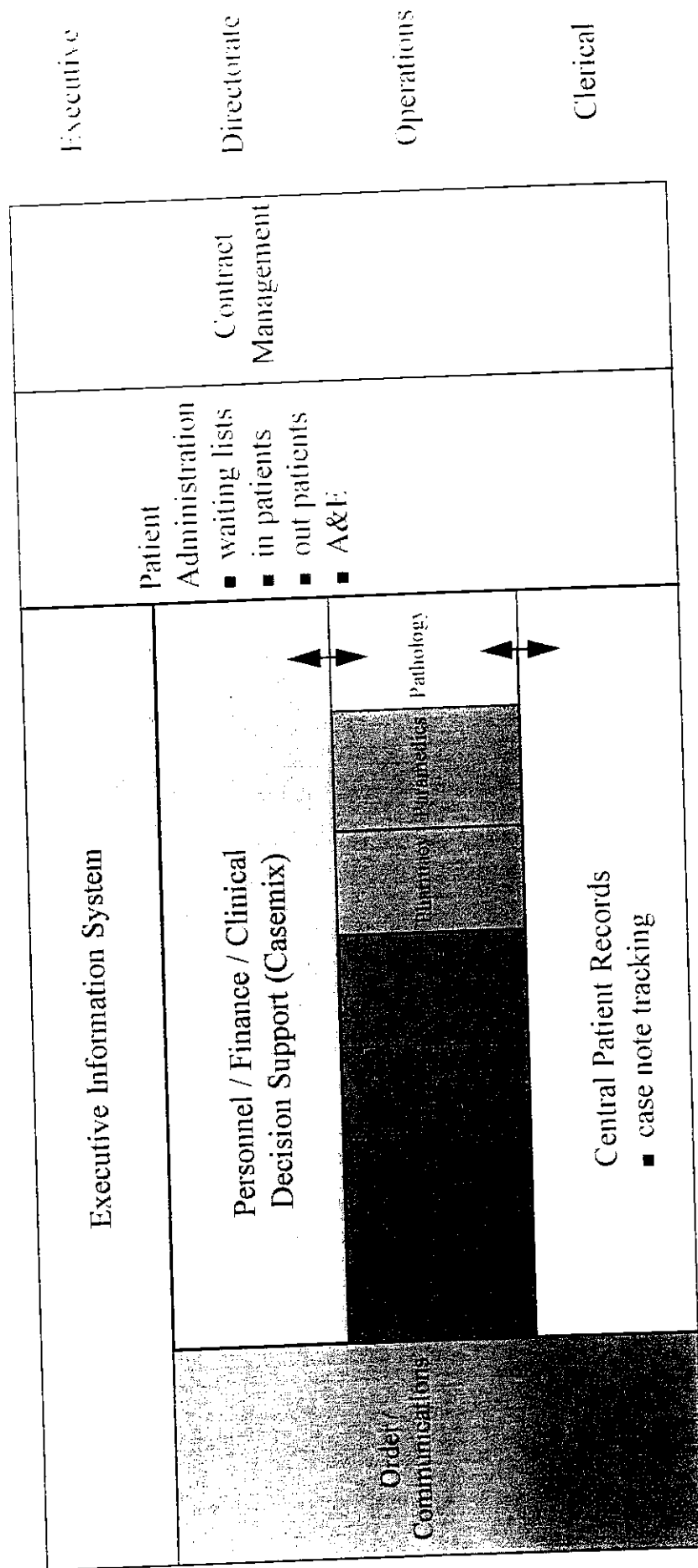
A Single Supplier HISS option (option 3) will involve procuring and operating in-house a single computerised information system which provides functionality to cover the majority of the Trust's operational activities and information reporting requirements. The key features of such a system are:

- provision of the system by a single supplier with issues of integration of patient data having been addressed by the technical design of the system or existing interfaces where required;
- once only recording of data, except where required for performance reasons, characterised by once-only entry of data and comprehensive access to data for users, subject to confidentiality requirements;
- facilitation of electronic communication between users, in particular for requests and results reporting.

The procured system will have the following elements:

- patient administration (including accident and emergency);
- order communication and results reporting;
- nursing management and information;
- pharmacy;
- radiology;
- theatre management;
- maternity, including ultrasound;
- paramedical specialties;
- personnel and payroll;
- finance;
- contract management;
- casemix, clinical audit and management information.

Hospital Information Support System (Option 3)



A number of other developments will still be required under the Single Supplier HISS option:

- use of a single patient identifier throughout the Trust. As previously discussed, this will require to be the CHI number. Implementation of this should be facilitated as part of the HISS' patient master index;
- completion of the implementation of the Telepath laboratory systems and implementation of interfaces between the Telepath systems and the HISS for communication of requests and results.

Other key features of the Single Supplier HISS option include:

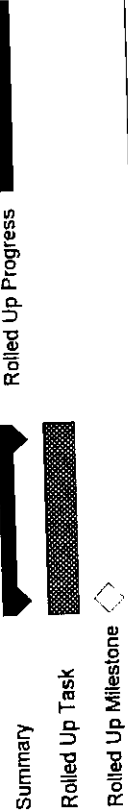
- a requirement for an increased number of terminals throughout the Trust for access to the HISS. This is due to the significant role of the HISS in the day to day activities of staff and the need to ensure timely access;
- provision of access from community bases to improve hospital to community links and to provide functionality in addition to that provided by the Trust's community systems;
- significant change for staff in the way they undertake their work. This will require effective change management within the Trust and significant training of staff in the use of the HISS;
- assessment of the role of existing clinical audit/specialty systems on a case by case basis to determine the best way forward from the options of:
 - retention of existing systems on a stand-alone basis for detailed specialty specific clinical audit/research;
 - retention of existing systems with download of key demographic and other core clinical data from the HISS in order to improve data entry efficiency and data consistency;
 - replacement of existing functionality by the HISS.

3.5 Timescales

Two gantt charts are shown overleaf, setting out the broad timescales for the three main shortlisted options. These timescales may be subject to some slippage in the start date depending on procurement timescales and the final programme will require to be negotiated with the preferred supplier.

1996 1997 1998 1999

ID	Task Name	Start	Finish
20	HISS OPTION	31 Jan '96	31 Jul '98
21	Procurement	31 Jan '96	30 Apr '96
22	Patient Admin. & Contracts	01 May '96	29 Apr '97
23	Maternity Inc. U/S	31 Oct '96	31 Oct '97
24	Radiology	03 Feb '97	31 Oct '97
25	Nursing Management	03 Feb '97	31 Oct '97
26	Theatre Management	03 Feb '97	31 Oct '97
27	Order/Results Communication	31 Jul '97	31 Jul '98
28	Pharmacy	03 Nov '97	31 Jul '98
29	Paramedical Specialties	03 Nov '97	31 Jul '98
30	Personnel and Payroll	03 Nov '97	31 Jul '98
31	Finance	03 Nov '97	31 Jul '98
32	Casemix/Audit/EIS	29 Apr '97	31 Jul '98



Task

Progress

Milestone

Summary

Rolled Up Task

Rolled Up Milestone

Rolled Up Progress

Project:
Date: 09 Nov '95

4. BENEFITS ANALYSIS

4.1 Strategic and Organisational Benefits

Information management is now recognised within the NHS in Scotland as a key priority, not only to support the day to day delivery of patient care, but also to support the organisational, cultural, and financial management changes that are taking place. Information systems development is required within the Trust to deliver the information management capabilities required to operate successfully within the NHS in Scotland. Significant benefits and opportunities will arise from information systems development, which are not quantifiable, but which have great value in the context of other developments the Trust wishes to take forward. These are discussed further below.

4.1.1 Relationships With Purchasers

Relationships with purchasers are based around the marketing and contracting processes. Both of these areas are becoming more complex and critical due to:

- increasing sophistication and precision in the specification of required healthcare services, associated with demand for improved quality and value for money;
- increasing numbers of purchasers as GP Fundholder numbers increase and traditional referral patterns are changed;
- competition between providers to retain existing services and gain new services.

All of the above are of particular relevance to the Yorkhill Trust due to its location within a well served major population centre, its role as a specialist paediatric and maternity services provider, and the financial pressures on its major purchaser, Greater Glasgow Health Board, arising from weighted capitation based funding.

Improved information management will enhance the Trust's abilities to respond to the demands of purchasers through:

- supporting the management of increased numbers of more tightly specified contracts, including ECRs and patient tracking;
- improving the analysis of costs, allowing the Trust to more accurately determine prices and justify them to purchasers;
- improving the capability to set and monitor service quality criteria.

The combination of the above will strengthen the Trust's position in marketing its services to purchasers, both to safeguard current services and to attract new services and developments.

4.1.2 Organisational Development

The Clinical Management Programme within the Trust has encompassed significant organisational development as roles and responsibilities are redefined and new organisational structures and relationships are put in place. Strong information management is required to underpin this process, in particular relating to:

- resource management;
- clinical audit;
- performance assessment.

These will be supported by the proposed information systems development and will assist the Trust to build on the changes that have been put in place.

In addition, however, the Trust is aware of the opportunity to take a more fundamental look at the current processes and procedures involved in the delivery of care, and to seek to develop alternatives which can improve quality, effectiveness and efficiency. Implementation of new information systems will stimulate such change, and the operational, communication and information analysis support they provide will facilitate the introduction of new roles, processes and procedures.

4.2 Qualitative Benefits

The Trust's strategic aim is:

"to maintain and develop an efficient and effective integrated range of quality health care services".

Information systems have a key role in ensuring the effectiveness and quality of services through the provision of a range of qualitative benefits. Although qualitative (non-financial) benefits cannot be realistically quantified, they are of prime importance in justifying information systems investment and selecting a preferred option.

A workshop was held with senior Trust staff representing the majority of operational areas and staff groups. The workshop addressed the qualitative benefits that will be delivered by each of the options, and included a benefits weighting and options scoring exercise to determine relative benefit scores for each option. A summary of the results of this exercise are shown on the following page with more detail provided in appendix I.

Overall the conclusions of the workshop were that:

- the Do Minimum option (option 1) performs very poorly in terms of delivering qualitative benefits of relevance to the Trust. In view of this, it was judged as being entirely unsatisfactory in terms of meeting the Trust's requirements;
- the Incremental HISS option (option 2) performs significantly better than the Do Minimum option. However, it was judged as performing poorly in the area of providing operational support for staff and in assisting the actual delivery of clinical care for patients;

- the Single Supplier HISS option (option 3) performs well in relation to all areas of qualitative benefits. It was judged as best likely to meet the Trust's requirements.

4.3 Time Saving Benefits

There are two types of time saving benefits in relation to implementation of information systems and subsequent operational arrangements. These are:

- cash releasing benefits, where it is anticipated that, subject to organisational policy decisions, cash can be saved as a result of reducing staff numbers;
- time saving benefits, where the nature of the saving involved comprises multiple small time savings distributed among other activities. In this case it is anticipated that staff will have additional time which can be used for useful activities and allow existing work to be undertaken to a higher quality, but it is unlikely that actual cash savings can be realised through staff reductions.

In assessing information systems investment, the Trust takes the view that administrative and clerical tasks should be automated and professional staff should be supported in delivering care. However, the role of information systems is not to replace the professional experience and skill of staff in caring for patients.

An assessment of potential cash releasing benefits is shown in appendix II. The anticipated savings for each option are shown in table 4.1 below.

Table 4.1 - Estimated Cash Releasing Savings

	1996/97	1997/98	1998/99....
Do Minimum (option 1)	£13,575	£29,295	£29,295
Incremental HISS (option 2)	£13,575	£29,295	£37,170
Single Supplier HISS (options 3)	£53,870	£60,520	£98,315

Significant additional time savings are anticipated in relation to medical and nursing staff, primarily arising from the increased speed of access to patient based information and the introduction of order/communication facilities. These time savings are not regarded as having the potential to allow staff reductions and actual cash savings. The anticipated time savings are also shown in appendix II together with estimated nominal cash values. In the case of the Single Supplier HISS, these nominal cash values amount to some £167k in relation to medical staff. Estimates in relation to nursing staff are also expected to be significant, but have not been quantified in cash terms as there is variation in practice and procedures. These will, however, require to be further quantified when a specific system is selected.

It is also anticipated that there will be a range of other time saving benefits in relation to other groups of staff arising from speed of access to patient information and order/communication facilities. These are largely unquantifiable, but will include, in particular, paramedical staff.

4.4 Other Benefits

There are a range of other potential benefits which are largely unquantifiable at this stage, but which will be included in benefits realisation activities. These include:

- reductions in length of stay. The Royal Hospital for Sick Children already has a relatively short length of stay at 4.2 days and it is anticipated that further reductions will be largely driven by changes in patterns of care. However, information system development will support this process and order/communications facilities, in particular, will assist with efficient scheduling of activity while the patient is in hospital and avoiding delays in discharge due to having to await key items of patient information;
- reduction in use of pre-printed stationery, for example for test requesting, although this is expected to be largely offset by greatly increased usage of computer stationery;
- reduced duplication of investigations, although this is believed to be small at present, in particular, due to the difficulty of taking samples from children and the desire to avoid causing distress;
- improved stock management through the use of order/communication facilities to speed up the ordering process between wards/clinic areas and the stores organisation.

QUALITATIVE BENEFITS SCORING

Qualitative Benefit	Benefit Weights			Adjusted Weight	Score			Weighted Score		
	High	Med.	Low		Do Minimum	Incremental HISS	Single Supplier HISS	Do Minimum	Incremental HISS	Single Supplier HISS
Clinical Benefits										
Improved Clinical Decision Making	9	2	0	2.82	0	2	3	0	18	24
Improved Support for Clinical Audit and Research	3	7	1	2.18	0	2	2	0	12	12
Service Delivery Benefits										
Increased Flexibility of Service Delivery Location	3	0	7	1.60	0	2	3	0	9	14
Improved Support for Integration of Hospital and Community Care	6	4	0	2.60	0	2	3	0	15	22
More Responsive Service to Patients	6	5	1	2.42	0	1	3	0	7	21
More Responsive Service to General Practitioners	4	6	2	2.17	1	2	3	6	12	19
Communication Benefits										
Improved Hospital Inter-Departmental Communication	9	2	1	2.67	1	2	3	8	15	23
Improved Hospital to Community Communication	5	7	0	2.42	1	2	3	7	14	21
Staffing Benefits										
Promotion of Inter-Disciplinary Co-Operation and Joint Working	4	6	2	2.17	1	1	2	6	6	12
More Appropriate Use of Clinical Staff Time	8	3	1	2.58	1	1	3	7	7	22
Greater Support for the Professional Development of Staff	1	3	8	1.42	0	0	1	0	0	4
Greater Work Satisfaction for Staff	1	5	6	1.58	0	0	1	0	0	5
Information Benefits										
Improved Data Ownership and Accuracy	4	7	1	2.25	0	1	2	0	6	13
More Management Information for Planning, Management and Contracting	8	4	0	2.67	1	3	3	8	23	23
Marketing Benefits										
Improved Environmental Image - Efficiency and Quality	2	2	8	1.50	1	1	2	4	4	9
Improved Ability to respond to Purchasers' Information Requirements	3	7	2	2.08	1	3	3	6	18	18
Totals				35.12				52	165	260

NOTES:

- Benefit weights were determined by workshop attendees individually allocating benefits into categories of high (3 points), medium (2 points) or low (1 point) importance. A weight was then calculated for each benefit based on calculating the average number of points scored. These were then scaled to total 100 to give adjusted weights.
- Each option was scored, through discussions within the workshop, as to the extent to which it would deliver each benefit. The possible scores were:
 0 - Practically no potential to deliver benefit.
 1 - Low contribution towards delivering benefit.
 2 - Medium contribution towards delivering benefit.
 3 - High contribution towards delivering benefit.
- Relative weighted scores were calculated for each option by multiplying each option's scores by the adjusted benefit weights and totalling the results.

5. COST ANALYSIS

The capital and revenue costs over an eight year period associated with each of the three main options are shown in the tables below.

Option	Capital Cost (£000s)	Revenue Cost (£000s)	Total Cost (£000s)	Total Cost inc. Cash Releasing Benefits (£000s)
Do Minimum (option 1)	593	4,036	4,629	4,440
Incremental HISS (option 2)	1,635	4,944	6,579	6,350
Single Supplier HISS (option 3)	2,970	3,333	6,303	5,697

Detailed cost breakdowns for each option are presented in appendix III.

Key points arising from the cost assessment are:

- the Do Minimum option (option 1) involves less cost than the other options, although this is not dramatically less over an eight year period;
- the Incremental HISS (option 2) and the Single Supplier HISS (option 3) options are broadly similar in cost over an eight year time period;
- the Single Supplier HISS option (option 3) involves significantly higher capital investment, particularly in the first two years.

The key conclusion from the cost analysis is that the in-house Single Supplier HISS option (option 3) involves marginally less cost than the incremental HISS option over an eight year time period.

However, as shown in appendix III, the major factor affecting the relative cost projections are the high costs currently incurred by the Trust in payments to CSC, which will continue to be incurred under the Do Minimum (option 1) and Incremental HISS (option 2) options. The Single Supplier HISS option (option 3) is projected to make substantial savings in these costs in later years which result in the cost advantage over the Incremental HISS option.

6. ECONOMIC AND FINANCIAL APPRAISAL

A summary of the detailed economic and financial appraisals, which are shown in detail in appendix III, is presented overleaf and is discussed further below.

6.1 Economic Appraisal

A summary of the economic appraisal, which takes account of capital and revenue costs and estimated cash releasing benefits, is shown below.

	Total Cash Flow £000s	DCF Present Cost £000s
Do Minimum (option 1)	4,440	3,743
Incremental HISS (option 2)	6,350	5,366
Single Supplier HISS (option 3)	5,697	5,203

The results show that, in terms of total cash flow and discounted cash flow, the Do Minimum option (option 1) is the least cost option. The Single Supplier HISS option (option 3) is less cost than the Incremental HISS (option 2) in total cash flow, and is marginally lower cost under discounted cash flow.

6.2 Financial Appraisal

The table below shows the total financial costs of each option, which takes account of capital charges implications.

	Total Financial Cost £000s
Do Minimum (option 1)	4,500
Incremental HISS (option 2)	6,295
Single Supplier HISS (option 3)	5,898

YORKHILL NHS TRUST - OPTION APPRAISAL OF INFORMATION SYSTEMS

SUMMARY OF OPTIONS

09/11/95

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	
	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's

OPTION 1 - DO MINIMUM									
Economic (DCF) Appraisal									
Capital costs	335	188	71						593
Revenue costs (exc cap charges)	483	512	455	479	479	479	479	479	3,847
Total Cash Flow	818	700	525	479	479	479	479	479	4,440
									3,743
Net Present Cost using discount rate =	6.00%								0
Financial Appraisal									
Revenue Costs	483	512	455	479	479	479	479	479	3,847
Capital Charges	30	76	97	99	94	90	86	81	653
Total Financial Costs	513	589	551	578	574	569	565	561	4,500

OPTION 2 - INCREMENTAL HISS									
Economic (DCF) Appraisal									
Capital costs	335	423	557	320					1,635
Revenue costs (exc cap charges)	483	654	610	588	595	595	595	595	4,716
Total Cash Flow	818	1,077	1,168	908	595	595	595	595	6,350
									5,366
Net Present Cost using discount rate =	6.00%								
Financial Appraisal									
Revenue Costs	483	654	610	588	595	595	595	595	4,716
Capital Charges	30	98	183	254	272	260	248	235	1,580
Total Financial Costs	513	752	793	842	867	855	843	830	6,295

OPTION 3 - HISS									
Economic (DCF) Appraisal									
Capital costs	1,053	1,441	476						2,970
Revenue costs (exc cap charges)	555	626	443	221	221	221	221	221	2,727
Total Cash Flow	1,607	2,067	920	221	221	221	221	221	5,697
									5,203
Net Present Cost using discount rate =	6.00%								
Financial Appraisal									
Revenue Costs	555	626	443	221	221	221	221	221	2,727
Capital Charges	95	317	478	501	478	456	434	411	3,171
Total Financial Costs	650	944	921	721	699	677	654	632	5,898

Comparison of the financial costs shows the Do Minimum option (option 1) as the least cost option with relatively little difference between the Incremental HISS (option 2) and the Single Supplier HISS (option 3) options.

An analysis is shown overleaf of the impact of each option on the price of the Trust's services to purchasers, taking the Do Minimum option as a baseline. This shows that:

- the Incremental HISS (option 2) involves an increase in prices to purchasers, in comparison with the Do Minimum option, in the region of 0.4 - 0.5% from 1998/99 onwards;
- the Single Supplier HISS option (option 3) involves an increase in the region of 0.63% in 1998/99, but thereafter the prices to purchasers reduce below those for the Incremental HISS option.

YORKHILL NHS TRUST - OPTION APPRAISAL OF INFORMATION SYSTEMS
ANALYSIS OF IMPACT OF OPTIONS ON PRICES TO PURCHASERS
09/11/95

Assumptions

The financial costs associated with option 1 (do minimum) are currently included in Trust Income.
 Trust Income to 1998/99 as per Trust's Nov 95 proformas. Thereafter, income growth at 1.5% per annum has been assumed.

	1995/96 £000's	1996/97 £000's	1997/98 £000's	1998/99 £000's	1999/00 £000's	2000/01 £000's	2001/02 £000's	2002/03 £000's	2003/04 £000's	TOTAL £000's
	55,683	56,741	57,616	58,693	59,573	60,467	61,374	62,295	63,229	
TRUST INCOME (PER NOV 95 PROFORMAS)										

FINANCIAL COSTS OF OPTIONS

OPTION 1 - DO MINIMUM

Financial costs

	513	589	551	578	574	569	565	561	4,500
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OPTION 2 - INCREMENTAL HISS

Financial costs

Additional income required (i.e.cost increase versus option 1)

% Increase in existing prices

	513	752	793	842	867	855	843	830	6,295
		163	242	264	293	285	278	270	1,795
		0.28%	0.41%	0.44%	0.49%	0.47%	0.45%	0.43%	

OPTION 3 - HISS

Financial costs

Additional income required (i.e.cost increase versus option 1)

% Increase in existing prices

	650	944	921	721	699	677	654	632	5,898
	137	355	370	143	125	107	89	72	1,398
	0.24%	0.62%	0.63%	0.24%	0.21%	0.17%	0.14%	0.11%	

7. RISK AND UNCERTAINTY

7.1 Risk Assessment

The key risks for systems procurement and implementation and an assessment of their applicability to each option is shown at appendix IV.

The comparative risk scores for each option are:

- | | |
|-----------------------------------|-----|
| ■ Do Minimum (option 1) | 18; |
| ■ Incremental HISS (option 2) | 33; |
| ■ Single Supplier HISS (option 3) | 37. |

The essential conclusion from this is that the Do Minimum option carries significantly less risk than the other options, which are broadly comparable in the level of risk involved.

However, there are some key differences in the type of risk incurred by the Incremental HISS and Single Supplier HISS options.

The key risks associated with the Incremental HISS option relate to:

- the requirement to recruit and retain strong in-house IT skills to support the achievement of adequate systems integration;
- the risk of functional and technical difficulties leading to a failure to achieve adequate systems integration.

The key risks related to the Single Supplier HISS options (option 3) relate to:

- the requirement for strong overall project management;
- dependence upon a single key supplier;
- the requirement to achieve significant procedural and cultural change to make the best use of new systems.

The overall conclusion is that the scale of risk associated with both the Incremental HISS and Single Supplier HISS options is high, but acceptable if appropriate risk avoidance strategies are implemented.

7.2 Uncertainty

There are three key areas of uncertainty:

- proposed implementation timescales;
- cost estimates;
- cash releasing benefits estimates.

7.2.1 Implementation Timescales

The proposed implementation timescales for all three options are not particularly tight.

The proposed timescale for the Single Supplier HISS options is less demanding than that proposed by the test supplier, HBO. This is to allow for the degree of organisational change that will be required and to allow the Trust sufficient time to achieve the required change. A tighter timescale would make the option more financially attractive due to the earlier realisation of benefits. It is highly unlikely that the timescale would extend significantly beyond that proposed. Additional information will become available from the experience in South Ayrshire.

The timescales for the Incremental HISS option, which includes the Do Minimum option, is longer than that for the Single Supplier HISS options. This is to allow for the greater number of procurements that will be required and the bespoke development work required to achieve systems integration.

7.2.2 Cost Estimates

The estimates in relation to the single supplier HISS options can be regarded as relatively accurate as they are largely based on a detailed quote from HBO.

The costs for the Do Minimum and Incremental HISS options are more likely to be subject to variation, as they will involve a number of procurements with several suppliers tendering for the required systems. They will also be subject to selection decisions made by the Trust based on the then current offerings in the marketplace.

7.2.3 Cash Releasing Benefits

The estimates of cash releasing benefits are deliberately conservative in view of the difficulties of determining precise figures in this area. Clearly, further benefits planning will be part of the planning and implementation process. This is likely to result in the cash releasing estimates being revised upwards.

8. PREFERRED OPTION AND RECOMMENDATIONS

8.1 Selection of Preferred Option

The table below presents a summary of the analysis of the key aspects of the three options.

Assessment Factor	Do Minimum (option 1)	Incremental HISS (option 2)	Single Supplier HISS (option 3)
Capital cost over 8 years	£593k	£1,635k	£2,970k
Revenue cost over 8 years	£4,036k	£4,944k	£3,333k
Total cost over 8 years	£4,629k	£6,579k	£6,303k
Total cost over 8 years including cash releasing benefits.	£4,440	£6,350	£5,697
Discounted cash flow present cost, including cash releasing benefits (6% discount rate)	£3,743	£5,366	£5,203
Financial cost (revenue costs and capital charges, including cash releasing benefits)	£4,500	£6,295	£5,898
Anticipated cash releasing benefits (per annum after full implementation at current costs)	£29,295	£37,170	£98,315
Peak impact on prices and year of occurrence.	Baseline	0.49% 2000/01	0.63% 1998/99
Average impact on prices over 8 years.	Baseline	0.37%	0.29%
Comparative qualitative benefits score (derived in workshop with staff, higher score indicates greater anticipated qualitative benefits)	52	165	260
Comparative risk score (higher score indicates greater risk)	18	33	37
Target date for completion of implementation	April 1998	Oct 1999	July 1998

Essentially there are three main strategic options available to the Trust:

- Do Minimum (option 1);
- Incremental HISS (option 2);
- Single Supplier HISS (option 3).

Of the three main strategic options it can be concluded that:

- the Do Minimum option provides minimal benefit on its own, and is unlikely to meet the Trust's objectives in either a comprehensive or cost-effective manner;
- the Incremental HISS and Single Supplier HISS options are broadly similar in cost terms. However, the Single Supplier HISS option is likely to deliver significantly more qualitative benefit;
- there is substantial risk associated with both HISS options, however both appear manageable through appropriate risk avoidance strategies. The risk with the Incremental HISS relates to the technical aspects of ensuring adequate systems integration. The Single Supplier HISS option has risk associated with supplier dependence and the need for cultural and procedural change;
- the Single Supplier HISS option is significantly less flexible, in comparison with the Incremental HISS option, once a contractual commitment has been made.

Based on the above it has been concluded that the Single Supplier HISS option will deliver the best support for the Trust, provided the key risks are well managed, and it is, therefore, the preferred strategic way forward.

In summary, therefore, the preferred option for the Trust is a single supplier HISS (option 3).

8.2 Post Implementation Review and Monitoring

The Trust recognises that implementation of a computer system on the scale of a HISS has many implications in terms of staff roles and cultural and procedural change. In addition, benefits will not be achieved per se, but will require active measures for their identification and realisation.

In view of this the Trust proposes that:

- further work will be undertaken on benefits identification as part of the selection of a preferred HISS;

- benefits realisation planning will be a core activity within implementation, including allocation of responsibility for benefits realisation and monitoring to specific named individuals;
- benefits work will be overseen during implementation and subsequent operation of the HISS by an appointed benefits realisation manager.

In addition, the Trust will establish project management and financial monitoring arrangements, based on PRINCE, that will support not only effective system implementation, but also post implementation assessment of financial and operational outcomes against original objectives and plans.

9. PRIVATE FINANCE

9.1 Initial Considerations

Consideration was given to options for attracting private finance to fund the Trust's preferred option, a single supplier HISS. It was concluded that in broad terms two types of schemes might be possible:

- the private sector supplier leases a suitable system to the Trust, with the system being managed and operated by the Trust;
- the private sector supplies a computing service to the Trust whereby a system is made available and the private sector supplier operates and manages it under a facilities management agreement with the Trust.

It was felt that the latter of the above appeared to be the more attractive in that it:

- offers the private sector supplier the option to provide additional services over and above the actual system and is therefore more likely to attract private sector interest;
- will allow transfer of risk to the private sector through the arrangements under which payments are made for use of the system;
- will allow the incorporation of performance incentives, whilst capping the Trust's financial exposure;
- may allow the supplier to achieve economies of scale, which are unavailable to the Trust, resulting in a lower cost;
- will improve the Trust's access to information systems management and technical expertise.

It was recognised that there will be some risks to the Trust through a private finance arrangement. This will particularly be the case where comprehensive services are provided by a single supplier under circumstances where the Trust will not own the system and will only develop limited expertise in the management and operation of the system. HISS suppliers have been leaving the NHS market and there have been some recent takeovers/mergers in the industry. It was identified, therefore, that the Trust's position would require to be protected through the contractual agreements, including, in particular, escrow agreements in relation to the software.

Additionally, it was agreed that the payment mechanisms will be vital to achieving risk transfer and value for money. The key to this will be to link payment to factors related to the system and services provided, including:

- meeting the implementation timetable;
- delivery of software modules/developments;
- system availability;

- response to system problems/issues;
- system usage, measured through factors such as numbers of terminals in use or transaction volumes.

In view of the above, the Trust concluded that there would be advantages to be gained from the use of private finance and that the market should therefore be tested. It remained the case that any proposed system must meet the Trust's operational requirement. However, based on this proviso, it was agreed that private finance bids should be invited from suppliers.

9.2 The Procurement Process

The Trust's original programme for testing private finance, as submitted with the outline business case, is shown on the following page. Some slippage occurred with this programme, due to delays in initiating the process and prolongation of contract negotiations. However, the programme shows the overall format of the procurement process that was followed.

The Trust's initial OJEC advertisement is reproduced in appendix VIII. This secured a significant number of responses from which four suppliers were shortlisted.

The Trust prepared a comprehensive HISS Operational Requirement setting out the mandatory and desirable functional requirements, together with a range of technical, performance and service requirements. Preparation of the Operational Requirement, which is available separately for inspection, involved input from a wide range of staff within the Trust, including information services, clinical and management staff. The Trust also formed a multi-disciplinary HISS Procurement Project Team, which included medical and nursing representation in addition to information services staff.

The Operational Requirement was issued to the shortlisted suppliers, three of which submitted responses. These initial responses were evaluated against the Operational Requirement. In addition, a number of other activities were undertaken to inform the process, including:

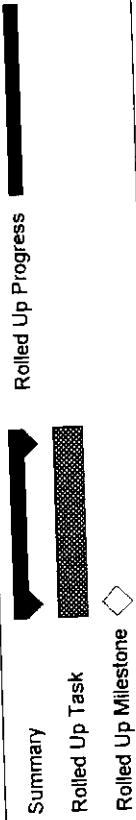
- demonstrations of their HISS by the suppliers, both for the Procurement Team and more generally for staff within the Trust;
- visits to HISS sites, both in the United Kingdom and in the United States, and detailed discussions with staff in those sites;
- visits to the Head Offices of the shortlisted suppliers to review the company, its current position and its future product development strategy.

Based on the above, two suppliers were selected with which to develop draft contracts. Detailed negotiations have been entered into with these suppliers to agree specific details of their proposed services to the Trust and to agree draft contracts. These will be completed in the near future following which the Trust will issue its Invitation to Tender seeking best and final offers. Final evaluation criteria for this process are shown in appendix IX.

Yorkhill NHS Trust - HISS PFI Programme

1

ID	Task Name	Start	Finish	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	Prepare OJEC Advert	12 Sep '95	18 Sep '95											
2	Place OJEC Advert	02 Oct '95	02 Oct '95		◆ 02/10									
3	Closing Date	10 Nov '95	10 Nov '95				◆ 10/11							
4	Prepare Questionnaire	06 Oct '95	27 Oct '95											
5	Issue Questionnaire	13 Nov '95	13 Nov '95				◆ 13/11							
6	Suppliers Response	13 Nov '95	24 Nov '95											
7	Evaluate Responses and Shortlist Suppliers	27 Nov '95	08 Dec '95											
8	Issue Operational Requirement	11 Dec '95	11 Dec '95					◆ 11/12						
9	Suppliers Response	11 Dec '95	22 Jan '96											
10	Evaluate Responses	22 Jan '96	05 Feb '96											
11	Shortlist Proposals/Prepare Draft Contract	05 Feb '96	12 Feb '96											
12	Issue Draft Contract	12 Feb '96	12 Feb '96											
13	Negotiate Contracts	12 Feb '96	29 Feb '96											
14	Sign-Off Draft Contract	29 Feb '96	04 Mar '96											
15	Invite Best and Final Offers	06 Mar '96	06 Mar '96											
16	Receive Tenders	29 Mar '96	29 Mar '96											
17	Evaluate Tenders	29 Mar '96	19 Apr '96											
18	Award Contract	26 Apr '96	26 Apr '96											



Summary

Rolled Up Task

Rolled Up Milestone

Project Date: 09 Nov '95

9.3 Public Sector Comparator

The Public Sector Comparator is based on option 3 developed as part of the outline business case. Option 3 was originally based on a detailed competitive bid by one of the shortlisted HISS suppliers, which resulted in a framework contract for the NHS in Scotland. This framework contract involves the provision of a HISS under a traditional purchase route involving public sector capital, and would also involve the Trust in the day to day operation and management of the system. The option 3 figures have been amended for the public sector comparator to take account of further information that has become available regarding the level of the Trust's ongoing requirement to contract with its current IS/IT supplier. The revised figures for the Public Sector Comparator are shown in appendix X.

9.4 Private Finance Option

The Private Finance Option involves the contractor in providing a managed HISS service to the Trust. The key elements of this service will be:

- ownership by the contractor of the central system hardware and operating system software;
- provision by the contractor of facilities management services to operate the HISS and the Trust's internal communications network;
- provision by the contractor of access for Trust staff to the application systems required to meet the Trust's specified requirements;
- provision by the contractor of implementation, core training and ongoing support services;
- arrangements for disaster recovery;
- provision of software updates and general upgrades, and bespoke software development to meet specific Trust requirements.

The agreed draft contracts for the provision of the managed HISS service are available separately for inspection. These have been subject to scrutiny and advice from the Central Legal Office. The projected costs of the Private Finance Option are shown in appendix XI.

9.5 Value for Money Appraisal

The projected costs for the Public Sector Comparator and the Private Finance Option are summarised below.

Option	Capital Cost (£000s)	Revenue Cost (£000s)	Total Cost (£000s)	Total Cost inc. Cash Releasing Benefits (£000s)	Discounted Cash Flow Present Cost (6% discount rate)
Public Sector Comparator (option 3)	2,549	2,812	5,361	4,756	4,367
Private Finance Option (option 4)	0	5,177	5,177	4,533	3,861

Based on the cost summary it is apparent that the Private Finance Option offers superior value for money. This is particularly the case for the economic assessment, as the Private Finance Option avoids a major upfront capital payment and spreads the payments to the contractor into later years.

9.6 Risk Transfer

The single supplier HISS approach was recognised by the Trust as carrying the highest risk of the three options that were considered during the outline business case. Of key importance, therefore, is the need to protect the Trust's position by transferring risk to the private sector contractor or providing for risk to be shared between the Trust and the contractor.

The draft contract has been framed in a format that transfers risk from the Trust to the private sector contractor. The mechanism for risk transfer and sharing is the linkage of payments to the contractor to performance. Charges payable under the contract will be divided into two streams:

- delivery stream;
- performance stream.

Delivery Stream

70% of the annual contract charges will be linked directly to the acceptance of application software services. These sums will be paid following acceptance by the Trust of each phase of the implementation.

Performance Stream

30% of the annual contract charges will be linked directly to the performance of the system and the contractor. This performance will be assessed quarterly and documented in an SLA Review Report. Payment will be made quarterly following acceptance of the report by the Trust. Payment will be made according to performance against the following payment drivers:

Type of Payment Driver	Payment Driver	% of Annual Contract Charges
System availability and performance.	Help desk response times.	3%
	System Availability.	4%
	System Response Times.	3%
System usage.	Usage by Trust staff.	10%
Costs of Change.	Statutory changes.	4%
	General upgrades.	3%
	Minor software changes.	3%
Total		30%

The above payment mechanisms which require appropriate performance from both the system and the contractor effect considerable risk transfer to the contractor and provide for significant financial penalties if the Trust's requirements are not met.

Schedule G of the draft contract, which sets out the detail of the financial arrangements, is reproduced in appendix XII. Appendix XIII reviews the key risks that were identified for the project, identifies whether each risk will apply to the Trust or the contractor, or will be shared, and gives details where appropriate of how the contract effects risk transfer. Figure 9.1 overleaf gives a diagrammatic representation of the Trust's assessment of the sharing of risk between the Trust and the contractor.

9.7 Funding and Affordability

The ability of the Trust to afford the Private Finance Option is based on:

- central IS/IT support funds;
- the current budget for IS/IT services, presently paid to CSC under a national NHS contract;
- financial savings realised when the HISS is operational.

The table below shows the present IS/IT costs of the Trust and compares these to the funding requirement for the Private Finance Option.

	1996/97 (000s)	1997/98 (000s)	1998/99 (000s)	1999/00 ... (000s)
<u>PFI OPTION COSTS</u>				
PFI Contract Costs	250	300	550	550
Trust Additional Costs:				
• IT Staffing	24	40		
• HISS Team	76	130	30	
• HISS Co-ordinators	15	45	10	
• Staff Replacement	10	110		
• Training	25	25		
Sub-Total	<u>150</u>	<u>350</u>	<u>40</u>	
TOTAL COSTS	400	650	590	550
<u>FUNDING</u>				
Non-recurrent support	400	400		
CSC Contract Savings		200	450	450
Benefits Realisation		50	100	100
TOTAL FUNDING	400	650	550*	550

* Any minor shortfall in future years will be made up from extra cost improvement savings generated from within the Trust.

RISK PROFILE

Contractor

Trust

*Project Management /
Staffing and
Implementation*

Technical

System Performance

Organisational Change

Supplier Stability

Finance

Residual Value

The above projection demonstrates the Trust's ability to fund the Private Finance Option. Initial non-recurrent support is required. However, in the longer term the Trust can fund the HISS from existing IS/IT expenditure and savings generated. Based on these projections, there are no price implications for purchasers from this development.

9.8 Preferred Solution

The above analysis has demonstrated that the Private Finance Option:

- secures a wide range of services for the Trust in addition to HISS functionality;
- provides improved value for money;
- achieves the transfer of significant risk to the private sector.

Based on this, the Private Finance Option is superior to the alternative public sector capital funded option, and is, therefore, the Trust's preferred information systems solution.

10. PROJECT MANAGEMENT AND CONTROL PLANS

10.1 Contracting Strategy

Schedule G, reproduced in appendix XII, sets out the financial elements of the contract and addresses the key aspects of the payment structures and their relationship to outputs and benefits. It also provides details of incentives, key performance and availability criteria and change control arrangements.

Ownership of the hardware and software assets will remain with the contractor. However, the source code and coded interfaces will be subject to an escrow agreement.

The contractor will be able to exploit alternative revenue streams. However, any financial benefits from this will be shared on a fair and equitable basis with the Trust.

There are no TUPE implications.

10.2 Benefits Realisation

The Trust's anticipated benefits from implementation of a HISS are shown in appendix II. This includes both cash releasing benefits and time saving benefits, together with anticipated dates at which the benefits will be realised. These projections will form the basis of the Trust's benefits realisation programme. However, it is also anticipated that there will be additional benefits that will be identified as staff become increasingly familiar with the system during the course of implementation.

Benefits realisation activities within the Trust will be based on the following principles:

- monitoring of benefits realisation will rest with the Project Board and reporting on benefits realisation progress will be a standing item on the Project Board's agenda;
- responsibility for the realisation of benefits identified in appendix II will rest with the relevant clinical directors who will provide leadership for the benefits realisation effort within the Trust;
- benefits realisation will be reported on in the quarterly SLA Review Report prepared in conjunction with the contractor;
- individual benefits realisation reports will be prepared for each of the modules of the HISS. This will include both pre-implementation data gathering of key performance factors and post-implementation benefits assessment some 1-3 months following completion of implementation. A key part of this will be the inclusion of staff and patient questionnaires to address the effects of improved information flows.

Finally, the Trust recognises that benefits realisation is dependent on the active involvement and participation of staff. To achieve this the Trust is continuing to organise a series of HISS related events for the dissemination of information. This includes internal workshops on benefits, supplier demonstrations and presentations by visiting speakers with HISS experience.

10.3 Post-Project Evaluation

The Trust will adopt a comprehensive project organisation and management structure involving senior directors and staff. The proposed project organisation is shown in figure 10.1 overleaf. It will be within this overall structure that the Trust will undertake post-project evaluation. Post-project evaluation will be the responsibility of the Project Assurance Team with the final report being signed-off by the Project Board.

Post-project evaluation will be based on the project framework approach. The Trust's proposed project framework is shown in appendix XIV.

HISS STRUCTURE

Trust Management Group

G Marr CEO (Project Sponsor)
A Miller Medical Director
A Fyfe Clinical Director
T Turner Clinical Director

*Quarterly
review with
Project Board
and PM Group*

HISS Project Board

M Pye Chairman, Finance
B Townsend Director of Nursing
J Cameron Director of HR
C Best Project Doctor
K Robertson Project Doctor
P Hunter Project Nurse
B Gracie IT Manager
J Beattie Paediatrician
K Hanretty O&G
J Ross Director, Child Health
P Raine Paediatric Surgeon
R Logan Clinical Director, Labs

*Agenda
minuted
monthly*

**Supplier
Project
Director**

Supplier Team
Project Manager
HISS Manager
Comms

Project Management Team

B Gracie Chairman, IT Dept
C Best Project Doctor
K Robertson Project Doctor
P Hunter Project Nurse
V Logan Medical Records
OCS Person Comms
P Finch Project Support

*Agenda
minuted
weekly*

Subprojects, 14 in total

APPENDIX I
QUALITATIVE BENEFITS ANALYSIS

APPENDIX I - QUALITATIVE BENEFITS ANALYSIS

The following table identifies potential qualitative benefits and describes in outline how each option may contribute towards delivering each benefit.

The HISS option stands alone in this assessment as does the Do Minimum option. The Incremental HISS option is a further development of the Do Minimum option. The column for the Incremental HISS option, therefore, identifies the contribution to achieving benefits in addition to those identified for the Do Minimum option.

Benefit Area	HISS Option	Do Minimum Option	Incremental HISS Option
Clinical Benefits Improved clinical decision making.	<p>Significant support will be provided for the clinical decision making process through:</p> <ul style="list-style-type: none"> ■ easier and quicker access to patient information through order/communications facilities; ■ provision of system based guidance during the actual care of patients on standard care, treatment protocols and routine order sets; ■ ensuring all patient related communication, such as requests, include comprehensive and legible patient demographic, administrative and clinical information; ■ provision of system based advice in areas such as drug prescribing, local antibiotic sensitivities, referral guidelines, abnormal results; ■ support for collaborative, multi professional care planning. 	<p>There will be little additional information systems support to the clinical decision making process.</p>	<p>There will be some support to the clinical decision making process through:</p> <ul style="list-style-type: none"> ■ support for nurse care planning; ■ significant retrospective information on adherence to clinical and procedural protocols. <p>However, operational access to patient information will continue to be fragmented with multiple source systems.</p>

Benefit Area	HISS Option	Do Minimum Option	Incremental HISS Option
Improved support for clinical audit and research.	<p>There will be comprehensive support for clinical audit and research as all operational data recorded on the HISS will be available for subsequent analysis. In particular it will support:</p> <ul style="list-style-type: none"> ■ data linkage, through use of a single identifier, to support analysis; ■ reporting on adherence to clinical and procedural protocols; ■ reporting on outcome factors, such as post-operative infection, readmission rates, length of follow-up. 	<p>There will be continued development of local specialty audit systems. Clearly, however, this will continue to be a fragmented approach that will give rise to a continued major data entry burden and probable incomplete/ non comprehensive data in some cases.</p>	<p>There will be significant support for retrospective clinical audit and research as subsets of data will be extracted from operational systems and stored in the CRIS. Data will not be as comprehensive as with a HISS, however, and there may be data linkage issues associated with having multiple feeder systems.</p>
<p><u>Service Delivery Benefits</u></p> <p>Increased flexibility of service delivery, in particular to support transfer of services to the community.</p>	<p>A HISS implementation will include community premises, thereby supporting flexibility of service delivery location through:</p> <ul style="list-style-type: none"> ■ providing access to patient information from premises throughout the Trust; ■ specifically improving access from the community to information originating in hospital, to support community based follow-up; ■ improving information on planned utilisation of clinics and treatment facilities throughout the Trust to allow identification of vacant slots/appointments; ■ improving the Trust's ability to assess and monitor the outcome of changing patterns of care. 	<p>Improved access to patient administration and laboratory and radiology systems will assist flexibility of service location. However there will continue to be a lack of easy access to comprehensive operational clinical information.</p>	<p>Some improved access to patient clinical information may be available from the CRIS. However, this will be retrospective which will, to some extent, diminish its usefulness.</p>

Benefit Area	HISS Option	Do Minimum Option	Incremental HISS Option
Improved support for integration of community and hospital care.	<p>A HISS will provide a shared core operational system for both hospital and community supporting electronic data interchange and sharing of information.</p> <p>A HISS will also provide support for development of shared hospital and community care plans.</p>	<p>There will be no additional support for integration of care between the hospital and community.</p>	<p>There will be some support and encouragement for integration of care through use of the CRIS to share clinical audit data.</p>
More responsive service to patients.	<p>A HISS will provide:</p> <ul style="list-style-type: none"> ■ widespread and quick access to resource booking systems, such as outpatients, to schedule patients quickly and conveniently (eg. grouping of multiple appointments); ■ improved access to information to enable quick and accurate responses to queries; ■ improved access to information to ensure maximum use can be made of patient contacts (outpatient appointments, ward rounds etc). 	<p>There will be improvements available in:</p> <ul style="list-style-type: none"> ■ administration of, and access to information about, outpatient appointments; ■ access to laboratory and radiology data to support use of patient contacts. 	<p>Little additional benefit in the responsiveness of operational services to patients.</p>
More responsive service to general practitioners.	<p>A HISS will support:</p> <ul style="list-style-type: none"> ■ quicker access to booking systems/ patient information to respond to GP queries and requests; ■ improved clinic office facilities to improve the quality and presentation of information sent out to GPs and the speed with which it is sent out. 	<p>There will be improved support for the provision of outpatients information to GPs.</p>	<p>CRIS and associated clinical office facilities will provide improvements in the quality and presentation of information sent out to GPs and the speed with which it is sent out</p>

Benefit Area	HISS Option	Do Minimum Option	Incremental HISS Option
Communication Benefits Quicker and easier hospital inter-departmental communications.	There will be much improved information flows between departments based on: <ul style="list-style-type: none"> ■ order/ communications facilities; ■ use of e-Mail; ■ the ability for staff to access other department's information, subject to confidentiality requirements and an effective information sharing policy. 	There will be little additional support for inter-departmental communications.	e-Mail facilities should support communications, however formal order/ communications will be difficult to implement in a comprehensive approach.
Quicker and easier hospital to community communications.	Information flows will be supported from community bases to the hospitals based on order/ communications and e-Mail facilities.	There will be little additional support for hospital to community communications.	e-Mail facilities should be provided as part of providing community access to key hospital based systems.
Staffing Benefits Promotion of inter-disciplinary co-operation and joint working.	The operational nature of the HISS should support inter-disciplinary joint working through supporting: <ul style="list-style-type: none"> ■ multi-disciplinary care planning; ■ information sharing; ■ multi-disciplinary clinical audit. 	There will be little effect upon inter-disciplinary co-operation and joint working.	Use of the CRIS will support the development of multi-disciplinary care planning and protocol development and subsequent multi-disciplinary audit.
Greater support for the professional development of staff.	There will be some support for staff development through: <ul style="list-style-type: none"> ■ system based guidance and support for staff; ■ improved monitoring of staff skills, experience and progress towards professional qualifications; ■ greatly increased exposure to the application of information technology in healthcare; ■ increased support for clinical audit and research work. 	There will be little support for the professional development of staff.	There will be significantly increased exposure of staff to the use of information technology in health care. Additional system based support and guidance will be available in the nursing area. There will be significantly increased support for clinical audit and research work.

Benefit Area	HISS Option	Do Minimum Option	Incremental HISS Option
<p>Greater work satisfaction for staff.</p>	<p>There will be some changes in the workplace with the potential to improve work satisfaction, including:</p> <ul style="list-style-type: none"> ■ a more open, information sharing environment; ■ improved access to information, enhancing the ability to respond to patients and other members of staff; ■ reduced frustration arising from difficulties in accessing information; ■ a reduction in tedious paper based administrative tasks. 	<p>There will be some improvements in administrative systems, potentially reducing frustration for staff.</p>	<p>There will be significantly increased operational support in a number of areas which will automate some existing manual tasks and improve information access.</p>
<p>Information Benefits Improved data ownership and accuracy.</p>	<p>Operation of a HISS will result in the dissemination of data recording to frontline staff in contact with patients and core activity. Data will, therefore, be captured at source and there will be greater ownership as staff using data will also have had a role in its capture.</p> <p>The integral nature of the HISS to operational activity will lead to an increased examination and evaluation of data by all staff groups.</p>	<p>There will be some dissemination of use of the PAS. However information system usage will remain largely centralised/departmental based as at present.</p>	<p>Operation of the CRIS will increase the examination and sharing of data, and there will be some increase in the capture of data by frontline staff.</p>
<p>More management information for planning and contracting.</p>	<p>A HISS will result in significantly more information for management purposes in practically all operational areas, with improvements in terms of comprehensiveness, timeliness and accuracy.</p>	<p>There will be improved management information in the outpatients area, the flexibility of financial reporting will be improved and personnel information will also be improved.</p>	<p>Significant additional management information will be available from the CRIS to assist case-mix analysis, episode costing and to support the contracting process.</p>

Benefit Area	HISS Option	Do Minimum Option	Incremental HISS Option
Marketing Benefits Improved environmental image indicating both quality and efficient services.	A HISS will result in the use of modern, high technology information systems throughout the Trust, with staff able to respond quickly to patient requests and queries. The HISS will result in a significant reduction in paper based systems and ledgers at the points of contact with patients.	There will be some increases in the use of computerised systems at the point of contact with patients, and improvements in the speed with which requests and queries relating to administrative matters can be addressed.	There will be some additional uses of computerised systems at the point of contact with patients.
Improved ability to respond to purchasers' information requirements.	The HISS will significantly improve the Trust's access to information to address purchasers' contracting information requirements relating to both activity and issues of contract costing. The scope of clinical information held in a HISS will also significantly improve the Trust's capability to monitor and report on purchasers' quality criteria.	There will be some improvements to contracting information and finance and manpower information which will support the Trust in meeting purchasers' information requirements.	The scope of clinical information held in a CRIS will significantly improve the Trust's capability to monitor and report on clinical activity and contracting activity and performance in relation to quality criteria.

APPENDIX II
CASH RELEASING AND TIME SAVING BENEFITS

SYSTEMS DEVELOPMENT - CASH RELEASING BENEFITS

Department/ Staff Group	System Facility / Benefit	Savings Quantification Assumptions (HSS Solution)	HSS Saving/ Target Realisation Date	Inc. HSS Saving/ Target Realisation Date	Do Minimum Saving/ Target Realisation Date
Medical Records	Casenote tracking supported through barcoding of patient notes, and system based recording of casenote location, thereby providing a Trust wide facility for tracking casenotes and reducing clerical effort required to locate casenotes	1 WTE at A&C Grade 3.	£9,500 (1997/98)	£4,750 (1997/98)	£4,750 (1997/98)
	Automated provision of accurate bedstate information, based on immediate entry of discharge details at ward level, eliminating current requirement for daily production of bedstate reports and subsequent validation against actual ward status.	3.5 hours per day, 0.7 WTE at A&C Grade 3.	£6,650 (1997/98)	£3,325 (1997/98)	£3,325 (1997/98)
	Automated allocation of patients to purchaser, including GP Fundholders and ECRs, associated with patient tracking facilities, reducing requirement for maintenance of manual patient tracking systems.	1 WTE at A&C Grade 4.	£11,000 (1997/98)	n/a	n/a
	Avoidance of requirement to employ additional clerical support for contracting and patient tracking duties, as numbers and complexity of contracts increases in association with additional GP Fundholders and outpatients services contracting.	1 WTE at A&C Grade 4.	£11,000 (1997/98)	£5,500 (1997/98)	£5,500 (1997/98)
	Multiple facilities to support outpatients clinic administration including: <ul style="list-style-type: none"> widespread system access to make outpatient appointments, and to address queries, reducing the burden on outpatients staff; automated production of appointment and GP letters; automated production of outpatients documentation, including pulling lists, clinic lists and transport lists; support for rescheduling of cancelled/ rearranged clinics. 	1 WTE at A&C Grade 3.	£9,500 (1997/98)	£9,500 (1998/99)	£9,500 (1998/99)

Department/ Staff Group	System Facility / Benefit	Savings Quantification Assumptions (HISS Solution)	HISS Saving/ Target Realisation Date	Inc. HISS Saving/ Target Realisation Date	Do Minimum Saving/ Target Realisation Date
Outpatients	Automated production of waiting time information in relation to outpatient appointments, thereby reducing manual collation.	20 hours per month, 0.15 WTE at Nursing Grade A.	£1,200 (1997/98)	£1,200 (1998/99)	£1,200 (1998/99)
	Automated production of outpatient activity statistics and other ad hoc statistics and reports.	3 days per month, 0.16 WTE at Nursing Grade G.	£2,900 (1997/98)	£2,900 (1998/99)	£2,900 (1998/99)
		2 days per month, 0.1 WTE at A&C Grade 7.	£2,120 (1997/98)	£2,120 (1998/99)	£2,120 (1998/99)
Laboratories	Automated entry of patient and test request data to the laboratory systems via an electronic interface from the HISS order /communications module, thereby reducing the data entry task for laboratory staff.	180,000 samples at 0.5 minute saving per sample, 1 WTE at MLSO 1.	£11,700 (1999/00)	n/a	n/a
	Multiple facilities to reduce laboratory staff time required to address queries including: <ul style="list-style-type: none"> provision of legible, accurate and comprehensive information in test requests; improved access for laboratory staff to patient demographic, administration and clinical information; access for clinical staff to laboratory results reducing telephone queries to the laboratories; automated reporting of test results at ward level eliminating the requirement for the laboratories to send out hard copy reports. 	1 WTE at MLSO 2.	£12,170 (1999/00)	n/a	n/a

Department/ Staff Group	System Facility / Benefit	Savings Quantification Assumptions (HSS Solution)	HSS Saving/ Target Realisation Date	Inc. HISS Saving/ Target Realisation Date	Do Minimum Saving/ Target Realisation Date
Diagnostic Imaging	Automated entry of patient and examination request data to the radiology system, via an electronic interface from the HISS order /communications module, thereby reducing the data entry task for radiology staff.	30,000 examinations at 0.5 minutes saving, 0.15 WTE at A&C Grade 3.	£1,425 (1999/00)	n/a	n/a
	Access for clinical staff to results via the HISS, thereby reducing telephone queries to the department for examination results and the requirement to send out hard copy reports	0.5 hours per day, 0.1 WTE at A&C Grade 3.	£950 (1999/00)	n/a	n/a
	Improved examination scheduling, particularly during early part of the working day, through earlier availability of examination requests within the department at the start of the day, allowing workload to be spread evenly and peaks to be avoided.	0.5 WTE at Radiographer Grade.	£1,300 (1999/00)	n/a	n/a
Theatres	Integration of the Theatre System within the HISS improving access to patient demographic and clinical information and reducing the requirement for data entry, including entry of data recorded manually in Theatre which can be entered direct to the system.	0.7 WTE at A&C Grade 3.	£6,650 (1998/99)	n/a	n/a
	Improved support for the recording of staff rostering, overtime and excess hours, reducing the time commitment associated with current manual systems.	0.5 WTE at A&C Grade 3.	£4,750 (1999/00)	£2,375 (1999/00)	n/a
	Improved support for the costing of individual patient episodes in theatre to support contracting requirements. Currently this is undertaken with a significant manual element and will require further input as contracting and costing requirements become more complex if improved information system support is not made available.	0.5 WTE at A&C Grade 4.	£5,500 (1999/00)	£5,500 (1999/00)	n/a

Summary of Cash Releasing Benefits

	1997/98	1998/99	1999/00....
Do Minimum	£13,575	£29,295	£29,295
Incremental HISS	£13,575	£29,295	£37,170
HISS	£53,870	£60,520	£98,315

SYSTEMS DEVELOPMENT - NOMINAL VALUES OF TIME SAVING BENEFITS

The tables below show areas where it is expected that there will be time savings for clinical staff. However, it is anticipated that these time savings will be in the format of multiple very small time savings. Although taken in total these may amount to very considerable time savings, it is believed that due to their fragmented nature they represent little opportunity for staff reductions and associated cash savings. However, they do represent a significant opportunity for staff to conduct their work with patients and their relatives in a less rushed and time critical manner, with an associated positive effect on the quality of care that can be delivered. The potential areas for time savings are identified below and given a nominal cash value to assist in assessing their worth.

Department/ Staff Group	System Facility / Benefit	Savings Quantification Assumptions (IHSS Solution)	IHSS Saving/ Target Realisation Date	Inc. IHSS Saving/ Target Realisation Date	Do Minimum Saving/ Target Realisation Date
Nursing Staff	<p>Automated support for care plan production, including provision of library of standard plans, plan tailoring facilities, plan update and progress monitoring facilities and documentation production.</p> <p>Electronic communication of results and other information to wards and other clinical areas, reducing requirement for nursing staff to make queries and receive telephone messages.</p> <p>Support for access to nursing personnel information, nurse rostering and recording and reporting of nurse activity.</p> <p>Support for patient dependency assessments to support analysis of workload and deployment of staff.</p>	<p>5 minutes per care plan for 18,000 admissions to RHSC, 1 WTE at Nursing Grade E.</p> <p>Benefits in these areas are expected to be primarily qualitative. However it is believed there will be significant associated time savings, although these are not quantifiable at this stage due to variations in current activity and practice.</p>	£13,850 (1998/99)	£13,850 (1999/00)	n/a

Department/ Staff Group	System Facility / Benefit	Savings Quantification Assumptions (HISS Solution)	HISS Saving/ Target Realisation Date	Inc. HISS Saving/ Target Realisation Date	Do Minimum Saving/ Target Realisation Date
Medical Staff	<p>System based facilities for requesting investigations and booking examinations and use of facilities such as theatres, supported by standard order sets. Significant patient demographic and administration information is added by the system minimising the input required from medical staff and associated time requirements.</p> <p>On-line access for prescribing without the requirement for access to a physical kardex document.</p> <p>On-line access to information, including:</p> <ul style="list-style-type: none"> ■ patient demographics and administration details; ■ investigation results; ■ waiting list information; ■ drug kardex information. <p>On-line access to bed availability information to support planning and management of patient admissions.</p> <p>Automated support for the generation of patient documentation including investigation results reports, discharge summaries and theatre notes.</p> <p>Automated support for the generation of routine and ad hoc clinical audit information.</p>	<p>Estimated time saving at 10 minutes per working day for consultant staff.</p> <p>Saving estimated for 73 consultants at 1.6 WTE at mid-point consultant scale (£45k).</p> <p>Estimated saving at 20 minutes per working day for junior medical staff.</p> <p>Saving estimated for 123 junior medical staff at 5 WTE at mid-point SHO scale (£19k).</p>	£72,000 (1999/00)	£18,000 (1999/00)	n/a
			£95,000 (1999/00)	£23,750 (1999/00)	n/a

APPENDIX III
COST ESTIMATES AND FINANCIAL AND ECONOMIC APPRAISAL

YORKHILL NHS TRUST
OPTION 1 - DO MINIMUM

Assumptions used :

	5.00%	Error check	0
Discount Factor	1.00		
Capital costs sensitivity factor	1.00		
Revenue costs sensitivity factor			

DATA INPUT SECTION

	Year 0 1996/97 £000's	Year 1 1997/98 £000's	Year 2 1998/99 £000's	Year 3 1999/00 £000's	Year 4 2000/01 £000's	Year 5 2001/02 £000's	Year 6 2002/03 £000's	Year 7 2003/04 £000's	Total £000's
Capital Costs									
<u>Development of Existing Systems</u>									123
COMPAS Port to UNIX	123								10
Casenote Tracking	10								60
Outpatients system		60							90
PMI Interfaces		45	45						35
Enhance Radiology System	35								75
Extension of Laboratory System									
Clinical Audit Systems Development	30	30	15						20
Finance System Upgrade									
Contract Management Upgrade	20								50
<u>New Systems</u>	25	25							42
Maternity System	42								
Personnel System									
Community Access									
<u>Incremental HISS Costs</u>									
Theatre Management System									
Nursing Information System									
A & E System									
CRIS									88
CRIS Interfaces	50	28	11						593
VAT Costs on Capital	335	188	71						
Total Capital Costs									
<u>Revenue Costs/Savings</u>									
<u>Existing IT Costs</u>									3,311
CSC Costs	441	410	410	410	410	410	410	410	102
FMS - Data Centre	13	13	13	13	13	13	13	13	153
ICSIS	19	19	19	19	19	19	19	19	
Radiology System									
<u>Development of Existing Systems</u>		12	12	12	12	12	12	12	86
COMPAS Port to UNIX		2	2	2	2	2	2	2	11
Casenote Tracking			9	9	9	9	9	9	54
Outpatients system				14	14	14	14	14	88
PMI Interfaces		4	4	4	4	4	4	4	25
Enhance Radiology System									
Extension of Laboratory System				11	11	11	11	11	56
Clinical Audit Systems Development									
Finance System Upgrade		2	2	2	2	2	2	2	14
Contract Management Upgrade									
<u>New Systems</u>			8	8	8	8	8	8	45
Maternity System		6	6	6	6	6	6	6	44
Personnel System									
Community Access									
<u>Theatre Management System</u>									
<u>Nursing Information System</u>									
<u>A & E System</u>									
<u>CRIS</u>									
<u>CRIS Interfaces</u>									50
Implementation Team	10	40							18
Additional IS/IT Staffing		18							4,036
Staff Relief Training Costs	483	526	484	509	509	509	509	509	(189)
= Gross Revenue Costs		(14)	(29)	(29)	(29)	(29)	(29)	(29)	
Cash Releasing Savings									3,847
Net Revenue Costs	483	512	455	479	479	479	479	479	4,440
Net Total Cash Flow	818	700	525	479	479	479	479	479	

YORKHILL NHS TRUST
OPTION 1 - DO MINIMUM
DCF ANALYSIS

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
	1998/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	
	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's

Capital Costs

Development of Existing Systems

COMPAS Port to UNIX	123								123
Casenote Tracking	10								10
Outpatients system		60							60
PMI Interfaces		45	45						90
Enhance Radiology System	35								35
Extension of Laboratory System									75
Clinical Audit Systems Development	30	30	15						
Finance System Upgrade									20
Contract Management Upgrade	20								
New Systems									50
Maternity System	25	25							42
Personnel System	42								
Community Access									

Incremental HISS Costs

Theatre Management System

Nursing Information System

A & E System

CRIS

CRIS Interfaces									88
VAT Costs (no sensitivity factor)	50	28	11						593
Total Capital Costs	335	188	71						

Revenue Costs/Savings

Existing IT Costs

CSC Costs	441	410	410	410	410	410	410	410	3,311
FMS - Data Centre	13	13	13	13	13	13	13	13	102
ICSIS	19	19	19	19	19	19	19	19	153
Radiology System									

Development of Existing Systems

COMPAS Port to UNIX		12	12	12	12	12	12	12	86
Casenote Tracking		2		2	2	2	2	2	11
Outpatients system			9	9	9	9	9	9	54
PMI Interfaces				14	14	14	14	14	68
Enhance Radiology System		4	4	4	4	4	4	4	25
Extension of Laboratory System									
Clinical Audit Systems Development				11	11	11	11	11	56
Finance System Upgrade		2	2	2	2	2	2	2	14
Contract Management Upgrade									

New Systems

Maternity System			8	8	8	8	8	8	45
Personnel System		6	6	6	6	6	6	6	44
Community Access									

Incremental HISS Costs

Theatre Management System

Nursing Information System

A & E System

CRIS

CRIS Interfaces									50
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Implementation Team	10	40							
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Additional IS/IT Staffing		18							18
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Staff Relief Training Costs	483	526	484	509	509	509	509	509	4,036
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= Gross Revenue Costs									(189)
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Cash Releasing Savings		(14)	(29)	(29)	(29)	(29)	(29)	(29)	
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Net Revenue Costs	483	512	455	479	479	479	479	479	3,847
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Net Total Cash Flow	818	700	525	479	479	479	479	479	4,440
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Discount Factors at 6%	1.0000	0.9434	0.8900	0.8398	0.7921	0.7473	0.7050	0.6651	
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Discounted Cash Flows	818	660	467	403	380	358	338	319	
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Net Present Cost	3,743								
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YORKHILL NHS TRUST
OPTION 1 - DO MINIMUM
FINANCIAL APPRAISAL - WORKINGS

ASSUMPTIONS

- 1) The asset life used for depreciation purposes: 8 years
- 2) All capital expenditure takes place mid-year and therefore attracts a half years depreciation in the first year.
- 3) The Trust's 6% return is calculated on 'relevant' assets (average of opening and closing balances).
- 4) Assume zero indexation

Calculation of depreciation charges

Depreciation charged thereon:									
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	£000's
Capital expenditure									
1996/97	335	42	42	42	42	42	42	42	314
1997/98	188	12	24	24	24	24	24	24	153
1998/99	71		4	9	9	9	9	9	48
1999/00									
2000/01									
2001/02									
2002/03									
2003/04									
Total	593	54	70	74	74	74	74	74	515

Calculation of 6% return

Statement of asset values	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	Total
	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's
Opening value at 1/4			314	448	449	375	301	227	152	593
Capital expenditure		335	188	71		(74)	(74)	(74)	(74)	(515)
Depreciation		(21)	(54)	(70)	(74)	301	227	152	78	
= Closing value at 31/3		314	448	449	375	301	264	189	115	
Relevant capital value		157	381	449	412	338	264	189	115	
whereof 6% return		9	23	27	25	20	16	11	7	

Summary of capital charges

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	Total
Depreciation charge	21	54	70	74	74	74	74	74	515
6% return	9	23	27	25	20	16	11	7	138
Total	30	76	97	99	94	90	86	81	653

YORKHILL NHS TRUST - OPTION APPRAISAL OF INFORMATION SYSTEMS

OPTION 1 - DO MINIMUM

SUMMARY

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	
	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's

<u>Economic (DCF) Appraisal</u>									593
Capital costs	335	188	71		479	479	479	479	3,847
Revenue costs (exc cap charges)	483	512	455	479	479	479	479	479	4,440
Total Cash Flow	818	700	525	479	479	479	479	479	3,743

Net Present Cost using discount rate = 6%

<u>Financial Appraisal</u>									3,847
Revenue Costs	483	512	455	479	479	479	479	479	653
Capital Charges	30	76	97	99	94	90	86	81	
Total Financial Costs	513	589	551	578	574	569	565	561	4,500

OPTION 1 - DO MINIMUM

09/11/95

Workings required to compute revised financial statements

	1996/97	1997/98	1998/99	1999/00	2000/01
	£000's	£000's	£000's	£000's	£000's
Pay impact	10	45	(29)	(29)	(29)
Non-pay impact	473	467	484	509	509
Depreciation impact	21	54	70	74	74
6% return impact	9	23	27	25	20

Calculation of cash balances

Original year end balance per Trust	30	30	30	2	2
Adj to reflect revised previous yrs bal (cum)		(20)	(20)	(20)	19
Net rev receipts: (inc less pay & non-pay)	21	54	70	74	74
Depreciation	9	23	27	25	20
6% return	(335)	(188)	(71)		
less capital expenditure		(24)	(36)	(37)	(35)
Loan interest		(14)	(22)	(23)	(23)
Loan repayment					
	(275)	(140)	(21)	21	58
	285	150	31		
New loans required	10	10	10	21	58
Revised closing cash balance					

Loan interest rate	8.50%				
Calculation of loan interest and repayments					
96/7 loan - interest	24	23	22	21	21
- repayment	14	14	14	14	14
97/8 loan - interest		13	12	11	11
- repayment		7	7	7	7
98/9 loan - interest			3	3	3
- repayment			2	2	2
99/0 loan - interest					
- repayment					
00/1 loan - interest					
- repayment					
Totals - interest	24	36	37	35	35
- repayment	14	22	23	23	23

Value of total new loans less repayments	285	420	430	406	383
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Fixed Assets

Original per Trust	73,284	83,112	84,222		
Adj to reflect revised previous yrs bal (cum)		314	448	449	375
Option appraisal capital exp	335	188	71		
Depreciation	(21)	(54)	(70)	(74)	(74)
= revised fixed asset balance	73,598	83,560	84,671	375	301

Inc/Exp Reserve

Original per Trust	2,083	2,158	2,247		
Adj to reflect revised previous yrs bal (cum)		9	8	(1)	(1)
less Original Net surplus	(120)	(75)	(89)		
Plus Revised Net Surplus	129	74	80		
= revised balance on I/E reserve	2,092	2,166	2,246	(1)	(1)

YORKHILL NHS TRUST
FINANCIAL STATEMENTS BEFORE INCORPORATING OPTION APPRAISAL
OPTION 1 - DO MINIMUM

INCOME AND EXPENDITURE ACCOUNTS

	1996/97 £000's	1997/98 £000's	1998/99 £000's
Trust income	56,741	57,616	58,693
Trust Expenditure			
Pay Expenditure	38,878	38,899	38,873
Non Pay expenditure	11,641	11,734	11,786
Depreciation	2,649	3,294	3,755
Total expenditure	53,166	53,727	54,414
Surplus before interest	3,575	3,889	4,279
Interest receivable	119	78	89
Interest payable	(1,409)	(1,345)	(1,282)
(a) originating debt	(354)	(1,379)	(2,412)
(b) other loans			
Surplus/(deficit) before excc. items	1,931	1,241	674
Extraordinary items	(1,811)	(1,168)	(585)
Dividends on PDC	120	75	89
Surplus/(deficit) for year			
Financial target performance (%)			

BALANCE SHEETS FOR YEAR ENDED

	1996/97 £000's	1997/98 £000's	1998/99 £000's
Tangible fixed assets	73,284	83,112	84,222
Current assets			
Stocks and Work in Progress	828	836	839
Debtors	1,466	1,470	1,480
Cash	30	30	30
Total current assets	2,324	2,336	2,349
Current liabilities < 1 year			
Creditors	4,171	4,854	5,408
Bank overdrafts			
Short term loans			
a. Government			
b. Other			
Total Current Liabilities	4,171	4,854	5,408
15. Net current assets/(liabilities)	(1,847)	(2,518)	(3,059)
16. Creditors > 1 year			
Total assets less current liab	71,437	80,594	81,163
Originating Capital Debt			
Public dividend capital	18,936	18,936	18,936
Interest bearing debt	15,529	14,772	14,015
Total originating capital debt	34,465	33,708	32,951
Income and expenditure account	2,083	2,158	2,247
Revaluation reserve	12,844	12,844	12,844
Donation reserve	2,256	1,864	1,464
Other reserves			
Other loans			
a. Government	19,789	30,020	31,857
b. Other			
Other PDC			
Total capital and reserves	71,437	80,594	81,163

EFL STATEMENTS

	1996/97 £000's	1997/98 £000's	1998/99 £000's
External Financing requirements arising from:			
Surplus/deficit for year	120	75	89
Items not involving use of funds			
Depreciation	2,649	3,294	3,755
(Profit)/loss on sale of fixed assets			
Depreciation on donated assets			
Funds from other sources			
Proceeds from sale of fixed assets			
Other sources of income			
Application of Funds			
Capital expenditure	(18,265)	(13,515)	(5,265)
Working capital movement:			
Stocks and WIP	1	(8)	(3)
Debtors	432	(4)	(10)
Creditors	13	13	20
Net financial change	(13,050)	(10,145)	(1,414)

External Financing requirement to be met by:

Repayment of loans	OCB	(961)	(1,193)	(1,864)
	New Long Term Loans			
	Short Term Loans			
New loans	Government - Long Term	14,011	11,338	3,278
	Short Term			
New PDC				
Cash and bank balances				
Invested cash				
External Financing Limit		13,050	10,145	1,414

YORKHILL NHS TRUST
FINANCIAL STATEMENTS AFTER INCORPORATING OPTION APPRAISAL
OPTION 1 - DO MINIMUM

INCOME AND EXPENDITURE ACCOUNTS

	1996/97	1997/98	1998/99
	£000's	£000's	£000's
Trust income	57,254	58,205	59,244
Trust Expenditure			
Pay expenditure	38,886	38,744	38,844
Non Pay expenditure	12,114	12,201	12,270
Depreciation	2,570	3,348	3,825
Total expenditure	53,570	54,293	54,938
Surplus before interest	3,584	3,912	4,306
Interest receivable	119	76	89
Interest payable	(1,409)	(1,345)	(1,282)
(a) originating debt	(354)	(1,403)	(2,448)
(b) other loans			
Surplus/(deficit) before extra. items	1,940	1,240	865
Extraordinary items	(1,811)	(1,166)	(585)
Dividends on PDC	129	74	80
Surplus/(deficit) for year			

Financial target performance (%)

BALANCE SHEETS FOR YEAR ENDED

	1996/97	1997/98	1998/99
	£000's	£000's	£000's
Tangible fixed assets	73,598	83,560	84,671
Current assets			
Stocks and Work in Progress	828	836	839
Debtors	1,466	1,470	1,480
Cash	10	10	10
Total current assets	2,304	2,316	2,329
Current liabilities < 1 year	4,171	4,854	5,408
Creditors			
Bank overdrafts			
Short term loans			
a. Government			
b. Other			
Total Current Liabilities	4,171	4,854	5,408
15. Net current assets/(liabilities)	(1,867)	(2,538)	(3,079)
16. Creditors > 1 year	71,731	81,022	81,592
Total assets less current liab			
Originating Capital Debt			
Public dividend capital	18,936	18,936	18,936
Interest bearing debt	15,529	14,772	14,015
Total originating capital debt	34,465	33,708	32,951
Income and expenditure account	2,092	2,168	2,248
Revaluation reserve	12,844	12,844	12,844
Donation reserve	2,256	1,864	1,484
Other reserves			
Other loans			
a. Government	20,074	30,440	32,087
b. Other			
Other PDC			
Total capital and reserves	71,731	81,022	81,592

EFL STATEMENTS

	1996/97	1997/98	1998/99
	£000's	£000's	£000's
External Financing requirements arising from:			
Surplus/deficit for year	129	74	80
Items not involving use of funds:			
Depreciation	2,570	3,348	3,825
(Profit)/loss on sale of fixed assets			
Depreciation on donated assets			
Funds from other sources			
Proceeds from sale of fixed assets			
Other sources of income			
Application of Funds			
Capital expenditure	(16,600)	(13,703)	(5,336)
Working capital movement:			
Stocks and WIP	1	(8)	(3)
Debtors	432	(4)	(10)
Creditors	13	13	20
Net financial change	(13,355)	(10,281)	(1,424)

External Financing requirement to be met by:

Repayment of loans - OCD	(961)	(11,193)	(11,884)
New Long		(14)	(22)
Short Term			
New loans - Government - Long Term	14,296	11,488	3,309
Short			
New PDC	20		
Cash and bank balances			
invested cash			
External Financing Limit	13,355	10,281	1,424
	(0)	(0)	(0)

YORKHILL NHS TRUST
FINANCIAL STATEMENTS SHOWING IMPACT OF OPTION APPRAISAL
OPTION 2 - DO MINIMUM

INCOME AND EXPENDITURE ACCOUNTS

	1996/97 £000's	1997/98 £000's	1998/99 £000's
Trust Income	513	589	551
Trust Expenditure			
Pay Expenditure	10	45	1291
Non Pay expenditure	473	487	484
Depreciation	21	54	70
Total expenditure	504	586	524
Surplus before interest	9	23	27
Interest receivable			
Interest payable			
(a) originating debt		(24)	(38)
(b) other loans			
Surplus/(deficit) before extra. items	9	(1)	(9)
Extraordinary items			
Dividends on PDC	9	(1)	(9)
Surplus/(deficit) for year			
Financial target performance (%)			

BALANCE SHEETS FOR YEAR ENDED

	1996/97 £000's	1997/98 £000's	1998/99 £000's
Tangible fixed assets	314	448	449
Current assets			
Stocks and Work in Progress			
Debtors	(20)	(20)	(20)
Cash	(20)	(20)	(20)
Total current assets			
Current liabilities < 1 year			
Creditors			
Bank overdrafts			
Short term loans			
a. Government			
b. Other			
Total Current Liabilities			
15. Net current assets/(liabilities)	(20)	(20)	(20)
16. Creditors > 1 year	294	428	429
Total assets less current liab			
Originating Capital Debt			
Public dividend capital			
Interest bearing debt			
Total originating capital debt	9	8	(1)
Income and expenditure account			
Revaluation reserve			
Donation reserve			
Other reserves			
Other loans	285	420	430
a. Government			
b. Other			
Other PDC	294	428	429
Total capital and reserves			

EFL STATEMENTS

	1996/97 £000's	1997/98 £000's	1998/99 £000's
External Financing requirements arising from:			
Surplus/deficit for year	9	(1)	(9)
Items not involving use of funds:			
Depreciation	21	54	70
(Profit)/loss on sale of fixed assets			
Depreciation on donated assets			
Funds from other sources			
Proceeds from sale of fixed assets			
Other sources of income			
Application of Funds			
Capital expenditure	(335)	(188)	(71)
Working capital movement:			
Stocks and WIP			
Debtors			
Creditors	(305)	(138)	(10)
Net financial change			

External Financing requirement to be met by:

Repayment of loans - OGD		(14)	(22)
New Long			
Short Term			
New loans - Government - Long Term	285	150	31
Short			
New PDC	20		
Cash and bank balances			
Invested cash	105	138	10
External Financing Limit	(0)	0	0

YORKHILL NHS TRUST
OPTION 2 - INCREMENTAL HISS

Assumptions used :

Discount Factor	6.00%	Error check
Capital costs sensitivity factor	1.00	
Revenue costs sensitivity factor	1.00	

DATA INPUT SECTION

	Year 0 1996/97 £000's	Year 1 1997/98 £000's	Year 2 1998/99 £000's	Year 3 1999/00 £000's	Year 4 2000/01 £000's	Year 5 2001/02 £000's	Year 6 2002/03 £000's	Year 7 2003/04 £000's	Total £000's
Capital Costs									
<u>Development of Existing Systems</u>									123
COMPAS Port to UNIX	123								10
Casenote Tracking	10								60
Outpatients system		60							90
PMI Interfaces		45	45						35
Enhance Radiology System	35								
Extension of Laboratory System									75
Clinical Audit Systems Development	30	30	15						
Finance System Upgrade									20
Contract Management Upgrade	20								
<u>New Systems</u>									50
Maternity System	25	25							42
Personnel System	42								34
Oracle Licenses			34						
<u>Incremental HISS Costs</u>									80
Theatre Management System		80							120
Nursing Information System		120							80
A & E System			80						
COMMS			300	200					500
CRIS				72					72
CRIS Interfaces			83	48					243
VAT Costs on Capital	50	63	83	48					1,635
Total Capital Costs	335	423	557	320					
Revenue Costs/Savings									
<u>Existing IT Costs</u>									3,311
CSC Costs	441	410	410	410	410	410	410	410	102
FMS - Data Centre	13	13	13	13	13	13	13	13	153
ICSIS	19	19	19	19	19	19	19	19	
Radiology System									
<u>Development of Existing Systems</u>		12	12	12	12	12	12	12	86
COMPAS Port to UNIX		2	2	2	2	2	2	2	11
Casenote Tracking			9	9	9	9	9	9	54
Outpatients system				14	14	14	14	14	68
PMI Interfaces		4	4	4	4	4	4	4	25
Enhance Radiology System									
Extension of Laboratory System				11	11	11	11	11	56
Clinical Audit Systems Development									
Finance System Upgrade		2	2	2	2	2	2	2	14
Contract Management Upgrade									
<u>New Systems</u>			8	8	8	8	8	8	45
Maternity System			6	6	6	6	6	6	44
Personnel System		6	6	3	3	3	3	3	17
Oracle Licenses									
<u>Theatre Management System</u>			12	12	12	12	12	12	72
<u>Nursing Information System</u>			18	18	18	18	18	18	108
<u>A & E System</u>				12	12	12	12	12	60
<u>COMMS</u>					31	31	31	31	124
<u>CRIS</u>					7	7	7	7	29
<u>CRIS Interfaces</u>									
<u>Implementation Team</u>	10	90	30	30					160
<u>Additional IS/IT Staffing</u>		30	40	40	40	40	40	40	270
<u>Staff Relief Training Costs</u>		80	56	1					137
= Gross Revenue Costs	483	667	640	625	632	632	632	632	4,944
<u>Cash Releasing Savings</u>		(14)	(29)	(37)	(37)	(37)	(37)	(37)	(229)
Net Revenue Costs	483	654	610	588	595	595	595	595	4,716
Net Total Cash Flow	818	1,077	1,168	908	595	595	595	595	8,350

YORKHILL NHS TRUST
OPTION 2 - INCREMENTAL HISS
DCF ANALYSIS

	Year 0 1996/97 £000's	Year 1 1997/98 £000's	Year 2 1998/99 £000's	Year 3 1999/00 £000's	Year 4 2000/01 £000's	Year 5 2001/02 £000's	Year 6 2002/03 £000's	Year 7 2003/04 £000's	Total £000's
Capital Costs									
<u>Development of Existing Systems</u>									123
COMPAS Port to UNIX	123								10
Casenote Tracking	10								60
Outpatients system		80							90
PMI Interfaces		45	45						35
Enhance Radiology System	35								75
Extension of Laboratory System				15					
Clinical Audit Systems Development	30	30							20
Finance System Upgrade									
Contract Management Upgrade	20								50
<u>New Systems</u>	25	25							42
Maternity System	42								34.15
Personnel System			34.15						
Oracle Licenses									80
<u>Incremental HISS Costs</u>		80							120
Theatre Management System		120							80
Nursing Information System			80						
A & E System									500
COMMS			300	200					72
CRIS				72					243
CRIS Interfaces	50	63	83	48					1,835
VAT Costs (no sensitivity factor)				320					
Total Capital Costs	335	423	557	320					
Revenue Costs/Savings									
<u>Existing IT Costs</u>	441	410	410	410	410	410	410	410	3,311
CSC Costs	13	13	13	13	13	13	13	13	102
FMS - Data Centre	19	19	19	19	19	19	19	19	153
ICSIS									
Radiology System									
<u>Development of Existing Systems</u>		12	12	12	12	12	12	12	86
COMPAS Port to UNIX		2	2	2	2	2	2	2	11
Casenote Tracking			9	9	9	9	9	9	54
Outpatients system				14	14	14	14	14	88
PMI Interfaces		4	4	4	4	4	4	4	25
Enhance Radiology System									
Extension of Laboratory System				11	11	11	11	11	58
Clinical Audit Systems Development									
Finance System Upgrade		2	2	2	2	2	2	2	14
Contract Management Upgrade									
<u>New Systems</u>			8	8	8	8	8	8	45
Maternity System		8	6	6	6	6	6	6	44
Personnel System				3	3	3	3	3	17
Oracle Licenses									
<u>Theatre Management System</u>			12	12	12	12	12	12	72
<u>Nursing Information System</u>			18	18	18	18	18	18	108
<u>A & E System</u>				12	12	12	12	12	60
<u>COMMS</u>					31	31	31	31	124
<u>CRIS</u>					7	7	7	7	29
<u>CRIS Interfaces</u>									
Implementation Team	10	90	30	30					160
Additional IS/IT Staffing		30	40	40	40	40	40	40	270
Staff Relief Training Costs		80	56	1					137
= Gross Revenue Costs	483	667	640	625	632	632	632	632	4,944
Cash Releasing Savings		(14)	(29)	(37)	(37)	(37)	(37)	(37)	(229)
Net Revenue Costs	483	654	610	588	595	595	595	595	4,716
Net Total Cash Flow	818	1,077	1,168	908	595	595	595	595	6,350
Discount Factors at 6%	1.0000	0.9434	0.8900	0.8396	0.7921	0.7473	0.7050	0.6651	
Discounted Cash Flows	818	1,018	1,039	762	471	445	420	398	
Net Present Cost	5,366								

YORKHILL NHS TRUST
OPTION 2 - INCREMENTAL HISS
FINANCIAL APPRAISAL - WORKINGS

ASSUMPTIONS

- 1) The asset life used for depreciation purposes: **8 years**
- 2) All capital expenditure takes place mid-year and therefore attracts a half years depreciation in the first year.
- 3) The Trust's 6% return is calculated on 'relevant' assets (average of opening and closing balances).
- 4) Assume zero indexation

Calculation of depreciation charges

Depreciation charged thereon:									
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	f'000's
Capital expenditure									
1996/97	335								314
1997/98	423								344
1998/99	557								383
1999/00	320								180
2000/01									
2001/02									
2002/03									
2003/04									
Total									
	21	68	130	184	204	204	204	204	1,220
	1,635								

Calculation of 6% return

Statement of asset values	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	Total
	f'000's	f'000's	f'000's	f'000's	f'000's	f'000's	f'000's	f'000's	f'000's	f'000's
Opening value at 1/4			314	669	1,096	1,231	1,027	823	618	1,635
Capital expenditure		335	423	557	320	(204)	(204)	(204)	(204)	(1,220)
Depreciation		(21)	(68)	(130)	(184)	(204)	(204)	(204)	(204)	
= Closing value at 31/3		314	669	1,096	1,231	1,027	823	618	414	
Relevant capital value	167	491	882	882	1,164	1,129	925	721	516	
whereof 6% return	9	29	53	53	70	68	55	43	31	

Summary of capital charges

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	Total
Depreciation charge	21	68	130	184	204	204	204	204	1,220
6% return	9	29	53	70	68	55	43	31	359
Total	30	98	183	254	272	260	248	235	1,580

YORKHILL NHS TRUST - OPTION APPRAISAL OF INFORMATION SYSTEMS

OPTION 2 - INCREMENTAL HISS

SUMMARY

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	
	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's

Economic (DCF) Appraisal

Capital costs	335	423	557	320		595	595	595	1,635
Revenue costs (exc cap charges)	483	654	610	588	595	595	595	595	4,716
Total Cash Flow	818	1,077	1,168	908	595	595	595	595	6,350
Net Present Cost using discount rate =	6%								5,366

Financial Appraisal

Revenue Costs	483	654	610	588	595	595	595	595	4,716
Capital Charges	30	98	183	254	272	260	248	235	1,580
Total Financial Costs	513	752	793	842	867	855	843	830	6,295

OPTION 2 - INCREMENTAL HISS

09/11/95

Workings required to compute revised financial statements

	1996/97	1997/98	1998/99	1999/00	2000/01
	£000's	£000's	£000's	£000's	£000's
Pay impact	10	186	96	34	3
Non-pay impact	473	467	514	554	592
Depreciation impact	21	68	130	184	204
6% return impact	9	29	53	70	68
Calculation of cash balances					
Original year end balance per Trust	30	30	30	2	2
Adj to reflect revised previous yrs bal (cum)		(20)	(20)	(20)	8
Net rev receipts: (inc less pay & non-pay)					
Depreciation	21	68	130	184	204
6% return	9	29	53	70	68
less capital expenditure	(335)	(423)	(557)		
Loan interest		(14)	(31)	(51)	(59)
Loan repayment				(320)	
	(275)	(329)	(396)	(135)	223
	285	339	406	145	
New loans required	10	10	10	10	223
Revised closing cash balance					

Loan interest rate	8.50%				
Calculation of loan interest and repayments					
96/7 loan - interest		14	14	14	14
- repayment					
97/8 loan - interest			17	17	17
- repayment					
98/9 loan - interest				20	20
- repayment					
99/0 loan - interest					7
- repayment					
00/1 loan - interest					
- repayment					
Totals - interest		14	31	51	59
- repayment					

Value of total new loans less repayments	285	610	984	1,078	1,019
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Fixed Assets

Original per Trust	73,284	83,112	84,222		
Adj to reflect revised previous yrs bal (cum)		314	669	1,096	1,231
Option appraisal capital exp	335	423	557	320	
Depreciation	(21)	(68)	(130)	(184)	(204)
= revised fixed asset balance	73,598	83,781	85,318	1,231	1,027

Inc/Exp Reserve

Original per Trust	2,083	2,158	2,247		
Adj to reflect revised previous yrs bal (cum)		9	39	92	92
less Original Net surplus	(120)	(75)	(89)		
Plus Revised Net Surplus	129	104	142		
= revised balance on I/E reserve	2,092	2,197	2,339	92	92

YORKHILL NHS TRUST
FINANCIAL STATEMENTS BEFORE INCORPORATING OPTION APPRAISAL
OPTION 2 - INCREMENTAL HISS

INCOME AND EXPENDITURE ACCOUNTS

	1996/97	1997/98	1998/99
	<u>£000's</u>	<u>£000's</u>	<u>£000's</u>
Trust Income	56,741	57,318	58,893
<u>Trust Expenditure</u>			
Pay Expenditure	38,876	38,699	38,873
Non Pay expenditure	11,841	11,734	11,786
Depreciation	2,649	3,294	3,755
Total expenditure	53,166	53,727	54,414
Surplus before interest	3,575	3,889	4,279
Interest receivable	119	78	89
Interest payable	(1,409)	(1,345)	(1,282)
(a) originating debt	(354)	(1,379)	(2,412)
(b) other loans			
Surplus/(deficit) before extra. items	1,931	1,241	874
Extraordinary items	(1,811)	(1,188)	(585)
Dividends on PDC	120	75	89
Surplus/(deficit) for year			
Financial target performance (%)			

BALANCE SHEETS FOR YEAR ENDED

	1996/97	1997/98	1998/99
	<u>£000's</u>	<u>£000's</u>	<u>£000's</u>
Tangible fixed assets	73,284	83,112	84,222
<u>Current assets</u>			
Stocks and Work in Progress	828	838	839
Debtors	1,486	1,470	1,480
Cash	30	30	30
Total current assets	2,324	2,338	2,349
<u>Current liabilities < 1 year</u>			
Creditors	4,171	4,854	5,408
Bank overdrafts			
Short term loans			
a. Government			
b. Other			
Total Current Liabilities	4,171	4,854	5,408
15. Net current assets/(liabilities)	(1,847)	(2,518)	(3,059)
16. Creditors > 1 year	71,437	80,594	81,163
Total assets less current liab			
<u>Originating Capital Debt</u>			
Public dividend capital	18,936	18,936	18,936
Interest bearing debt	15,529	14,772	14,015
Total originating capital debt	34,465	33,708	32,951
Income and expenditure account	2,083	2,158	2,247
Revaluation reserve	12,844	12,844	12,844
Donation reserve	2,258	1,864	1,464
Other reserves			
Other loans	19,789	30,020	31,657
a. Government			
b. Other			
Other PDC			
Total capital and reserves	71,437	80,594	81,163

EFL STATEMENTS

	1996/97	1997/98	1998/99
	<u>£000's</u>	<u>£000's</u>	<u>£000's</u>
External Financing requirements arising from:			
Surplus/deficit for year	120	75	89
<u>Items not involving use of funds:</u>			
Depreciation	2,649	3,294	3,755
(Profit)/loss on sale of fixed assets			
Depreciation on donated assets			
<u>Funds from other sources</u>			
Proceeds from sale of fixed assets			
Other sources of income			
<u>Application of Funds</u>			
Capital expenditure	(18,285)	(13,515)	(5,265)
<u>Working capital movement:</u>			
Stocks and WIP	1	(8)	(3)
Debtors	432	(4)	(10)
Creditors	13	13	20
Net financial change	(13,050)	(10,145)	(1,414)

External Financing requirement to be met by:

Repayment of loans - QCD	(981)	(1,193)	(1,864)
New Long Term Loans			
Short Term Loans			
New loans - Government Long Term	14,011	11,338	3,278
Short Term			
New PDC			
Cash and bank balances			
Invested cash	13,050	10,145	1,414
External Financing Unit			

YORKHILL NHS TRUST
FINANCIAL STATEMENTS AFTER INCORPORATING OPTION APPRAISAL
OPTION 2 - INCREMENTAL NHS

INCOME AND EXPENDITURE ACCOUNTS

	1996/97 £000's	1997/98 £000's	1998/99 £000's
Trust Income	57,254	58,368	59,486
Trust Expenditure	38,886	38,886	38,886
Pay Expenditure	12,114	12,201	12,300
Non Pay expenditure	2,670	3,362	3,885
Depreciation	53,670	54,449	55,154
Total expenditure	3,584	3,918	4,332
Surplus before interest	119	78	89
Interest receivable			
Interest payable	(1,409)	(1,345)	(1,282)
(a) originating debt	(354)	(1,379)	(2,412)
(b) other loans			
Surplus/(deficit) before extra. items	1,940	1,270	727
Extraordinary items	(1,811)	(1,166)	(585)
Dividends on PDC	129	104	142
Surplus/(deficit) for year			

Financial target performance (%)

BALANCE SHEETS FOR YEAR ENDED

	1996/97 £000's	1997/98 £000's	1998/99 £000's
Tangible fixed assets	73,598	83,781	85,318
Current assets	828	836	839
Stocks and Work in Progress	1,466	1,470	1,480
Debtors	10	10	10
Cash	2,304	2,316	2,329
Total current assets			
Current liabilities < 1 year	4,171	4,854	5,408
Creditors			
Bank overdrafts			
Short term loans			
a. Government			
b. Other	4,171	4,854	5,408
Total Current Liabilities	(1,867)	(2,538)	(3,079)
15. Net current assets/(liabilities)			
16. Creditors > 1 year	71,731	81,243	82,239
Total assets less current liabilities			
Originating Capital Debt	18,938	18,938	18,938
Public dividend capital	15,529	14,772	14,015
Interest bearing debt	34,465	33,708	32,951
Total originating capital debt			
Income and expenditure account	2,092	2,197	2,339
Revaluation reserve	12,844	12,844	12,844
Donation reserve	2,256	1,864	1,464
Other reserves			
Other loans	20,074	30,630	32,841
a. Government			
b. Other			
Other PDC	71,731	81,243	82,239
Total capital and reserves			

EFL STATEMENTS

	1996/97 £000's	1997/98 £000's	1998/99 £000's
External Financing requirements arising from:			
Surplus/deficit for year	129	104	142
Items not involving use of funds:	2,870	3,362	3,885
Depreciation			
(Profit)/loss on sale of fixed assets			
Depreciation on donated assets			
Funds from other sources			
Proceeds from sale of fixed assets			
Other sources of income			
Application of Funds	(18,800)	(13,938)	(5,822)
Capital expenditure			
Working capital movement:	1	(8)	(3)
Stocks and WIP	432	(4)	(10)
Debtors	13	13	20
Creditors	(13,355)	(10,470)	(1,789)
Net financial change			

External Financing requirement to be met by:

Repayment of loans	GCD	(961)	(1,193)	(1,864)
			(14)	(31)
New loans - Government	Long Term	14,298	11,877	3,684
	Short			
New PDC		20		
Cash and bank balances				
Invested cash		13,355	10,470	1,789
External Financing Limit		(0)	0	0

YORKHILL NHS TRUST
FINANCIAL STATEMENTS SHOWING IMPACT OF OPTION APPRAISAL
OPTION 2 - INCREMENTAL HISS

INCOME AND EXPENDITURE ACCOUNTS

	1996/97	1997/98	1998/99
	£000's	£000's	£000's
Trust income	513	752	793
Trust Expenditure	10	186	98
Pay Expenditure	473	467	514
Non Pay expenditure	21	68	130
Depreciation	504	722	740
Total expenditure	9	29	53
Surplus before interest			
Interest receivable			
Interest payable			
(a) originating debt			
(b) other loans			
Surplus/(deficit) before extra. items	9	29	53
Extraordinary items			
Dividends on PDC	9	29	53
Surplus/(deficit) for year			
Financial target performance (%)			

BALANCE SHEETS FOR YEAR ENDED

	1996/97	1997/98	1998/99
	£000's	£000's	£000's
Tangible fixed assets	314	489	1,098
Current assets			
Stocks and Work in Progress			
Debtors	(20)	(20)	(20)
Cash	(20)	(20)	(20)
Total current assets			
Current liabilities < 1 year			
Creditors			
Bank overdrafts			
Short term loans			
a. Government			
b. Other			
Total Current Liabilities	(20)	(20)	(20)
15. Net current assets/(liabilities)			
18. Creditors > 1 year	294	549	1,076
Total assets less current liab			
Originating Capital Debt			
Public dividend capital			
Interest bearing debt			
Total originating capital debt	9	39	92
Income and expenditure account			
Revaluation reserves			
Donation reserves			
Other reserves			
Other loans	285	610	984
a. Government			
b. Other			
Other PDC	294	549	1,076
Total capital and reserves			

EFL STATEMENTS

	1996/97	1997/98	1998/99
	£000's	£000's	£000's
External Financing requirements arising from:			
Surplus/deficit for year	9	29	53
Items not involving use of funds:			
Depreciation	21	68	130
(Profit)/loss on sale of fixed assets			
Depreciation on donated assets			
Funds from other sources			
Proceeds from sale of fixed assets			
Other sources of income			
Application of Funds	(305)	(423)	(557)
Capital expenditure			
Working capital movement:			
Stocks and WIP			
Debtors			
Creditors	(305)	(325)	(375)
Net financial change			

External Financing requirement to be met by:

Repayment of loans	OCD				
	New Long		(14)	(31)	
	Short Term				
New loans	Government	Long Term	285	339	408
		Short			
New PDC			20		
Cash and bank balances					
invested cash			305	325	375
External Financing Limit			(0)	(0)	(0)

YORKHILL NNE TRUST

OPTION 3 - NNE

Assumptions used

Discount factor	4.00%	Error check
Capital costs sensitivity factor	1.00	
Revenue costs sensitivity factor	1.00	

DATA INPUT SECTION

	Year 0 1998/99 £000's	Year 1 1999/00 £000's	Year 2 2000/01 £000's	Year 3 2001/02 £000's	Year 4 2002/03 £000's	Year 5 2003/04 £000's	Year 6 2004/05 £000's	Year 7 2005/06 £000's	Total £000's
Capital Costs									187
Hardware									253
Central Hardware	128	128							20
Other HW & Peripherals		20							8
DM Nurse		8							28
Theatre		28							
TrendSTAR Hardware									
Operating System Software									18
STAR system	18								14
DM Nurse		14							12
ProLINC	12								3
Novell (Theatre)		3							
Application Software									130
PAS & Contracting	130								22
Metering	22								52
Radiology		52							88
DM Nurse		88							84
Theatre		84							128
Order/Results Communications	84	84							85
Pharmacy		85							91
Personnel/Payroll			91						91
Finance			91						29
SQL Server	28								94
Casemix/Audit/EIS		94							18
DM Post	18								7
Post Code Address File	7								5
Sentinel	5								8
Physician View		8							17
PC Director	17								28
Medicode	28								
Interfaces/Conversion									21
COMPAS Conversion	21								53
Laboratory Interface (HBO)		53							53
Laboratory Interface (Telepath)		53							11
CHI Interface		11							
Comms. Development									
Human Resources									287
Installation and Training	27	184	88						148
Project Management	80	80	30						484
Trust Implementation and Training	88	248	150						100
Trust Project Management	50	50							255
VAT Costs on Capital	138	170	49						3,970
Total Capital Costs	1,053	1,441	478						
Revenue Costs/Savings									1,271
Existing IT Costs									38
CSC Costs	441	410	205	43	43	43	43	43	48
FMS - Data Centre	13	13	13						
iCSTIS	19	19	10						
Radiology System									
Hardware		18	18	18	18	18	18	18	132
Central Hardware									
Other HW & Peripherals			2	2	2	2	2	2	11
DM Nurse									
Theatre			4	4	4	4	4	4	24
TrendSTAR Hardware									
Operating System Software									7
STAR system		1	1	1	1	1	1	1	14
DM Nurse			2	2	2	2	2	2	
ProLINC									
Novell (Theatre)			1	1	1	1	1	1	3
Application Software									164
PAS & Contracting		23	23	23	23	23	23	23	28
Metering		4	4	4	4	4	4	4	56
Radiology			9	9	9	9	9	9	75
DM Nurse			12	12	12	12	12	12	90
Theatre			15	15	15	15	15	15	139
Order/Results Communications			23	23	23	23	23	23	70
Pharmacy			12	12	12	12	12	12	82
Personnel/Payroll				18	18	18	18	18	92
Finance				18	18	18	18	18	37
SQL Server			5	5	5	5	5	5	102
Casemix/Audit/EIS			17	17	17	17	17	17	22
DM Post			3	3	3	3	3	3	19
Post Code Address File			3	3	3	3	3	3	
Sentinel									
Physician View									
PC Director			8	8	8	8	8	8	53
Medicode									
Interfaces/Conversion									
COMPAS Conversion									
Laboratory Interface (HBO)									
Laboratory Interface (Telepath)									
CHI Interface									
Comms. Development									
Human Resources									
Installation and Training									
Project Management									
First Year SW Maintenance	52	92	33						177
Implementation Team									
Additional ISIT Staffing	30	80	80	80	80	80	80	80	580
Start/Relief Training Costs									
= Gross Revenue Costs	555	680	504	319	319	319	319	319	3,333
		(541)	(61)	(98)	(98)	(98)	(98)	(98)	(808)
Gross Revenue Savings									2,727
	555	628	447	221	221	221	221	221	2,727
Net Revenue Costs									5,897
	555	628	447	221	221	221	221	221	5,897
Net Total Cash Flow	1,607	2,067	970	221	221	221	221	221	

DCF ANALYSIS

DORRILL NHS TRUST									
OPTION 3 - HIS6									
DCF ANALYSIS	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
	1998/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2000
	£000	£000	£000	£000	£000	£000	£000	£000	£000
Capital Costs									187
Hardware									253
Central Hardware	126	125							20
Other H/W & Peripherals		20							9
DM Nurse		4							28
Theatres		28							
TrendSTAR hardware									
Operating System Software									18
STAR system	16	14							14
DM Nurse	12								12
ProUNC		3							3
Novell (Theatres)									
Application Software									130
PAS & Contracting	22								22
Maternity		52							52
Radiology		89							89
DM Nurse		84							84
Theatres	54	84							129
Order/Results Communications		65							65
Pharmacy			91						91
Personnel/Payroll			91						91
Finance	29								29
SQL Server		94							94
Casemix/Audit/EIS	18								18
DM Post	7								7
Post Code Address File	5								5
Sentinel		8							8
Physician View	17								17
PC Director	28								28
Medicode									
Interfaces/Conversion									21
COMPAS Conversion	21								21
Laboratory interfaces (HBO)		53							53
Laboratory interfaces (Telepath)		53							53
CHI Interface		11							11
Comms. Development									
Human Resources									287
Installation and Training	37	184	88						287
Project Management	60	80	30						149
Trust Implementation and Training	88	246	150						484
Trust Project Management	50	50							100
VAT Costs (no sensitivity factor)	138	170	49						355
Total Capital Costs	1,053	1,441	478						2,970
Revenue Costs/Savings									
Existing IT Costs									1,271
CSC Costs	441	410	205	43	43	43	43	43	38
FMS - Data Centre	13	13	13						48
ICGIS	19	19	10						
Radiology System									132
Hardware									132
Central Hardware		19	19	19	19	19	19	19	132
Other H/W & Peripherals			2	2	2	2	2	2	11
DM Nurse									
Theatres			4	4	4	4	4	4	24
TrendSTAR Hardware									
Operating System Software									7
STAR system	1	1	1	1	1	1	1	1	7
DM Nurse		2	2	2	2	2	2	2	14
ProUNC									
Novell (Theatres)			1	1	1	1	1	1	3
Application Software									184
PAS & Contracting	23	23	23	23	23	23	23	23	184
Maternity	4	4	4	4	4	4	4	4	28
Radiology		9	9	9	9	9	9	9	58
DM Nurse		12	12	12	12	12	12	12	75
Theatres		15	15	15	15	15	15	15	90
Order/Results Communications		23	23	23	23	23	23	23	138
Pharmacy		12	12	12	12	12	12	12	70
Pharmacy		16	16	16	16	16	16	16	82
Personnel/Payroll		16	16	16	16	16	16	16	82
Finance		5	5	5	5	5	5	5	37
SQL Server		17	17	17	17	17	17	17	102
Casemix/Audit/EIS	3	3	3	3	3	3	3	3	22
DM Post	3	3	3	3	3	3	3	3	19
Post Code Address File									
Sentinel									
Physician View									
PC Director		8	8	8	8	8	8	8	53
Medicode									
Interfaces/Conversion									
COMPAS Conversion									
Laboratory interfaces (HBO)									
Laboratory interfaces (Telepath)									
CHI Interface									
Comms. Development									
Human Resources									
Installation and Training									
Project Management									
First Year S/W Maintenance	52	92	33						177
Implementation Team									580
Additional ISAT Staffing	30	80	80	80	80	80	80	80	580
Staff Relief Training Costs									
= Gross Revenue Costs	555	480	504	319	319	319	319	319	3,333
		(541)	(61)	(98)	(98)	(98)	(98)	(98)	(606)
Cash Releasing Savings									2,727
	555	429	443	221	221	221	221	221	2,727
Net Revenue Costs									5,897
	1,407	2,087	970	221	221	221	221	221	5,897
Net Total Cash Flow									
	1,407	2,087	970	221	221	221	221	221	5,897
Discount Factors at 8%	1.0000	0.9434	0.8900	0.8386	0.7891	0.7423	0.7000	0.6651	
Discounted Cash Flows	1,407	1,950	819	185	175	165	156	147	
Net Present Cost		6,203							

OPTION 3 - HISS
FINANCIAL APPRAISAL- WORKINGS

8 years

- 1) The asset life used for depreciation purposes: 8 years
- 2) All capital expenditure takes place mid-year and therefore attracts a half years depreciation in the first year.
- 3) The Trust's 6% return is calculated on 'relevant' assets (average of opening and closing balances).
- 4) Assume zero indexation

[illegible]

Calculation of 6% return										
Statement of asset values										
	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	Total
	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's
Opening value at 1/4			987	2,206	2,341	1,970	1,598	1,227	856	2,970
Capital expenditure		1,053	1,441	476						
Depreciation		(66)	(222)	(341)	(371)	(371)	(371)	(371)	(371)	(2,485)
= Closing value at 31/3		987	2,206	2,341	1,970	1,598	1,227	856	485	
Relevant capital value		493	1,596	2,273	2,155	1,784	1,413	1,042	670	
whereof 6% return		30	96	136	129	107	85	62	40	

Summary of capital charges	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	Total
Depreciation charge	66	222	341	371	371	371	371	371	2,486
6% return	30	96	136	129	107	85	62	40	686
Total	96	317	478	501	478	456	434	411	3,171

YORKHILL NHS TRUST - OPTION APPRAISAL OF INFORMATION SYSTEMS

OPTION 3 - HISS

SUMMARY

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	
	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's	£000's

Economic (DCF) Appraisal

Capital costs	1,053	1,441	476						2,970
Revenue costs (exc cap charges)	555	626	443	221	221	221	221	221	2,727
Total Cash Flow	1,607	2,067	920	221	221	221	221	221	5,697
Net Present Cost using discount rate = 6%									5,203

Financial Appraisal

Revenue Costs	555	626	443	221	221	221	221	221	2,727
Capital Charges	95	317	478	501	478	456	434	411	3,171
Total Financial Costs	650	944	921	721	699	677	654	632	5,898

OPTION 3 - HISS

09/11/95

Workings required to compute revised financial statements

	1996/97	1997/98	1998/99	1999/00	2000/01
	£000's	£000's	£000's	£000's	£000's
Pay impact	30	26	19	(18)	(18)
Non-pay impact	525	600	424	239	239
Depreciation impact	66	222	341	371	371
6% return impact	30	96	136	129	107

Calculation of cash balances

Original year end balance per Trust	30	30	30	2	2
Adj to reflect revised previous yrs bal (cum)		(20)	(20)	(20)	159
<u>Net rev receipts: (inc less pay & non-pay)</u>					
Depreciation	66	222	341	371	371
6% return	30	96	136	129	107
less capital expenditure	(1,053)	(1,441)	(476)		
Loan interest		(80)	(182)	(197)	(187)
Loan repayment		(47)	(109)	(124)	(124)
	(927)	(1,240)	(280)	161	329
	937	1,250	290		
New loans required	10	10	10	161	329
Revised closing cash balance					

Loan interest rate	8.50%				
<u>Calculation of loan interest and repayments</u>					
96/7 loan - interest		80	76	72	68
- repayment		47	47	47	47
97/8 loan - interest			106	101	96
- repayment			62	62	62
98/9 loan - interest				25	23
- repayment				14	14
99/0 loan - interest					
- repayment					
00/1 loan - interest					
- repayment					
Totals - interest		80	182	197	187
- repayment		47	109	124	124

Value of total new loans less repayments	937	2,140	2,321	2,197	2,073
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Fixed Assets

Original per Trust	73,284	83,112	84,222		
Adj to reflect revised previous yrs bal (cum)		987	2,206	2,341	1,970
Option appraisal capital exp	1,053	1,441	476		
Depreciation	(66)	(222)	(341)	(371)	(371)
<u>= revised fixed asset balance</u>	74,271	85,318	86,563	1,970	1,598

Inc/Exp Reserve

Original per Trust	2,083	2,158	2,247		
Adj to reflect revised previous yrs bal (cum)		30	46	0	0
less Original Net surplus	(120)	(75)	(89)		
Plus Revised Net Surplus	150	91	43		
<u>= revised balance on I/E reserve</u>	2,113	2,204	2,247	0	0

YORKHILL NHS TRUST
FINANCIAL STATEMENTS BEFORE INCORPORATING OPTION APPRAISAL
OPTION 3 - HSS

INCOME AND EXPENDITURE ACCOUNTS

	1996/97	1997/98	1998/99
	£000's	£000's	£000's
Trust Income	56,741	57,616	58,893
Trust Expenditure			
Pay Expenditure	38,875	38,699	38,873
Non Pay expenditure	11,641	11,734	11,786
Depreciation	2,649	3,294	3,755
Total expenditure	53,165	53,727	54,414
Surplus before interest	3,575	3,889	4,279
Interest receivable	119	76	89
Interest payable			
(a) originating debt	(1,409)	(1,345)	(1,282)
(b) other loans	(354)	(1,379)	(2,412)
Surplus/(deficit) before extra. items	1,931	1,241	874
Extraordinary items			
Dividends on PDC	(1,811)	(1,188)	(585)
Surplus/(deficit) for year	120	75	89

Financial target performance (%)

BALANCE SHEETS FOR YEAR ENDED

	1996/97	1997/98	1998/99
	£000's	£000's	£000's
Tangible fixed assets	73,284	83,112	84,222
Current assets			
Stocks and Work in Progress	828	936	939
Debtors	1,466	1,470	1,480
Cash	30	30	30
Total current assets	2,324	2,336	2,349
Current liabilities < 1 year			
Creditors	4,171	4,854	5,408
Bank overdrafts			
Short term loans			
a. Government			
b. Other			
Total Current Liabilities	4,171	4,854	5,408
15. Net current assets/(liabilities)	(1,847)	(2,518)	(3,059)
16. Creditors > 1 year			
Total assets less current liab	71,437	80,594	81,183
Originating Capital Debt			
Public dividend capital	18,936	18,936	18,936
Interest bearing debt	15,529	14,272	14,015
Total originating capital debt	34,465	33,208	32,951
Income and expenditure account	2,083	2,158	2,247
Revaluation reserve	12,844	12,844	12,844
Donation reserve	2,258	1,884	1,464
Other reserves			
Other loans			
a. Government	19,789	30,020	31,657
b. Other			
Other PDC			
Total capital and reserves	71,437	80,594	81,183

EFL STATEMENTS

	1996/97	1997/98	1998/99
	£000's	£000's	£000's
External Financing requirements arising from:			
Surplus/deficit for year	120	75	89
Items not involving use of funds:			
Depreciation	2,649	3,294	3,755
(Profit)/loss on sale of fixed assets			
Depreciation on donated assets			
Funds from other sources			
Proceeds from sale of fixed assets			
Other sources of income			
Application of Funds			
Capital expenditure	(16,285)	(13,515)	(5,285)
Working capital movement:			
Stocks and WIP	1	(8)	(3)
Debtors	432	(4)	(10)
Creditors	13	13	20
Net financial change	(13,050)	(10,145)	(1,414)

External Financing requirement to be met by:

Repayment of loans - GCD	(981)	(1,193)	(1,864)
New Long Term Loans			
Short Term Loans			
New loans - Government			
Long term	14,011	11,338	3,278
Short term			
New PDC			
Cash and bank balances			
Invested cash			
External Financing Limit	13,050	10,145	1,414

YORKHILL NHS TRUST
FINANCIAL STATEMENTS AFTER INCORPORATING OPTION APPRAISAL
OPTION 3 - HISS

INCOME AND EXPENDITURE ACCOUNTS

	1996/97	1997/98	1998/99
	£000's	£000's	£000's
Trust income	57,391	58,560	59,614
Trust Expenditure			
Pay Expenditure	38,906	38,725	38,892
Non Pay expenditure	12,166	12,334	12,210
Depreciation	2,715	3,516	4,096
Total expenditure	53,787	54,575	55,198
Surplus before interest	3,605	3,985	4,415
Interest receivable	119	78	89
Interest payable			
(a) originating debt	(1,409)	(1,345)	(1,282)
(b) other loans	(354)	(1,458)	(2,594)
Surplus/(deficit) before extra. items	1,961	1,257	628
Extraordinary items			
Dividends on PDC	(1,811)	(1,186)	(585)
Surplus/(deficit) for year	150	91	43

Financial target performance (%)

BALANCE SHEETS FOR YEAR ENDED

	1996/97	1997/98	1998/99
	£000's	£000's	£000's
Tangible fixed assets	74,271	85,318	86,563
Current assets			
Stocks and Work in Progress	828	838	639
Debtors	1,466	1,470	1,480
Cash	10	10	10
Total current assets	2,304	2,316	2,329
Current liabilities < 1 year			
Creditors	4,171	4,854	5,408
Bank overdrafts			
Short term loans			
a. Government			
b. Other			
Total Current Liabilities	4,171	4,854	5,408
15. Net current assets/(liabilities)	(1,867)	(2,538)	(3,079)
16. Creditors > 1 year	72,404	82,780	83,484
Total assets less current liab			
Originating Capital Debt			
Public dividend capital	18,936	18,936	18,936
Interest bearing debt	15,529	14,772	14,015
Total originating capital debt	34,465	33,708	32,951
Income and expenditure account			
Revaluation reserve	2,113	2,204	2,247
Donation reserve	12,844	12,844	12,844
Other reserves	2,256	1,864	1,464
Other loans			
a. Government			
b. Other			
Other PDC	20,726	32,160	33,978
Total capital and reserves	72,404	82,780	83,484
	(0)	(0)	(0)

EFL STATEMENTS

	1996/97	1997/98	1998/99
	£000's	£000's	£000's
External Financing requirements arising from:			
Surplus/deficit for year	150	91	43
Items not involving use of funds:			
Depreciation	2,715	3,516	4,096
(Profit)/loss on sale of fixed assets			
Depreciation on donated assets			
Funds from other sources			
Proceeds from sale of fixed assets			
Other sources of income			
Application of Funds			
Capital expenditure	(17,318)	(14,956)	(15,741)
Working capital movement:			
Stocks and WIP	1	(8)	(3)
Debtors	432	(4)	(10)
Creditors	13	13	20
Net financial change	(14,007)	(11,348)	(1,594)

External Financing requirement to be met by:

Repayment of loans - OCD	(961)	(1,193)	(1,864)
- New Long		(47)	(109)
- Short Term			
New loans - Government	14,948	12,588	3,568
- Long Term			
- Short			
New PDC	20		
Cash and bank balances			
Invested cash	14,007	11,348	1,594
External Financing Limit	(0)	(0)	(0)

YORKHILL NHS TRUST
FINANCIAL STATEMENTS SHOWING IMPACT OF OPTION APPRAISAL
OPTION 3 - HISS

INCOME AND EXPENDITURE ACCOUNTS

	1996/97 £000's	1997/98 £000's	1998/99 £000's
Trust Income	650	944	921
Trust Expenditure	30	28	19
Pay Expenditure	525	800	424
Non Pay expenditure	88	222	341
Depreciation	621	848	785
Total expenditure	30	98	138
Surplus before interest			
Interest receivable			
Interest payable			
(a) originating debt		(80)	(182)
(b) other loans			
Surplus/(deficit) before extra. items	30	18	(48)
Extraordinary items			
Dividends on PDC	30	18	(48)
Surplus/(deficit) for year			
Financial target performance (%)			

BALANCE SHEETS FOR YEAR ENDED

	1996/97 £000's	1997/98 £000's	1998/99 £000's
Tangible fixed assets	987	2,208	2,341
Current assets			
Stocks and Work in Progress			
Debtors	(20)	(20)	(20)
Cash	(20)	(20)	(20)
Total current assets			
Current liabilities < 1 year			
Creditors			
Bank overdrafts			
Short term loans			
a. Government			
b. Other			
Total Current Liabilities	(20)	(20)	(20)
15. Net current assets/(liabilities)			
16. Creditors > 1 year	987	2,188	2,321
Total assets less current liab			
Originating Capital Debt			
Public dividend capital			
Interest bearing debt			
Total originating capital debt	30	46	0
Income and expenditure account			
Revelation reserve			
Donation reserve			
Other reserves			
Other loans	937	2,140	2,321
a. Government			
b. Other			
Other PDC	987	2,188	2,321
Total capital and reserves	0	(0)	(0)

EFL STATEMENTS

	1996/97 £000's	1997/98 £000's	1998/99 £000's
External Financing requirements arising from:			
Surplus/deficit for year	30	18	(48)
Items not involving use of funds:			
Depreciation	88	222	341
(Profit)/loss on sale of fixed assets			
Depreciation on donated assets			
Funds from other sources			
Proceeds from sale of fixed assets			
Other sources of income			
Application of Funds			
Capital expenditure	(1,053)	(1,441)	(476)
Working capital movement:			
Stocks and WIP			
Debtors			
Creditors	(957)	(1,203)	(1180)
Net financial change			

External Financing requirement to be met by:

Repayment of loans - JCD			
- New Long		(47)	(109)
- Short Term			
New loans - Government - Long Term	937	1,250	290
Short			
New PDC	20		
Cash and bank balances			
Invested cash	957	1,203	180
External Financing Limit	(0)	(0)	(0)

APPENDIX IV
RISK ASSESSMENT

RISK ASSESSMENT

The following table shows risk areas during systems implementation, identifies the extent to which each risk area applies to each option, and sets out the basis of a risk avoidance strategy for each risk area. The assessment of the extent to which each risk area applies to each option is essentially comparative. It is based on an assessment of the extent to which each risk area applies to each option, the available strategies to avoid the risk, and the scale of damage to the Trust likely to arise from a particular risk area.

The results have been scored on the following basis:

- low risk score 1
- medium risk score 2
- high risk score 3

The results of the scoring are:

- Do Minimum (option 1) 18
- Incremental HISS (option 2) 33
- Single Supplier HISS (option 3) 37

Risk Area	Do Minimum (Option 1)	Incremental HISS (Option 2)	HISS (Option 3)	Risk Avoidance Strategy
Project Management Risk Insufficient/inadequate project management with potential to lead to major procurement and implementation problems and difficulties, in particular relating to failures in cost control, meeting timescales and loss of user confidence.	Low	Medium	High	The project will be overseen by a project board of senior staff. In the case of a single supplier HISS, HSD will be invited to appoint a member of staff to the project board. PRINCE will be adopted as the methodology for project management, supported by appropriate project management software. An overall project manager with experience of major systems implementation will be identified. In the case of a single supplier HISS this will be a full time role.

Risk Area	Do Minimum	Incremental HISS	HISS (Option 3)	Risk Avoidance Strategy
Project Staffing Risk				

Insufficient/inadequate IT staffing, leading to poor technical development and support, systems unreliability and loss of user confidence.	Low	High	Medium	The IT department will be expanded as appropriate, with key skills available in-house to ensure adequate local control of service levels.
Insufficient/inadequate user involvement in the project, leading to failure to address user requirements, lack of ownership and commitment, and loss of user confidence.	Low	Medium	High	<p>Appropriate support will be arranged where appropriate from external suppliers, both MISD and system suppliers.</p> <p>User project managers will be identified for specific functional areas to ensure projects are user led. They will be provided with appropriate systems and project management training.</p> <p>Additional lead users will be identified to oversee systems implementation in their specific area, and to take key policy and implementation decisions.</p> <p>Appropriate publicity will be provided in the form of demonstrations, meetings, briefings and newsletters during the course of the project.</p>
Loss of key project staff during course of implementation.	Low	Medium	Medium	<p>Recognition and appropriate reward for key positions, including recognition of IT industry salary levels.</p> <p>Safeguarding of Trust's position through appropriate notice periods for key staff.</p>

Risk Area	Do Minimum	Incremental HISS	HISS (Option 3)	Risk Avoidance Strategy
Technical Risk				
Lack of adherence to a core set of technical standards, leading to a proliferation of skills requirements and difficulties with systems integration.	Medium	High	Low	A core set of Trust standards will be defined and adhered to, through central control over procurement decisions.
Failure to achieve adequate systems integration, leading to ongoing duplicate data entry, multiple versions of patient data and lack of capability to achieve patient data linkage.	Medium	High	Low	A core set of Trust data standards and relationships will be defined for use in all systems.
Supplier Risk				
Inadequate supplier financial security, leading to supplier ceasing to trade and loss of supplier support for some or all of the Trust's systems and consequent adverse effects on the Trust's ability to meet its commitments.	Low	Low	High	Examination of suppliers' financial and trading position during procurement. Requirement for software escrow agreements. Ensure appropriate level of in-house knowledge and experience of systems.
Inability of supplier to provide adequate implementation support, system support and backup and ongoing software development, to address issues arising and meet new requirements.	Low	Low	High	Examination of suppliers' organisation during procurement. Examination of suppliers' commitments to other sites during procurement. Discussions with reference sites.
Lack of ongoing financial hold and sanctions over supplier during system implementation and operation	Low	Medium	High	Clear contractual arrangements for supplier commitments. Contractual arrangements for staged payments according to clear milestones related to system implementation and performance.

Risk Area	Do Minimum	Incremental HISS	HISS (Option 3)	Risk Avoidance Strategy
Project Issues/Characteristics				
Failure to deliver benefits from systems implementation.	Low	Medium	Medium	Pre-implementation benefits realisation planning. Clear allocation of benefits realisation responsibilities, including appointment of a full time benefits realisation manager for a single supplier HISS implementation. Enforcement of Trust technical standards.
Failure to meet timescales due to technical difficulties.	Low	High	Low	
Failure to meet timescales due to organisational inability to absorb change.	Low	Low	High	Organisational development included as fundamental part of project planning and implementation.
Inability to achieve requirement for major changes in operational practices and procedures, to make best use of new systems.	Low	Medium	High	Emphasis on user leadership and involvement, and senior management recognition of, and commitment to, examination and appraisal of existing practices.
Disruption to existing activities and service delivery due to implementation of new systems.	Low	Medium	High	Early conversion planning, with significant user involvement, associated with piloting approach in high risk/ complex areas.
Requirement for bespoke software development to provide key functionality.	Low	Low	Medium	Discussions with reference sites.
Requirement for bespoke software development to implement inter-system communication and data exchange, in particular involving multiple suppliers.	Low	High	Medium	Discussions with reference sites and ensure supplier commitment prior to final completion of procurement.

APPENDIX V
IS/IT STAFFING ASSUMPTIONS

ADDITIONAL IS/IT STAFFING

The table below shows estimates of required IS/IT staffing for systems implementation and ongoing support.

POST	COST P.A.	1996/97	1997/98	1998/99....
Do Minimum Option No additional staff	6,000		6,000	6,000
Incremental HISS				
Operations Post	20,000		20,000	20,000
CRIS Development Post	20,000	0	10,000	20,000
Incremental HISS Total			30,000	40,000
HISS				
Operations Post (2.0 WTE)	40,000	20,000	40,000	40,000
System Development Post	20,000		20,000	20,000
Benefits Manager	20,000	10,000	20,000	20,000
HISS Total		30,000	80,000	80,000

Notes:

1. The Benefits Manager under the HISS option is anticipated as part of the contractual arrangements.

APPENDIX VI
IMPLEMENTATION TEAM ASSUMPTIONS

IMPLEMENTATION TEAM STAFFING

The table below shows estimates of staffing required on an interim basis to support systems implementation.

SYSTEM/USER GROUP	Annual Cost of 1 WTE	1996/97	1997/98	1998/99	1999/00
Do Minimum					
Outpatients/Medical Records	20,000		20,000		
Maternity/Midwifery	20,000	10,000	20,000		
Do Minimum Total		10,000	40,000		
Incremental HISS					
Outpatients/Medical Records	20,000		20,000		
Maternity/Midwifery	20,000	10,000	20,000		
Theatres/Nursing	20,000		10,000		
Nursing/Nursing	20,000		20,000		
A&E/Medical Records, Nursing	20,000		20,000		
CRIS/ Medical, Nursing	30,000			30,000	30,000
Incremental HISS Total		10,000	90,000	30,000	30,000
HISS					
PAS, A&E & Contracting/Medical Records	20,000	20,000	15,000		
Maternity/Midwifery	20,000	10,000	20,000		
Radiology/Radiology	20,000		10,000		
DM Nurse/Nursing	20,000		20,000		
Theatres/Nursing	20,000		10,000		
Order Comms/Medical, Nursing, P&T	25,000	12,500	25,000	12,500	
Pharmacy/P&T	20,000		10,000		
Paramedical/P&T	20,000		10,000	10,000	
Finance, Payroll, Personnel	25,000			25,000	
Casemix/Medical, Nursing	30,000		20,000	20,000	
HISS Total		42,500	140,000	67,500	

Notes:

1. Estimates have been made in relation to individual systems/system modules within each option.
2. Costs are based on a requirement for 0.5, 0.75 or 1.0 WTE to support system/system module implementation in any one year.
3. It is anticipated that staffing will be resourced in-house, with cover provided as required.
4. It is anticipated that additional input will be required from users, but that this will be provided from within existing resources.

APPENDIX VII
TRAINING ASSUMPTIONS

STAFF RELIEF TRAINING COSTS

The table below shows estimates of costs associated with releasing staff time to attend training courses in the operation of new systems.

SYSTEM/USER GROUP	No. of Staff	% Cover Provided	No. Days Training	Daily Rate	1996/97	1997/98	1998/99	1999/00
Do Minimum						750		
Outpatients/Medical Records	15	50.00%	1	100		17,440		
Maternity/Midwifery, Medical	218	80.00%	1	100		18,190		
Do Minimum Total								
Incremental HISS						750		
Outpatients/Medical Records	15	50.00%	1	100		17,440		
Maternity/Midwifery, Medical	218	80.00%	1	100		4,080		
Theatres/Nursing	51	80.00%	1	100		54,560	54,560	
Nursing/Nursing	682	80.00%	2	100		3,000		
A&E/Medical Records, Nursing	30	100.00%	1	100			1,130	1,130
CRIS/ Medical, Nursing	113	10.00%	1	200		79,830	55,690	1,130
Incremental HISS Total								
HISS					45,680			
PAS, A&E & Contracting/Medical Records	571	80.00%	1	100		17,440		
Maternity/Midwifery, Medical	218	80.00%	1	100		2,000		
Radiology/Radiology	40	50.00%	1	100		54,560	54,560	
DM Nurse/Nursing	682	80.00%	2	100		4,080		
Theatres/Nursing	51	80.00%	1	100		24,875	24,875	
Order Comms/Medical, Nursing, P&T	995	50.00%	1	100		640		
Pharmacy/P&T	32	20.00%	1	100		850	850	
Paramedical/P&T	85	20.00%	1	100				460
Finance, Payroll, Personnel	46	10.00%	1	100		1,130	1,130	
Casemix/Medical, Nursing	113	10.00%	1	200				
HISS Total					45,680	105,575	81,875	

Notes:

1. The percentage cover required is an estimate as to the extent to which the work of staff attending training courses to be covered by overtime working/locum staff.
2. The cost of daily cover has been estimated at £100 or £200 per day, equating to £22,500 or £45,000 per annum.
3. Training requirements have been estimated at 1 day per system/system module, except for nursing which has been estimated at 2 days. Training will probably take the format of multiple half day sessions.

APPENDIX VIII
OJEC ADVERTISEMENT

I-Novi Ligure: Servizi di riscossione tasse

(95/S 193-PA105064/IT)

1. **Ente appaltante:** Amministrazione comunale, via Paolo Giacometti 22, I-15067 Novi Ligure (AL).
Tel. (01 43) 77 22 52. Telefax 77 22 00.

2. **Categoria di servizio e descrizione, numero CPC:** CPV: 75111200.

Conferimento in concessione, sulla base di specifico capitolato speciale, del servizio comunale di accertamento e riscossione della tassa occupazione, temporanea e permanente, spazi ed aree pubbliche.

L'aggio posto a base di gara è stabilito nella misura del 25 % dell'ammontare lordo della riscossione complessiva a qualsiasi titolo conseguita, sia per occupazioni temporanee che permanenti.

La riscossione complessiva annuale presunta è pari a 340 000 000 LIT che per il triennio ammonta a 2 040 000 000 LIT.

Il minimo garantito annuo, che il concessionario dovrà versare alla Tesoreria comunale, è fissato in 255 000 000 LIT.

Le specifiche tecniche per l'espletamento dei servizi dati in concessione sono contenute nel relativo capitolato speciale d'appalto.

3., 4. a)

- b) **Disposizioni legislative, regolamentari od amministrative:** DLgs n. 507/93, articolo 28 e seguenti, in conformità dell'articolo 56 della legge n. 142/90.

c)

5., 6., 7.

8. **Durata del contratto o termine per il completamento del servizio:** 6 anni, dall'1. 1. 1996 al 31. 12. 2001.

9., 10. a)

- b) **Data limite per il ricevimento delle richieste di partecipazione:** 30. 10. 1995.

- c) **Indirizzo:** Vedi punto 1.

Domanda di partecipazione alla gara su carta da bollo da 15 000 LIT, firmata in modo leggibile dal legale rappresentante, con codice fiscale e partita IVA dell'impresa.

Sulla busta dovrà essere indicata chiaramente la scritta: "Domanda di partecipazione alla gara per la concessione del servizio T.O.S.A.P."

- d) **Lingua o lingue:** Italiano.

11., 12., 13.

14. **Criteri di aggiudicazione:** La licitazione sarà espletata secondo la normativa di cui al RD n. 827/24 e successive modifiche ed integrazioni integrate dalla legge n. 14/73, dell'articolo 2 bis del DLgs n. 507/93 nonché dalla direttiva CEE n. 92/50 e dal vigente regolamento comunale per la disciplina sui contratti.

L'aggiudicazione sarà effettuata in base al criterio dell'aggio più basso rispetto a quello posto a base di gara dell'amministrazione comunale, ai sensi dell'articolo 36, lettera b) della direttiva CEE n. 92/50.

Non saranno ammesse offerte il cui aggio sia pari o superiore a quello posto a base di concessione.

La licitazione sarà indetta tra non meno di 3 soggetti iscritti all'albo, categoria 1, ai sensi degli articoli 28 e 32 del DLgs n. 507/93. È facoltà dell'amministrazione comunale di aggiudicare i servizi anche in caso di presentazione di una sola offerta.

15. **Altre informazioni:** Le domande di partecipazione pervenute dopo il termine di cui al punto 10. b) non verranno prese in esame.

16. **Data di invio del bando:** 28. 9. 1995.

17. **Data di ricevimento del bando:** 28. 9. 1995.

UK-Glasgow: computer and related services

(Open to US bidders)

(95/S 193-103187/EN)

1. **Awarding authority:** Yorkhill NHS Trust, Yorkhill, UK-Glasgow G3 8SJ.

Tel. (01 41) 201 00 28. Facsimile (01 41) 201 08 90.

(Purchasing and Supplies Manager.)

2. **Category of service and description, CPC reference number:** CPV: 30029000, 72000000, 75111200.

Category 6, financial services, CPC reference Nos 812 and 814.

Category 7, computer and related services, CPC reference No 84.

The supplier will be required to provide and operate a complete hospital information support system (HISS), both hardware and software, to support the core operations of the Trust hospital in providing a combined child health and maternity service.

3. **Delivery to:** Central Scotland.

4. (a) **Reserved for a particular profession:** No.

(b)

- (c) **Names of and qualification of personnel:** No.

5. **Division into lots:** No.

6.

7. **Variants:** No.

8. **Duration of contract or time limit for completion of the service:** The contract period will be dependent on the nature of the contract.

9. **Legal form in case of group bidders:** Prime contractor.

10. (a)

- (b) **Deadline for receipt of applications:** 10. 11. 1995.

- (c) **Address:** As in 1.

- (d) **Language(s):** English.

11.

12. **Qualifications:** A questionnaire will be issued to any interested parties.

13.

14. **Other information:** Administrative and technical information from the address in 1.

Provision may be based on either a privately financed or a capital purchase basis. A privately financed solution should satisfy the requirements of the UK Treasury's Private Finance Initiative rules.

Award procedure chosen: negotiated procedure.

15. **Notice postmarked:** 29. 9. 1995.

16. **Notice received on:** 29. 9. 1995.

17.

APPENDIX IX
EVALUATION CRITERIA

HISS DECISION CRITERIA

Weighting

1. Look and feel of software
2. User friendliness/user interface
3. Degree of integration of modules/screen access
4. Long term viability of the company or U.K. subsidiary as appropriate
5. The company's R & D strategy/future direction
6. Reliability (perceived) of supplier support and training :
Short term and long term
7. Ease/difficulty in making changes to software or procedures to accommodate Trust requirements
8. Trust's ability to work with supplier's project team
9. Price
10. The background of any potential FM operator
11. Likelihood of effective user support group
12. Feedback from Trust site visits and supplier demonstrations

APPENDIX X
PUBLIC SECTOR COMPARATOR COSTS

YORKHILL NHS TRUST

OPTION 3 - HSS

DCF ANALYSIS

	Year 0 1998/97 £000's	Year 1 1997/98 £000's	Year 2 1998/99 £000's	Year 3 1999/00 £000's	Year 4 2000/01 £000's	Year 5 2001/02 £000's	Year 6 2002/03 £000's	Year 7 2003/04 £000's	Total £000's
Capital Costs									
Hardware									187
Central Hardware		187							253
Other H/W & Peripherals		128	128						20
DM Nurse			20						8
Theatre			8						28
TrendSTAR Hardware			28						
Operating System Software									
STAR system		16							16
DM Nurse			14						14
ProLINC		12							12
Novell (Theatre)			3						3
Application Software									
PAS & Contracting		130							130
Maternity		22							22
Radiology			52						52
DM Nurse			60						60
Theatre			84						84
Order/Results Communications		84	84						129
Pharmacy			85						85
Personnel/Payroll				91					91
Finance				81					81
SQL Server		29							29
Casemix/Audit/EIS			94						94
DM Post		18							18
Post Code Address File		7							7
Sentinel		5							5
Physician View			8						8
PC Director		17							17
Medicode		29							29
Interfaces/Conversion									
COMPAS Conversion		21							21
Laboratory Interfaces (HBO)			53						53
Laboratory Interfaces (Telepath)			53						53
CHI Interface			11						11
Comms. Development									
Human Resources									
Installation and Training (supplier)		37	184	88					287
Project Management (supplier)		60	80	30					149
Staff Replacement		10	110						120
Training		25	25						50
HSS Implementation Team		42	140	87					249
Trust Project Management		50	50						100
Total Capital Costs	905	1,299	345						2,549
Revenue Costs/Savings									
Existing IT Costs		450	300						750
CSC Costs		13	13	13					39
FMS - Data Centre		18	18	10					46
ICSIS									
Radiology System									
Hardware			19	19	19	19	19	19	132
Central Hardware									
Other H/W & Peripherals				2	2	2	2	2	11
DM Nurse									
Theatre				4	4	4	4	4	24
TrendSTAR Hardware									
Operating System Software									
STAR system			1	1	1	1	1	1	7
DM Nurse				2	2	2	2	2	14
ProLINC									
Novell (Theatre)				1	1	1	1	1	3
Application Software									
PAS & Contracting			23	23	23	23	23	23	164
Maternity			4	4	4	4	4	4	28
Radiology				9	9	9	9	9	56
DM Nurse				12	12	12	12	12	75
Theatre				15	15	15	15	15	90
Order/Results Communications				23	23	23	23	23	139
Pharmacy				12	12	12	12	12	70
Personnel/Payroll				18	18	18	18	18	82
Finance				16	16	16	16	16	82
SQL Server			5	5	5	5	5	5	37
Casemix/Audit/EIS				17	17	17	17	17	102
DM Post			3	3	3	3	3	3	22
Post Code Address File			3	3	3	3	3	3	19
Sentinel									
Physician View									
PC Director			8	8	8	8	8	8	53
Medicode									
Interfaces/Conversion									
COMPAS Conversion									
Laboratory Interfaces (HBO)									
Laboratory Interfaces (Telepath)									
CHI Interface									
Comms. Development									
Human Resources									
Installation and Training									
Project Management									
First Year S/W Maintenance		52	92	33					177
Implementation Team									
Additional IS/IT Staffing		30	80	80	80	80	80	80	580
Staff Relief Training Costs		584	570	288	278	278	278	278	2,812
- Gross Revenue Costs			(54)	(81)	(98)	(98)	(98)	(98)	(806)
Cash Releasing Savings									
Net Revenue Costs	584	516	238	178	178	178	178	178	2,206
Net Total Cash Flow	1,409	1,818	583	178	178	178	178	178	4,758
Discount Factors at 8%	1.0000	0.9434	0.8900	0.8396	0.7921	0.7473	0.7050	0.6651	
Discounted Cash Flow	1,409	1,713	519	149	141	131	125	118	
Net Present Cost	4,387								

APPENDIX XI
PRIVATE FINANCE OPTION COSTS

DCF ANALYSIS

[illegible]

Net Present Cost	3,861
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Net Present Cost

APPENDIX XII
DRAFT CONTRACT FINANCIAL SCHEDULE

Schedule G

Financial obligations

G1 Contract payment

G1.1. The annual contract payment is defined as the managed service payment tendered by the Contractor and accepted by the Trust.

G1.2. There will be two separate payment streams throughout the contract period. These will be:

1. delivery stream. 70% of the annual contract payment is linked directly to the delivery of application software services. These sums will be authorised immediately following initial acceptance of each phase of the implementation.
2. performance stream. 30% of the annual contract payment is linked directly to the performance of the system and the Contractor. These sums will be paid on a quarterly basis, following acceptance by the Trust and the Contractor of the contract performance as described in the quarterly SLA Review report. Payment will be made according to performance against the following payment drivers:

Type of payment driver	Payment driver	% of annual contract payment
System & performance availability	Help desk response times	3%
	System availability	4%
	System response times	3%
Usage	Usage	10%
Cost of change	Statutory changes	4%
	General upgrades	3%
	Minor software changes	3%
Total		30%

G2.2. An agreed proportion of the annual contract payment is subject to an annual rate of increase based on the Treasury GDP deflator published by HM Government Treasury Department.

G2 Delivery payment stream

G2.1. Payment for the satisfactory acceptance of application software comprises 70% of the full contract payment.

G2.2. The Contractor and the Trust will agree a payment plan for each project phase.

G2.3. The Trust will authorise the annual delivery stream payment to the contractor for each phase upon the initial acceptance of that phase.

G2.4. If a phase does not satisfactorily pass the final acceptance test, 25% of the annual delivery stream payment will be reimbursed by the contractor to the Trust. This sum will be retained by the Trust until the phase satisfactorily passes the final acceptance test.

Remedies to delay

G2.5. If final acceptance is completed more than one calendar month after the agreed date through no fault of the Trust, the delivery stream payment will also be reduced according to the schedule in Table GB. This reduction only applies to the payment for that financial year.

Table GB

<i>Acceptance delayed by:</i>	<i>Phase payment reduced by (%)</i>
<i>Between 1 and 2 calendar months</i>	<i>10%</i>
<i>Over 2 calendar months</i>	<i>25%</i>

Table GA Payment driver summary

<i>Trigger</i>	<i>Period</i>	<i>Reason for non-payment</i>	<i>Form of non-payment</i>	<i>Extent of financial non-payment</i>	<i>Rewards</i>
Initial software acceptance	implementation phase	Delayed acceptance	Delayed payment until initial acceptance.	Nil	Early payment on early acceptance within same financial year.
Final software acceptance	implementation phase	Delayed acceptance	Delayed payment for up to one calendar month delay beyond Final Acceptance date, plus % penalty thereafter.	1-2 mnth = 10%; +2mnth = 25% of phase payment of that financial year.	Early payment on early acceptance within same financial year.
Help desk response times	quarterly review meetings of SLA reports	non-achievement of problem fix targets	Reduction in quarterly payment.	up to 3% of the annual contract payment for the quarter.	Payment at quarter start in the event of consistent good performance.
System availability	quarterly review meetings of SLA reports	non-achievement of availability targets	Reduction in quarterly payment.	up to 4% of the annual contract payment for the quarter.	As for Help desk response times, plus 1% of contract price for meeting target availability.
System response times	quarterly review meetings of SLA reports	non-achievement of system response times targets	Reduction in quarterly payment.	up to 3% of the annual contract payment for the quarter.	As for Help desk response times.
Usage	quarterly review meetings of SLA reports	non-achievement of usage targets	Reduction in quarterly payment.	up to 10% of annual contract payment for the quarter.	As for Help desk response times.
Cost of Change	quarterly review meetings of SLA reports	non-achievement of software maintenance targets	Reduction in quarterly payment.	up to 10% of annual contract payment for the quarter.	As for Help desk response times.

G3 Performance payment stream

- G3.1. Payment for the satisfactory performance comprises 30% of the full contract payment.
- G3.2. One quarter of the annual payment for performance will be eligible for payment at the end of each quarter.
- G3.3. This payment will be reduced or increased according to contractual performance against criteria under the following headings:
- System performance and availability;
 - * Help desk response times
 - * System availability
 - * System response times.
 - Usage;
 - Cost of Change.
- G3.4. After the acceptance of all phases of the managed service the Trust will make full performance payments each quarter, except in those respects where performance requirements are not met.
- G3.5. After the managed service has been operational and the Contractor has met all performance criteria for four consecutive quarters, the Trust will move the performance stream payment to the beginning of the quarter.
- G3.6. In the event that this happens, and the Contractor's management of the contract is subsequently considered unsatisfactory by the Trust, the Trust can decide to revert the payment stream to quarter end. In this event, one quarter's notice will be given to the Contractor.
- G3.7. Where penalties under more than one performance and availability payment drivers could apply, the Trust will select only one payment driver to which the penalty will apply.

G3.1 System performance and availability

G3.1.1. There are three system performance and availability payment drivers:

1. Contractor help desk "response & resolution" times
2. system availability
3. application software response times.

Contractor Help desk resolution times

G3.1.2. The targets for Contractor Help Desk resolution times are described in Schedule K. In summary the requirements are:

Table GC Monthly targets for Contractor help desk	
<i>Requirement</i>	<i>Minimum requirement</i>
% resolutions meeting target (Critical and major)	
% resolutions meeting target (Medium and low)	

G3.1.3. At the quarterly SLA review meeting the Contractor will present a report for each month in the quarter, showing the performance of the Contractor Help Desk against each of these requirements.

If both requirements have been met in each month in the quarter, payment for that quarter will be a quarter of the annual contract payment x 3%.

G3.1.4. If both requirements have been met in two months in the quarter 2% will be paid: in one month then 1%: in no months, then 0%.

System availability

Table GD Quarterly targets for critical incidents

<i>Parameter</i>	<i>8am to 6pm (Monday to Friday)</i>	<i>All hours</i>
Total unavailability		
Maximum total duration of critical incidents		
Maximum number of critical incidents		

- G3.1.6. The SLA Review Meeting will consider availability performance within the quarter to be reviewed. If all the above requirements have been met, a 4% payment will be made for that quarter.
i.e. a quarter of the annual contract payment x 4%.
- G3.1.7. If the requirement for the maximum number of critical incidents is met, but the requirement for the maximum total duration of critical incidents is not met in any given quarter, a 2% payment will be made.
- G3.1.8. If the total duration of critical incidents is zero minutes in any given quarter, an additional 1% reward will be paid to the Contractor in that quarter.

Application software response times

G3.1.9. As stated in Schedule K, response times for a given set of real system transactions will be monitored continuously, throughout the contract period.

G3.1.10. Core hours are defined as 8am to 6pm Monday to Friday.

G3.1.11. The Trust and the Contractor will agree at the start of each quarter the additional transactions to be included in the performance testing in that quarter

Table GE Targets for application system response times

<i>Transaction</i>	<i>95% of responses within:</i>	<i>99% of responses within:</i>
<i>Login procedure from receipt of final password to return of application prompt</i>	5 seconds	7 seconds
<i>Retrieval of patient record using hospital casenote number as the only search criteria.</i>	2 seconds	3 seconds
<i>Production of clinic list on screen</i>	2 seconds	3 seconds
<i>Receipt of a single field without validation, e.g. patient name</i>	0.5 second	1 second
<i>Transactions from other modules</i>	TBA	TBA

G3.1.12. If all relevant requirements are met for core hours in all 3 months in the quarter, the 3% payment for that quarter will be made to the Contractor, i.e. a quarter of the annual contract payment x 3%.

G3.1.13. If the requirements have been met in core hours in two months 2% will be paid: in one month then 1%: in no months, then 0%.

G3.2 Usage

G3.2.1. The Trust and the Contractor will define -----% of the Trust's trained staff as representative key users of the system.

G3.2.2. The names of these key users will change during the contract period as staff leave and rotate. Changes to the list will be agreed by the Trust and Contractor project managers.

G3.2.3. Access to the system by these key users will be monitored using the Contractor's access control application.

G3.2.4. The Trust and the Contractor agree that a minimum number of thirty (30) log-in sessions during a quarter is a indicator that the user is actively accessing information and gaining benefit from the system.

G3.2.5. Quarterly payments will be made on a sliding scale dependant on the number of key users who have accessed the system 30 or more times in that quarter. This sliding scale is detailed in Table GF.

Table GF Sliding scale for usage payment

<i>Number of key users accessing the system 30 or more times in the quarter</i>	<i>Percent payment</i>
Up to 30%	3
Up to 70% but more than 30%	7
More than 70%	10

G3.3 Cost of change

G3.3.1. There are three cost of change payment drivers:

- Modifications to meet statutory changes
- General upgrades
- Minor software changes

G3.3.2. As stated in Schedule K4, the Trust and Contractor will agree at quarter start all software changes to be delivered in the quarter and the delivery dates, and will allocate each software change to one of the 3 categories in G3.3.1.

Statutory changes

G3.3.3. If all statutory changes in the quarter are delivered in to the live environment by the deadline date, then a 4% payment will be made by the Trust, i.e. a quarter of the annual contract payment x 4%.

G3.3.4. If the Contractor fails to deliver all the changes in to a live environment in the quarter, no payment will be made. Where this failure is only due to the late delivery of required SMRs, and this occurs through no fault of the contractor, this penalty will not apply.

General upgrades

- G3.3.5. If all software upgrades planned in the quarter are delivered in to the live environment by the deadline date, then a 3% payment will be made by the Trust. i.e. one quarter of the annual contract payment x 3%
- G3.3.6. If the Contractor fails to deliver all the planned upgrades in to a live environment in the quarter, except by agreement between the Trust and the Contractor, no payment will be made.
- G3.3.7. The Contractor will inform the Trust as soon as is reasonably practicable should any planned delivery dates be no longer achievable within the quarter. In the event that this procedure is adhered to, the penalty in G 3.3.6 will not apply.

Minor software changes

- G3.3.8. Software changes under Schedule J (excluding interface and whole application/module developments) are included in the "minor software changes" category for payment driver purposes.
- G3.3.9. Trust specific software changes agreed with the Contractor during the contract period are included in the "minor software changes" category for payment driver purposes.
- G3.3.10. If all software changes planned in the quarter are delivered in to the live environment by the deadline date, then a 3% payment will be made by the Trust . i.e. a quarter of the annual contract payment x 3%.
- G3.3.11. If the Contractor fails to deliver all the software changes in to a live environment in the quarter, payment will be delayed until final software acceptance, and will be subject to the percentage reductions in table GB.

G4 Contract extension and the transfer payment

G5 Incentives

G5.1. The Trust and the Contractor agree to share any additional financial benefits that either party may identify during the contract through the provision of this or associated services.

G6 Timing of payments

G6.1. Payments to the Contractor will be made on or before 14 calendar days of the receipt of a valid invoice for the service provided. Unless otherwise agreed, the payments due under this contract are due:

- delivery stream: at the end of the month to which payment relates.
- performance stream: at the end of the quarter to which the payment relates, subject to agreement of the service levels and payment drivers detailed in section G3.

APPENDIX XIII
RISK TRANSFER ANALYSIS

RISK TRANSFER MATRIX

Risk Area	Category of Risk	Risk Transfer/Avoidance Mechanism
Financial Risk		
Increased costs for contractor to supply system, undertake implementation and provide facilities management service.	Supplier	Contract sets out fixed cost for supplier to meet Trust's requirements.
Increased costs from involvement of Trust staff in system implementation and operation and from releasing staff for training programmes.	Trust	Effective project management structure and monitoring or progress. Design of training programmes.
Project Management/Implementation Risk		
Insufficient/inadequate project management with potential to lead to major procurement and implementation problems and difficulties, in particular relating to failures in cost control, meeting timescales and loss of user confidence.	Shared	The contract provides for a fixed maximum cost for the supplier's input to the project but it does not limit the amount of time required to be input by the supplier. Payment to the supplier is dependent on successful implementation with early payment as an incentive for early implementation. The project sponsor will be the Trust Chief Executive. PRINCE will be adopted as the methodology for project management. The Trust has put in place appropriate project management structures involving senior staff. An overall project manager with experience of major systems implementation will be identified. This will be a full time role.
Project Staffing Risk		
Insufficient/inadequate IT staffing, leading to poor technical development and support, systems unreliability and loss of user confidence.	Supplier	The contract places responsibility for technical aspects of implementation and system availability and performance with the supplier, with financial penalties for inadequate performance.

Risk Area	Category of Risk	Risk Transfer/Avoidance Strategy
Insufficient/inadequate user involvement in the project, leading to failure to address user requirements, lack of ownership and commitment, and loss of user confidence.	Shared	<p>10% of the performance payment stream will be linked to the scale of use of the system by Trust staff.</p> <p>User project managers will be identified for specific functional areas to ensure projects are user led. They will be provided with appropriate systems and project management training.</p> <p>Additional lead users will be identified to oversee systems implementation in their specific area, and to take key policy and implementation decisions.</p> <p>Appropriate publicity will be provided in the form of demonstrations, meetings, briefings and newsletters during the course of the project.</p>
Loss of key project staff during course of implementation.	Shared	<p>The long term nature of the contract and the requirement to meet performance requirements provides additional incentives for the supplier to retain key staff.</p> <p>Recognition and appropriate reward for key positions within the Trust, including recognition of IT industry salary levels.</p> <p>Safeguarding of Trust's position through appropriate notice periods for key staff.</p>
<p>Technical Risk</p> <p>Lack of adherence to a core set of technical standards, leading to a proliferation of skills requirements and difficulties with systems integration.</p> <p>Failure to achieve adequate systems integration, leading to ongoing duplicate data entry, multiple versions of patient data and lack of capability to achieve patient data linkage.</p>	<p>Supplier</p> <p>Supplier</p>	<p>Responsibility for technical issues associated with delivery and operation of the system is with the supplier with financial penalties for inadequate performance.</p> <p>Requirements to address these issues, including interface development, is part of the Trust's operational requirement. Payments to the supplier in the delivery stream are linked to software acceptance by the Trust.</p>

Risk Area	Category of Risk	Risk Transfer/Avoidance Strategy
Failure to meet timescales due to technical difficulties.	Supplier	Responsibility for technical aspects of the system rests with the supplier with reductions in payments if technical difficulties result in failure to meet agreed performance standards.
Supplier Stability Risk Inadequate supplier financial security, leading to supplier ceasing to trade and loss of supplier support for some or all of the Trust's systems and consequent adverse effects on the Trust's ability to meet its commitments.	Trust	Examination of suppliers' financial and trading position has taken place during procurement. Requirement for software escrow agreement is part of the contractual arrangement.
Inability of supplier to provide adequate implementation support, system support and backup and ongoing software development, to address issues arising and meet new requirements.	Supplier	Provision of these services is clearly linked in the contract to payments to the supplier. Multiple discussions with reference sites have been undertaken during the procurement regarding these issues.
Lack of ongoing financial hold and sanctions over supplier during system implementation and operation	Shared	The contract clearly provides for the linkage of payments to clear milestones related to system implementation and performance.
System Performance		
Failure to deliver benefits from systems implementation.	Shared	The contract links acceptance of software to payment to the contractor. Pre-implementation benefits realisation planning. Clear allocation of benefits realisation responsibilities.
Requirement for bespoke software development to provide key functionality.	Supplier	Bespoke development is included in the contract with software acceptance required prior to payment. Appropriate bespoke development will be required to ensure adequate usage of the system which is also linked to payments to the supplier. Discussions with reference sites.

Risk Area	Category of Risk	Risk Transfer/Avoidance Strategy
Requirement for bespoke software development to implement inter-system communication and data exchange, in particular involving multiple suppliers.	Shared	The Trust will ensure the commitment of the laboratory system provider prior to final completion of procurement.
Organisational Change		
Failure to meet timescales due to organisational inability to absorb change.	Trust	Organisational development included as fundamental part of project planning and implementation.
Inability to achieve requirement for major changes in operational practices and procedures, to make best use of new systems.	Trust	Emphasis on user leadership and involvement, and senior management recognition of, and commitment to, examination and appraisal of existing practices.
Disruption to existing activities and service delivery due to implementation of new systems.	Shared	Contract relates payment to software acceptance, performance and system usage. This provides an incentive for the supplier to ensure smooth implementation.
		Early conversion planning, with significant user involvement, associated with piloting approach in high risk/ complex areas.

APPENDIX XIV
POST PROJECT EVALUATION
PROJECT FRAMEWORK

PROJECT FRAMEWORK

OBJECTIVES	PERFORMANCE INDICATORS	METHOD OF MEASUREMENT	ASSUMPTIONS AND RISKS
BUSINESS OBJECTIVES Develop daycare and ambulatory services as an alternative to inpatient care in support of the Trust's Clinical Strategy. Develop community-based services and improve the integration between hospital and community services in support of the Trust's Clinical Strategy. Ensure managers and clinicians are provided with the access to the information they require to purchase, manage and operate services. Support and encourage the development of clinical audit. Cultivate the skills necessary to enable health care professionals and managers to use effectively the information available to them.	Level of daycare and ambulatory care activity. Level of community activity and development of integrated care programmes. Manager and clinician views on the comprehensiveness and timeliness of required information. Number of clinical audit programmes. Number of training events and extent of usage of information systems.	Change in actual level of daycare and ambulatory activity and as a percentage of elective inpatient activity for each specialty. Change in actual level of community activity and extent of transfer of activity from hospital to community for each specialty. Pre and post implementation staff survey. Change in number of clinical audit programmes. Trend in system usage statistics.	No change in activity levels due to unacceptability of clinical practice to patients or clinicians. No change in activity levels due to unacceptability of clinical practice to patients or clinicians. Changes in information requirements. Revised views/changed approach to clinical audit programmes.
PROJECT OBJECTIVES Develop integrated systems which: <ul style="list-style-type: none"> support 'once only' entry of data; utilise common coding systems; avoid data duplication; support the linkage of patient based data. Deliver a Trust Patient Master Index, accessible by staff, including use of a single unique patient identifier. Provide administrative systems to manage all patient contacts with the Trust and operate these systems at the point of contact with patients to facilitate the work of staff and to improve data ownership and timeliness. Provide data communications between departments for order and results communications. Provide automated support to staff for the undertaking of routine administrative and clinical tasks.	Requirement for multiple data entry. Number of coding systems in use. Instances of data recording. Number of data sources to access patient data. Number of patient identifiers in use. Number of terminals from which patient identifier can be accessed. Number of patient based administrative forms in use. Number of request and results forms in use. Staff time expended on routine administrative tasks.	Change in number of possible requirements to enter patient demographics to systems. Change in number of coding systems. Change in number of electronic databases in use. Change in number of patient identifiers in use. Change in number of terminals in use. Change in number of manual administrative forms in use. Change in number of manual request and report forms in use. Pre and post implementation survey of staff time.	Maintenance by staff of their own local systems. National progress towards provision of a single unique patient identifier. Maintenance of dual electronic and manual systems. Maintenance of dual electronic and manual systems. Increase in the administrative burden of staff.

OBJECTIVES	PERFORMANCE INDICATORS	METHOD OF MEASUREMENT	ASSUMPTIONS AND RISKS
PROJECT OBJECTIVES Provide facilities to support the effective and efficient utilisation of Trust resources including: <ul style="list-style-type: none"> beds and clinic facilities; theatres; diagnostic investigation facilities. Improve the financial monitoring and reporting facilities, including contracting performance.	LOS figures and bed occupancy. Theatre utilisation. Numbers of investigations related to patient numbers. Timeliness of financial information. Extent of delegation of budget responsibilities.	Change in LOS and bed occupancy. Change in bed numbers. Change in theatre utilisation. Change in numbers of investigations. Change in delay in month end financial reporting. Change in level to which budgets are delegated.	New clinical practices and bed management techniques. Development of new investigations.
OUTPUTS Provision of access to HISS modules and associated functionality.	Implementation progress reports. Benefits realisation reports.	Progress compared to project plan. Cost monitoring. Benefits realisation progress against predicted benefits.	Time overruns. Cost overruns. Failure to realise benefits.
INPUTS PFI contract revenue funding. Supplier staff time. IM&T staff time. HISS project team time. Senior management time. Staff time for training and locum/relief staff/overtime costs. Hardware for peripheral devices.	PFI contract costs. Time input.)) Time input and costs.) Capital costs.	Contract costs compared to budgeted costs. Implementation and training support compared to budget.)) Time and cost compared to budget.) Numbers of devices and cost compared to original plan.	Supplier stability. Increased project complexity/ implementation difficulties/ lack of system acceptance by staff. Increased demand for system access over projected level.