Performance Audit

School Information System
Education Division

Report by the Auditor General

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December 2002

Mr. Speaker,

This report has been prepared and is being submitted in terms of sub-paragraph 8(a)(ii) of the First Schedule of the Auditor General and National Audit Office Act, 1997, for presentation to the House of Representatives in accordance with sub-paragraph 8(b) of the said Act.
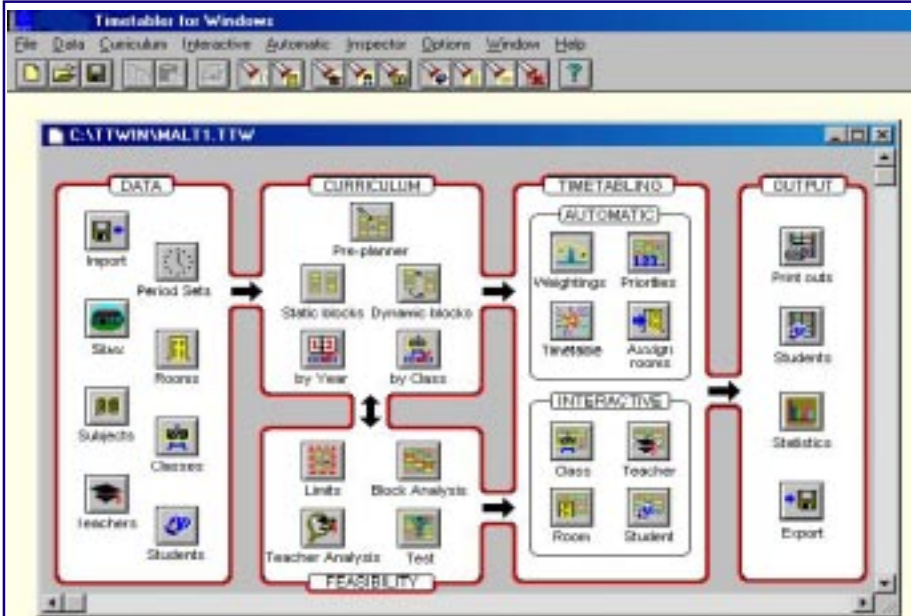
Yours sincerely,

J. G. Galea
Auditor General

The Hon. Speaker
House of Representatives
Valletta

Training sessions in the use of the School Information System

Screenshot of the School Information System

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Glossary

CENTRIS	Central Information System
IT	Information Technology
ITT	Invitation to Tender
LAN	Local Area Network
M & S	Maintenance and Support
MEU	Management Efficiency Unit
MITTS	Malta Information Technology Training Services
MSU	Management Systems Unit
NAO	National Audit Office
SIS	School Information System
UAT	User Acceptance Testing

Executive Summary

Executive Summary

1   This performance audit was carried out during 2001 to determine whether the policy of introducing IT systems in school management was successfully realised and whether funds invested in the project were spent wisely.

2   Government policy to introduce IT in school management was launched in the mid 1990s. A tender for the provision of a School Information System (SIS) consisting of ten modules and a Central Information System (CENTRIS) was issued by MSU (now MITTS) on behalf of the Government of Malta. SIS consisted of modules for data collection, processing and analysis at school level. CENTRIS was the system through which collective data at school level would be centralized at the Education Division.

3   The criteria for adjudicating the tender gave relatively little weight (20% of total) to technical and functional consideration to IT required.

4   The tender, valued at Stg 826,155, was awarded to a UK firm which entered into a contract in 1996 with the then Management System Unit (MSU) for the supply of SIS and CENTRIS. The contract stipulated that both IT systems would be operational by July 1998, and that the supplier would be paid in nine stage payments.

5   Separate contracts, worth over Lm 1.3 million were entered into between MITTS Ltd and the Ministry of Education covering years 1997 to 2001 for the provision to the Education Division of SIS and CENTRIS software, hardware, project management, training and related maintenance and support services. This was a back-to-back agreement for MITTS.

6   Plans for the project, including management setup, timeframes and training required were poor. Planning was the sole responsibility of MITTS Ltd. The Education Division was not involved whatsoever at the planning stage. This proved to be a critical shortcoming which eventually led to a poor and partial implementation of the project.

7   Moreover, ownership on the part of the Education Division was lacking. The Education Division ended up being the user of the system without fully assuming ownership.

8   Implementation and project control was also below standard required for success. Project management structure was lacking in that specific positions and roles were not clearly defined. Additionally, project implementation was initially resisted by school heads and staff and was thus delayed.

9   Given this environment, the UK supplier failed to deliver a number of contracted deliverables. Only half of the modules of SIS were eventually delivered and these still carried severe defects. CENTRIS was never delivered and this rendered the partial delivery of SIS much less effective.

10   Due to delays and technical problems mentioned above, the original agreement of 1996 between the UK supplier and MSU/MITTS was reviewed and a revised agreement was signed in 1998. The revised agreement, increasing the original tender value by an additional Stg 286,528, extended the implementation period of all the software modules to June 2006 and stipulated that payments were to be effected against deliverables.

11   However, MITTS, on behalf of the Education Division, failed to adequately apply provisions in the contract which safeguarded both MITTS and the Education Division interests.

12   The Education Division, frustrated by ongoing delays, technical problems and lack of co-ordination, informed MITTS that it was not interested in the project anymore and stopped the implementation of further modules.

13   The contract between MITTS and the UK supplier was finally abandoned in 2001. MITTS and the UK supplier, through their legal representative, discussed the breach of contract and an amicable settlement of pending matters was sought.

14   The outcome of the above discussions was an agreement dated 20 August 2002 whereby MITTS Ltd waived all claims, notably overpayments (see para. 17), in its favour in exchange for the source codes of 8 of the 10 originally contracted modules. Ownership of the source codes would enable suitably trained technical personnel to amend/ enhance the program as necessary. However, in this agreement, the UK Supplier did not provide an assurance that all technical information relating to the above modules will be provided.

15   The Education Division informed NAO that, irrespective of the agreement reached between MITTS and the UK Supplier, it is reluctant to allow MITTS Ltd to customise and develop the software further. In fact, the Education Division is in the process of assessing its position to re-launch the policy on IT in School Management as it deems fit.

16   The Education Division argues that, although the project did not deliver the expected benefits, it instilled an IT culture in the Ministry of Education and its departments which was still lacking till then.

17   Financial highlights of the project, covering the UK Supplier and MITTS contracts, include:

Value of services contracted between MITTS and UK supplier:	Stg 1,112,683
Value of services delivered by UK supplier:	Stg 617,294
Value paid by MITTS:	Stg 788,255
Overpayment:	Stg 170,961

18   MITTS Ltd contends that the overpayment to the UK Supplier amounted to only Stg 58,024. However, NAO is not satisfied with evidence to support this claim.

19   Financial highlights covering contracts between MITTS and the Ministry of Education include:

Value of services contracted between
  MITTS and Ministry of Education   Lm1,352,095
Value of services delivered by MITTS   Lm 1,188,167
Value paid by Ministry of Education   Lm1,182,652

In addition, MITTS delivered IT related services, amounting to Lm181,316 to the Education Division during 1995 and 1996 prior to contracts.

20   NAO opines that the major causes behind the failure of the project to reach most of its objectives were lack of adequate planning, poor project management, inadequate technical properties of the software, lack of clear ownership and resistance by school heads.

Part 1:
Introduction

Part 1 - Introduction

1.1.1 A performance audit of the school information system was undertaken during the period February to November 2001. The main objective of this audit was to establish whether school information systems are providing schools with an efficient and effective tool in school administration and are assisting the Education Division in its planning and monitoring role. The audit was performed in accordance with subparagraph 8(a)(ii) of the First Schedule of the Auditor General and National Audit Office Act, 1997.

1.2 Background

1.2.1 The Education Division is the largest department in the civil service and forms part of the Ministry of Education. Its primary objective, in terms of the Education Act (Act XXIV of 1988) is the provision of top quality education to all Maltese citizens. The Division is headed by a Director General and is organised into seven departments namely:

Chart 1.1: Education Division Setup
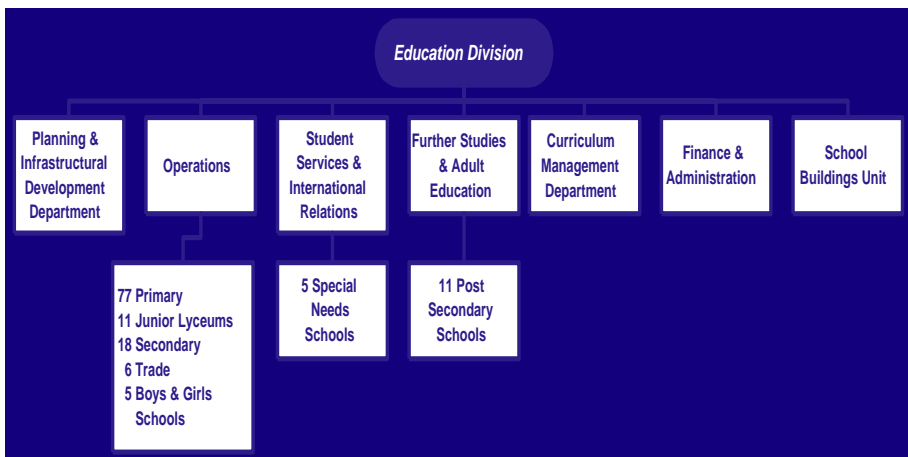
Source: Director General, Education Division

1.2.2   At present, there are 133 government schools which can be classified in the categories listed above. Schools fall mainly under the Operations Department of the Division with the exception of post secondary schools and special needs schools which fall under Further Studies and Adult Education, and Student Services and International Relations respectively.

1.2.3   The top management structure of the Education Division has been reformed in order to introduce the process of decentralisation of schools. The Education Division has retained its planning and monitoring role. However, more and more responsibilities are being delegated to heads of schools and school councils.   Heads of School are now directly responsible for the administration of funds and the procurement of equipment and supplies. Funds are provided to schools under the Imprest Method in respect of material and supplies and school maintenance from the Recurrent vote, and for School Equipment from the Capital Vote. Heads of school are responsible for preparing their own three-year business plan, carry out minor maintenance and repair works, administer property, purchase their own materials and utilities. They are authorised to issue quotations for works for their respective schools where the amounts involved do not exceed Lm2,500.

1.2.4   The Education Division through its seven departments has retained its planning and monitoring role. The Planning and Infrastructural Development Department is responsible for compiling and maintaining statistical data on schools. Quarterly Returns and the Classification Report by schools are submitted to this department.

1.2.5   The Operations Department supervises state primary and secondary schools in Malta and Gozo with the exception of special education schools. It also provides services relating to the professional development of staff in these schools, the communication of policies and/or administrative programme

matters to state schools and ensuring that a high level of quality is maintained in schools. The Operations Department is also responsible for the operation of the School Information System. Development of the strategic plan for Education in Malta and operational plans for the Division are two tasks for which this department is also responsible.

1.2.6 The Student Services and International Relations is responsible for the provision of caring support for pupils and students from pre-primary to post-secondary education. Guidance and counselling services of the Education Division are services falling under this department. The aim of these services is to provide guidance and counselling support to ensure a holistic development of students. The supervision of special needs schools is also the responsibility of this department.

1.2.7 The Department of Further Studies and Adult Education provides courses of further studies, vocational education and training to post-compulsory school age students. This department monitors the progress of post secondary schools. The Curriculum Management Department is responsible for the learning material as taught in classes.

1.2.8 The Finance and Administration Department manages all financial matters of the Division as well as the compilation and presentation of the Business Plan and Budget Estimates. This department also allocates to schools a sum of money for both capital and recurrent expenditure to enable them to conduct business matters on their own initiative under the Imprest Method.

1.2.9 The School Buildings Unit is responsible for the implementation of the Capital Works Programme in Government Schools.

1.2.10 In line with the process of decentralisation, a computerised schools information system was introduced in all state schools and the Education Division. The aim of the

computerised information system was to assist school Heads in the efficient administration of their schools and to enable information sharing between schools and the relevant departments of the Education Division. The components making up the system were identified as being:

a)   A central information system (CENTRIS), enabling two-way communication between the Division and the schools. The intention of CENTRIS was to assist the Education Division in collecting, processing and analysing data received from schools covering aspects such as staff and students data, curricular options, time-tabling and management of school resources.

b)   A school-based information system (SIS) covering student records and attendance, staff records and attendance, curriculum and examinations, time-tabling, financial accounts and budgeting, premises and inventory management.

1.2.11   An invitation to tender (ITT) was issued by the then Management Systems Unit (MSU) in August 1995. The project objectives as per ITT were stated to be the following as per article 02.02:

•   to implement the selected school information system into six state schools on a pilot basis;
•   implement the central control facilities in the Education Division and
•   subsequently implement the system into all the remaining state schools on the island.

1.2.12   The ITT contained detailed specifications regarding individual SIS modules, however, CENTRIS requirements had not been adequately developed in the tendering invitation. The ITT stated primarily with respect to CENTRIS that schools should be able to electronically

transfer information from their computer to the department data centre through modem or diskettes and that the department may download information from its data centre to the schools. The projected completion date of the project was July 1998.

1.2.13   Five bids were submitted by closing date on 16 November 1995. The adjudication board was made up of a team from the Education Division and MSU. The tender was awarded to a UK supplier, who had local representatives, at the price of Stg 826,155 (Lm543,523). The contract was signed between MSU and the supplier on 6 June 1996 and could be terminated at any time by MSU after 31 December 1998. On award of tender, MSU and subsequently MITTS Ltd took over the implementation plan of the School Information System (SIS) assisted by the local representative of the UK supplier.

1.2.14   In 1996, funds in respect of IT projects were being provided directly to the then MSU by way of subvention by central government. However, from 1997 individual ministries, including the Education Division, were entering into agreements directly with MSU. In 1997, a comprehensive contract was signed between the Education Division and the then MSU regulating the relationship between both parties in respect of all IT projects.

1.2.15   In 1998 and 1999, separate contracts were entered into between MITTS and the Education Division specifically covering the Schools Information System and the Central Information System. These contracts regulated a number of deliverable items to be delivered to the Education Division including implementation of modules, training and hardware requirements. Further contracts were entered into between both parties in respect of application maintenance and support and technical infrastructure and facilities management in respect of all IT projects then in progress at the Education Division. A similar contract signed in 2000

excluded CENTRIS. Total transfers from Education Division, including funds transferred on its behalf by central government, to MITTS Ltd for the period 1995-2001 amounted to Lm1,363,968. Lm933,151 were paid in respect of project management fees including implementation of modules, training and hardware requirements and Lm430,817 were paid in respect of maintenance and support.

1.2.16 As soon as the tender was awarded, the pilot phase of the project commenced. The user acceptance testing (UAT) of the software took place between 12 June 1996 and 19 September 1996 and covered the following modules: Student Administration Manager, Staff Records, Cash Accounts, Budgeting, Student Attendance, Timetabling, Premises Manager and Curriculum Manager. The UAT was carried out at MSU by personnel from the Education Division and from schools under guidance from the UK supplier and its local representative. A number of defects in the modules were noted, however, they were not considered to be of sufficient gravity to stop implementation. The UAT was followed by the piloting of seven of the above modules in six schools. Each school was asked to pilot two or three modules each so as not to disturb the normal operations of the school. Schools were asked to provide feedback on the above piloting to the supplier. As a result, the supplier made a number of recommendations to the project as a result of the feedback provided by schools.

1.2.17 In 1997, six modules namely Student Administration Manager, Student Attendance, Staff Records, Cash Accounts and Budgeting and Timetabling were installed in 142 schools. Training in the use of Student Administration Manager, Student Attendance and Staff Records commenced. However, implementation of these

three modules was slow. Training for the next batch of modules namely Cash Accounts, Budgeting and Timetabling followed during the period October 1997 to March 1998. A union directive requested school staff not to attend training, since it felt that updating the software in question was not a task to be performed by head teachers. This stalled the progress of the implementation of the above modules. Furthermore, the operation of the Cash Accounts Module was considered to be complex and the need was felt to request an amendment to the software to cater for the financial report submitted by schools. The Student Attendance module also required amendments to meet local requirements.

1.2.18   By this time, various deficiencies in both the software and the implementation plan had become apparent. Another setback in the project implementation was the resistance offered by school heads to the system mainly stemming from lack of computer literacy. The Education Division decided to slow down the implementation plan and stopped rolling out further modules as per tender. The Division also decided to set up its own support team, SIS Office, to supervise overall progress and manage operations at the schools. This office was set up in 1998 and members of its staff were accredited with providing training to the software users at school level. At the time, technical support was still being provided by MITTS Ltd.

1.2.19   MITTS repeatedly referred the problems being encountered with the software to the supplier. The supplier response in many cases did not fulfil MITTS requirements. As a consequence, and in view of the various changes to the original implementation plan, a second agreement was drawn up in 1998 between MITTS and the UK supplier. Amongst other issues, this contract extended the original implementation plan to 2006 and addressed matters dealing with the provision of CENTRIS.

1.2.20　　In May 1999, the implementation of the attendance module was finalised including changes required to meet local requirements. In early 2000, the piloting of the revised cash module was effected in ten schools. This module has now been rolled out in all schools.

1.2.21　　A requirements report for CENTRIS was finally drawn up by the local representative of the UK supplier and MITTS Ltd in April 2000. However, this was not detailed enough to enable the development of the central information system.

1.2.22　　Due to the supplier repeated failure to honour commitments and carry out all amendments deemed necessary, the Division decided to impose a temporary moratorium on further roll outs of modules and consolidate what has been achieved so far. It also requested MITTS Ltd to commence contract termination proceedings with the supplier.

1.2.23　　An amicable settlement in August 2002 between MITTS Ltd and the UK supplier was reached whereby MITTS Ltd waived all claims in its favour, notably overpayment, in return for a copy of the source codes of 8 out of the 10 contracted modules.

1.2.24　　The supplier did not provide a definite assurance that it will provide technical documentation pertaining to the above modules.

1.2.25　　The Education Division informed NAO that it is reluctant to allow MITTS Ltd to customise software.

1.3　Audit concern and problem

1.3.1　In view of the above developments, NAO is concerned that the project failed to deliver the required information system even though the Ministry of Education has honoured its payments.

1.3.2   The foreign supplier of the software and/or MITTS and/or the Education Division must have failed in their responsibilities during the planning and/or implementing and/or support stages of the project.

1.4 Objectives

1.4.1   The objectives of the audit are to ensure whether Government policy is being upheld, namely:

- that the Education Division and all state schools are provided with a computerised system enabling the collation of educational data and statistics for improved administration of schools;

- that the computerised information system is providing the Education Division and Heads of Schools with timely and reliable information i.e. the efficiency and effectiveness of the system;

- to compare actual costs incurred by the system setup and implementation (including training) to date to budgeted costs as per tender file i.e. the economy of the system in place.

1.5 Scope

1.5.1   Audit of Planning Stage

- Review of tender files

1.5.2   Audit of Implementation Stage

- Review of correspondence between MITTS and the foreign supplier

- Review of MITTS/Education contracts

- Review of implementation stage at 32 schools

1.6 Methodology

Audit of Planning Stage

1.6.1   Review of tender files for the supply of a School Information System and a Central Information System to the Education Division to determine:

- Whether a study of the needs of schools and the Division had been done;

- Who approved the funds for the project;

- Whether improvements to school administrative processes have been included in the drawing up of system requirements;

- Hardware, Software and Training specifications;

- The basis on which the tender was awarded;

- Delivery of milestones.

Audit of Implementation Stage

1.6.2   Review of correspondence between MITTS and the foreign supplier to:

- Determine whether the actual implementation was according to plan in terms of deliverables and delivery milestones;

- Investigate any variations to the original plan.

- Review of contracts between MITTS and Education Division to determine whether MITTS fulfilled its contractual obligations to the Division

- Review of the implementation stage in 32 schools to determine:

  a) The level of implementation at schools with respect to modules actually rolled out;

  b) The level of utilisation of the School Information System by individual schools and the extent to which School Heads make analytical use of the data stored in SIS as an aid to administering their schools;

  c) Whether SIS is being maintained in a way that safeguards the confidentiality and integrity of the data;

  d) Whether School Heads and staff maintaining the system are being adequately trained and supported.

Part 2
Determining the Information System (Planning and Tendering)

Part 2: Determining the Information System (Planning and Tendering)

2.1 Initiation of school information system project

2.1.1   In 1994, the then Management Systems Unit Ltd (MSU) conducted a study in conjunction with the Education Division in order to identify the overall needs for information technology systems within the Education Division. This study recommended the use of a computerised information system to support the administration of all state schools. In 1995, MSU initiated a new project with the aim of automating various administrative activities performed by state schools. These administrative activities included the recording of staff and student attendance, planning a scholastic year, timetabling, management of premises and inventory, maintenance of school financial records, and scheduling of examinations and examination invigilators. The provision of central control facilities to the Education Division was also included within the scope of the project.

2.1.2   The objectives of the project for a school information system were the following:

- To define, validate and prioritise both the software and hardware requirements for a school information system;
- To select a school information system from a supplier with a good track record on an open tender basis;
- To train user staff;
- To initially implement the selected system into six state schools on a pilot basis;
- To implement the central control facilities in the Education Division;

- To subsequently implement the system into all the remaining state schools on the island.

2.1.3 The project implementation milestones were planned as follows:

Table 2.1: Project milestones

	Year of implementation
The performance of User Acceptance Testing (to ensure that user requirements are being met) and the implementation of the software in six pilot sites representing all types of schools included in the project	1996
Implementation of the Central System at the Education Division	1996
Implementation of the school information system into all remaining state schools	1996 - 1997

Source: Invitation to tender

2.2   Project Organisation

2.2.1   Control of the project was envisaged to be vested in a project board composed of one executive chairperson from the Education Division, two senior users from the Education Division and a senior technical member from MSU (later MEU and MITTS Ltd). The role of the executive chairperson was to provide overall project guidance and continually assess the project progress. The senior users would represent the users of the system, namely school head teachers and staff at the Education Division, and would be further supported by a user group drawn from the Education Division. The senior technical member had to represent those who are responsible for the technical implementation of the system.

2.2.2   A project team was to be set up to report directly to the project board. The project team would be headed by a project manager from MSU who would be responsible for the day to day management of the project.

2.2.3   While the Education Division failed to assume full ownership, MSU championed the project.

2.3   Requirements analysis

2.3.1   MSU then proceeded to prepare a requirements analysis for the school information system. The project team selected seven schools and documented their method of operations. The schools chosen were two boys secondary schools, one girls Junior Lyceum, one boys Junior Lyceum, one trade school, one primary school and one girls school. The project team documented the organisational chart of each school together with staff responsibilities, and recorded the administrative tasks performed by each school in the sample. From this analysis, the required functional requirements of the school information system were drawn up and these formed the basis of the Invitation to Tender (ITT).

2.4   The Invitation to Tender (ITT)

2.4.1   The ITT was issued by MSU through the Contracts Department in August 1995. The ITT was divided into the following major sections:

- An *introductory chapter* followed by background information on the proposed school information project;

- A documented description of the *administrative tasks* performed by schools;

- The *functional requirements* of the required school information system;

- The *technical requirements* of the required system;

- Other *general requirements* of the system

- The ITT *Schedule of Events*

- The Tender *evaluation process*

- The *Cost Schedule*

- The Tender *Response Format*

- The *special and general conditions* of the contract

2.4.2 The introductory chapter gave a brief outline of the school information system project and stated the project objectives and milestones as defined above.

2.4.3 The background information was followed by a documentation of the *prevailing administrative systems* in schools. The ITT contained a record of school details, the organisational chart and staff responsibilities, and the administrative tasks performed by the seven schools chosen in the sample. The reports to be submitted to Head Office were also included in this section.

2.4.4 The ITT then proceeded to outline the minimum *functional requirements* of the school information system. The following is an outline of the main system requirements requested in the ITT:

- School Set-Up module to include all details of the school including type, location and number of students;

- Student Management module to input and maintain student information, student attendance, examination result records, personality and behaviour assessment, year end update. Another functionality of this module was the ability to generate the classification report required by the Education Division;

- School Staff Management module to input and maintain information regarding the school's teaching and non-teaching staff including staff personal information and grades and staff attendance. Cumulative information had to be extracted from this module regarding total of days present, total of unexcused absences, total of vacation leave, total of sick leave and total of special leave of individual members of staff;

- Premises Management module to maintain detailed information regarding the school premises;

- Timetabling module to provide a tool to school heads to build the school's timetable based on information available in the system and parameters set by the school. The functionality required of this module was the ability to prepare a teacher, class and master timetable as well as provide an aid to replacements of absent teachers;

- Examination Management module to generate exam timetabling, schedules for examination invigilators, non-invigilating staff and examination script markers, and produce reports for use by the school's administration, students and their guardians;

- School Inventory module to enable the school to maintain a detailed record of all school assets and stocks, as well as an accurate and reliable mechanism

for tracking the movement of inventory within the school premises;

- School Fund Accounting to maintain bank and cash accounts, post accounting transactions, maintain a purchase ordering facility and produce income and expenditure reports;

- Report Generator to enable the generation of ad hoc reporting in order to design custom reports to meet the changing requirements of the school, produce statistical reports to include cumulative and summary information and to store report formats for future use;

- Central Control and Data Exchange facilities enabling the electronic transfer of information from the school's computer to the Education Division data centre through modem or diskettes, the downloading of information from the Education Division data centre to the schools, the import and export of ASCII data to and from external systems, the ability to perform selective data transfer, and the transfer of entire subsets of data to other schools on transfer of students or staff to other schools;

- The school information system had to provide audit trail, archive, backup and recovery facilities. The ITT recommended that Windows based applications would be given preference. TeamOFFICE, the e-mail system used by government, had to be accessible from the school information system.

2.4.5 The *technical requirements* of the school information system were then outlined in the following section. A description of MSU's chosen computer operating system and network standards was given. This was followed by specifications of the hardware and operating system

available at the Education Division and in schools. This was the required technical platform on which the school information system was to operate. The ITT also recommended a client server architecture. Furthermore, the required database management system was Informix. The proposed school information system software had to run on the technical specifications as described in this section to ensure compatibility with the above systems.

2.4.6 The *general requirements section* dealt with training requirements, the provision of installation guides and user manuals, quality management issues, the program of work, warranty, maintenance and support and extent of local agent participation. The program of work outlined the main stages of project implementation. Project implementation had to take place in three stages over a period of two years as previously explained under project milestones.

2.4.7 The *ITT Schedule of Events* was a very brief section describing the procedure of the ITT up to tender award.

2.4.8 The following section outlined the *evaluation process.* Tenderers who did not satisfy the functional, technical and general requirements as described previously would be eliminated and not evaluated further. Tenderers that satisfied the above requirements would be further evaluated on the basis of price, tenderer's qualification and track record, financial viability of the tenderer and other criteria.

2.4.9 The ITT, in the *Cost Schedule Section*, then requested tenderers to submit prices for the following software and services offered:

• Licence costs

- Application costs

- Amendment costs

- Installation/Implementation costs

- Training Costs

- Maintenance and Support Costs

- Documentation Costs

- Additional Sites and Users

- Person Day Rates

- Taxes or related Costs

2.4.10 Tenderers were requested to submit a price covering the number of sites and users listed hereunder:

- 154 Primary Schools with one stand alone PC
- 52 Secondary Schools with one stand alone PC
- 10 Secondary Schools with LAN and 10 concurrent users per school
- Education Division with LAN and 10 concurrent users

2.4.11 The final sections of the ITT contained instructions regarding *tender response format and conditions* and outlined a number of special and general conditions that would be included in the final contract.

2.4.12 Prospective tenderers were asked to submit their offers by the 31 October, 1995. However, there were various requests for an extension of the offer deadline. The prospective tenderers' request was granted and the deadline for submission of the offer was extended to 16 November, 1995.

2.5   Tender offers and adjudication

2.5.1   Five offers were submitted by the tender deadline on 16 November, 1995. An adjudicating board consisting of MSU project team members and staff from the Education Division was set up. The adjudication board's brief was to evaluate all tenders submitted and furnish the Contracts Committee with a recommended tenderer.

2.5.2   As stated in the ITT, all the responses were individually analysed by the adjudication board against the critical requirements, namely functional, technical and general requirements. Responses which did not satisfy the critical requirements were eliminated and not evaluated.

2.5.3   One tenderer did not meet any of the critical requirements since he proposed to design a customised school information system. However, the tenderer did not support adequately his claim and was eliminated at the outset. Another bidder was eliminated while adjudication was in progress and when assessment on price was required. The pricing element of this tenderer was not comprehensive and no conclusion could be reached on price regarding this tenderer.

2.5.4   After issue of the ITT, there was a change in the number of schools sites that would be implementing the school information system. The revised number of school sites were the following:

- 80 Primary Schools
- 61 Secondary Schools

2.5.5   Consequently, a revision of cost estimates report was drawn up documenting the revised calculations made by the adjudicating board in respect of the three remaining tenderers.

2.5.6   The offers were evaluated according to the functional, technical, general requirements and price. The highest weighting was allotted to price. These evaluation criteria were weighted in the following manner:

Table 2.2: Tender Requirements

Requirements	% Weighting
Functional Requirements	10
Technical Requirements	10
Quality and implementation	5
Training and documentation	5
Maintenance and support	5
Local Agent Participation	5
Tenderer's qualification	2
Proposed Software's track record	2
Financial Viability	3
Understanding of Assignment	2
Price	51
Total	**100**

Source: School Information System - Evaluation Report

2.5.7   The tender was awarded to the tenderer who obtained the highest percentage score as per the above criteria, a UK firm. The adjudicating board informed the Contracts Committee with details of the successful tenderer and the Committee approved the decision of the adjudicating board subject to the successful negotiations between MSU and the UK supplier and the drawing up of a formal and detailed contract.

2.6   Contract between MSU and the UK Supplier

2.6.1   Eventually, the contract was signed between MSU and the UK supplier on 6 June 1996 for the provision of

software licences and related services. The contract did not stipulate a fixed duration, however, it stated that MSU could terminate the contract at any time after 31 December, 1998 provided three months prior notice would have been given. At that stage, it was envisaged that by that date all contract deliverables would have been supplied and all payments made.

2.6.2   Deliverables by the UK supplier and relative costs as per main contract are given below:

**Table 2.3: List of deliverables as per contract dated
6 June 1996 between MSU and the UK supplier**

Description	Contracted Price
Main contract	Stg
Primary School Licences 80 licences at Stg 1,522.00 (note 1)	121,760
Secondary School Licences 61 licences at Stg 2,540.00 (note 2)	154,940
Development and delivery of Central System	29,500
Software enhancements (note 3)	37,000
Installation and implementation	37,000
Project Management costs	60,450
Project Team costs	17,400
Training Initial training	76,390
Central system training	2,585
Other primary schools training	30,000
Other secondary schools training	24,000
Total due as per main contract	591,025

*Source: Contract between MSU and the UK supplier
dated 6 June 1996.*

Note 1: Licences in respect of primary schools were in respect of the following modules: Student Administration Manager, Staff Records and Attendance, Budgeting, Cash Accounts, Student Attendance, Curriculum Manager, Premises Manager, Inventory and Internal Examinations Manager.

Note 2: Licences in respect of secondary schools were in respect of the following modules: Student Administration Manager, Staff Records and Attendance, Budgeting, Cash Accounts, Student Attendance, Curriculum Manager, Premises Manager, Inventory, Internal and External Examinations Manager and Timetabling.

Note 3: Software enhancements were to be provided as follows:

- General requirements of the school set-up module

- Maintain Year or Form Class Size

- Maintain Reasons for Leaving School

- Maintain Student Medical/Social History

- Maintain Transport Route/Supervisor

- Subject Selection Verification Slips

- Classification Report

- Manual Data Entry by Keyboard

- Personality and Behaviour Enquiry/Report

- Staff Attendance Records

- Room Utilisation Report

- Report Generator

2.6.3 A separate contract was signed by both parties in respect of maintenance and support. The initial period of

the maintenance and support contract was for 48 months which could be extended by a further twelve months. However, the supplier granted a one year warranty period whereby the services provided in respect of correction of errors in the software and operational support were to be supplied free of charge.

2.6.4   Deliverables by the UK supplier and related costs as per maintenance and support contract are given below:

Table 2.4: Total due for maintenance and Support as per Maintenance and Support Contracts dated 6 June 1996.

Description	Contracted price
Maintenance and support contract Annual fee for maintenance and support Stg 45,593 Maintenance and support for three years Annual fee for upgrades of all software modules Stg 32,783 Cost of upgrades for three years **Total due for maintenance and support**	**Stg** 136,780 98,350 **235,130**

Source: Maintenance and Support contracts dated 6 June 1996.

2.6.5   The total due to the UK supplier can be summarised as follows:

Table 2.5: Total contract value as per contracts signed between MITTS and the UK Supplier

Description	Contracted price
Software licences and other services Maintenance and support **Total due to the UK supplier**	**Stg** 591.025 235,130 **826,155**

Source: Tender Document

2.6.6   Payment to the UK supplier was to be effected by way of stage payments as follows:

**Table 2.6: Stage payments to the UK supplier
as per contract dated 6 June 1996**

Payment due date	Software amount in Stg	Services amount in Stg	Total amount in Stg
On signing of contract	49,061	42,734	91,795
30 September 1996	49,061	42,734	91,795
31 January 1997	49,061	42,734	91,795
31 May 1997	49,061	42,734	91,795
30 September 1997	49,061	42,734	91,795
31 January 1998	49,061	42,734	91,795
31 May 1998	49,061	42,734	91,795
30 September 1998	49,061	42,734	91,795
31 January 1999	49,061	42,734	91,795
	441,549	**384,606**	**826,155**

Source: Contract between MSU and the UK supplier dated 6 June 1996

2.6.7   The contract stipulated also the program of work as shown in Table 2.7 opposite.

2.6.8   The above contract between MITTS Ltd and the UK supplier was revised by an agreement dated 15 September 1998 due to developments in the implementation of the above project. The revised conditions of the contract will be discussed in Part 3.

2.6.9   After the contract was signed by both parties, the implementation of the above project by the UK Supplier could commence through user

acceptance testing and installation of initial modules at the pilot schools.

Table 2.7: Project milestones as per contract dated 6 June 1996

Description of Task	Estimated time frame for completion
Performance of user acceptance testing and implementation of modules at pilot schools	12 June 1996 to 11 April 1997
Implementation of Central System at Education Division	5 August 1996 to 11 April 1997
Implementation of modules at the remaining schools	7 January 1997 to 8 July 1998

Source: Contract between MSU and the UK supplier
dated 6 June 1996.

2.7   Contracts between MITTS Ltd. and the Ministry of Education

2.7.1   Annual contracts for the provision of deliverables were signed between the Ministry of Education and MSU. These contracts, considered as project management contracts (i.e. MSU managing the implementation of the school information system on behalf of the Education Division), were complementary to the contract signed between MSU and the UK supplier. The annual deliverables contracted for included the provision of hardware, CENTRIS software development, the implementation of school information system modules, provision of networking facilities and training. These deliverables were to be provided at contracted cost including all taxes as shown in Table 2.8 overleaf.

Table 2.8: Contracted amounts as per Annual SIS and CENTRIS contracts between the Ministry of Education and MITTS Ltd

Year	School information System				Central Information System				Grand Total
	Hardware	Labour	Outsourcing	Total	Hardware	Labour	Outsourcing	Total	
	Lm	Lm	Lm	Lm	Lm	Lm	Lm	Lm	Lm
1997	112,137	25,596	245,351	383,084	Nil	Nil	Nil	Nil	383,084
1998	2,500	40,688	170,421	213,609	4,500	19,136	22,150	45,786	259,395
1999	4,048	59,708	58,547	122,303	1,265	24,472	15,525	41,262	163,565
2000	25,987	38,916	49,397	114,300	Nil	Nil	Nil	Nil	114,300
Total Amount	**144,672**	**164,908**	**523,716**	**833,296**	**5,765**	**43,608**	**37,675**	**87,048**	**920,344**

Source: Annual contracts between Ministry of Education and MITTS Ltd

Hardware represents all items of hardware delivered by MSU (and later MITTS Ltd) to the Education Division in respect of the schools information system and central information system.

Labour represents the project management fees charged by MSU (and later MITTS Ltd) to Education Division in respect of the school information system and central information system.

Outsourcing represents the payments made by MITTS Ltd to third parties, including payments to the UK supplier, in respect of the school information system and central information system.

2.7.2 Separate annual contracts for maintenance and support were entered into between MITTS Ltd and the Ministry of Education. Maintenance and support services were to be provided at the following contracted cost including all taxes:

Table 2.9: Contracted values as per annual Maintenance and Support Contract

Year	Maintenance and Support *Lm*
1997	22,055
1998	104,926
1999	106,238
2000	118,240
2001	80,292
	431,751

Source: Annual Maintenance and Support Contracts

2.7.3 Actual payments carried out on the basis of the above listed deliverables in all contracts will be discussed in Part 4.

Part 3
Implementing the
Winning Bid

Part 3   Implementing the Winning Bid

3.1.1   This chapter deals with the implementation of the contract reached between the UK supplier and MITTS Ltd (formerly MSU) (see Part 2, pages 42 - 47), namely:

- the implementation of the School Information System (various software modules);

- the implementation of the Central Information System.

3.1.2   A brief review of the current project status is also given at the end of this chapter.

3.1.3   Prior to award of tender, a project board was set up. The task of the board was to monitor implementation. The initial composition of the project board was as follows: a chairperson, who was then the Director of Operations of the Education Division, ten senior officials from the Education Division and three MSU officials, including the project manager.

3.1.4   The first meeting of the project board was held on 10 May 1996 where MSU officials updated staff from the Education Division on the background to the project of the School Information System, and the structure and objectives of the project board[1]. The project manager gave an overview of the project to that date including the tender evaluation process and the contract negotiations with the selected supplier. He also presented the proposed project plan to the board, and following a discussion of key areas,

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[1] Refer to envisaged Project Organisation in Part 2 pages 34 and 35.

the project plan was approved. System software testing, the first step towards implementing the system, was to commence in June, at MSU offices. The six schools involved in piloting the system were also selected.

3.2   School Information System

Software testing

3.2.1   As soon as the tender was awarded, software testing of the School Information System was performed by MSU testing team to ensure that the School Information System met user requirements. The software was tested with respect to functionality, field validation, security, audit trails, search facilities, system performance, backup and recovery facilities, reports and documentation.

3.2.2   The objectives of software testing were the following:

- Test functions prior to live implementation;

- Check delivered system against user requirements;

- Ensure reliability of data storage;

- Obtain user training/education of new system through testing;

- To check and confirm correct content of user documentation; and

- To ensure that all current administrative functions can still be carried out via the new system.

3.2.3   The testing was carried out in three phases to cover 8 modules out of the 10 tendered:

Phase 1 covered Student Administration Manager, Staff Records and Cash Accounts and ran from 12 June 1996 to 27 June 1996.

Phase 2 covered Budgeting, Student Attendance and Timetabling and ran from 28 June 1996 to 17 July 1996.

Phase 3 covered Premises Manager and Curriculum Manager and ran from 2 September 1996 to 19 September 1996.

3.2.4   Inventory Management was not tested since this module was very similar to Premises Manager. Examinations Management was not tested since this module had not yet been developed by the supplier. Staff attendance, which should have been part of staff records module, was also not yet developed by the supplier and consequently was not tested.

3.2.5   Each phase underwent a 3-tier test process at MSU:

• The first level of testing was made by the project team to ensure that user requirements were covered;

• The second level of testing was confidence/stress test where the software is tested under stress conditions (e.g power failure); and

• The third level of testing was the User Acceptance Testing (UAT).

3.2.6   The UAT process involved two stages, namely:

Planning stage, during which discussions were held with the Education Division and testing plans drawn up;

The *actual system testing* was carried out and a report listing any outstanding defects or qualifications was generated.

3.2.7   Defects encountered were given the following ratings:

Table 3.1: Rating of level of severity of software incidents

Level of severity	Description of level of severity
1	Incidents that must be resolved in order for the system to be able to function properly.
2	Incidents that should be resolved in order for the system to be able to function correctly.
3	Incidents that if solved could enhance the system under test.
4	Desirable additional features to the system.
5	Comment/query

Source: School Information System - Staff records Manager - Systems Test Report

3.2.8   It was the intention to continue testing until all reported incidents of severities 1 - 3 got an agreed resolution.

3.2.9   All faults encountered were to be reported on Incident Report Forms and forwarded to MSU project team. The project team was to pass on these incidents to the supplier for resolution. The test co-ordinator was to keep an incident log and re-test the defaulting software once the fault had been rectified.

3.2.10   During the first testing, 60 incidents were generated of the following severity:

Table 3.2: Incidents generated after initial software testing

Module	Severity level					Total
	1	**2**	**3**	**4**	**5**	
Student Administration Manager	1	11	4	7	Nil	23
Student Attendance	Nil	2	Nil	3	Nil	5
Staff records	1	5	4	1	Nil	11
Cash accounts	Nil	Nil	2	1	Nil	3
Budgeting	Nil	1	Nil	Nil	Nil	1
Premises Manager	5	7	1	4	Nil	17
Curriculum manager	*No records available*					
Time-tabling	*No records available*					
Total	**7**	**26**	**11**	**16**	**Nil**	**60**

Source: School Information System Test Report dated 22 February 1997

3.2.11   The Student Administration Manager incident of severity level 1, relating to the year 2000 problem, was eventually resolved. The incident of severity level 1 with respect to Staff records pertained to the Timetabling function within this module which was never utilised. The other 5 incidents of severity 1 level related to the Premises Manager module which was never implemented. The incidents of severity level 2 consisted of various software shortcomings such as lack of audit trail in certain modules, images were not being retained in the software, and the possibility of entering duplicate records. Incidents of severity level 3 and 4 consisted of minor software shortcomings which could have easily been rectified in the following software version.

3.2.12   The above problems were referred to the UK supplier who promised a work around for certain defects and software modifications in the case of others. From the

above list of fault incidents, 51 incidents, of which 20 were defects of severity levels from 1 to 3, remained unresolved at the end of the initial software testing. Since the above defects were not considered to be of sufficient gravity to stall implementation of the modules, a Certificate of Acceptance of Work Delivered was issued and signed by MSU and the Education Division, subject to outstanding errors being resolved within the agreed timeframes (Refer to Part 5 for comments on above).

3.3   Piloting of initial modules in six schools

3.3.1   It was decided to go ahead with the piloting of seven of the software modules. The module on Premises Manager was dropped due to its unreliability. The piloting took place in the six schools chosen for the pilot from 7 October 1996 to 2 December 1996. Piloting was co-ordinated by the UK Supplier project manager and support staff from its local representative.

3.3.2   The piloted modules were: Student Administration Manager, Student Attendance, Staff records, Cash, Budgeting, Timetabling and Curriculum Manager. All the piloted modules had been tested as explained above. The six pilot schools were selected to represent the differing requirements of the various types of schools within Malta and Gozo. Each pilot school was asked to pilot two or three of the modules. They did not pilot the full range at each school since the planned duration of the pilot was seven weeks and the schools were unable to cope with the initial implementation of all the software modules and concurrently maintain the normal operational procedures of the school.

3.3.3   The six schools selected for piloting and the modules initially installed in each school were as follows:

Table 3.3: Name of pilot schools and modules installed in each school

Name of pilot school	Modules installed
Carlo Diacono Girls Junior Lyceum, Zejtun	Staff records Curriculum Manager
M.A. Vassalli Boys Junior Lyceum, Handaq	Staff records Time-tabling
Kan. Pawlu Pullicino Girls Secondary, Rabat	Cash accounts Budgeting Curriculum Manager
Umberto Calosso Boys Trade School, Santa Venera	Cash accounts Time-tabling
Ninu Cremona Boys Junior Lyceum, Victoria	Student Administration Manager Student Attendance
Primary School, Marsascala	Student Administration Manager Student Attendance

Source: Explanations given to NAO by the Education Division

3.3.4   Piloting took place in the following stages:

• A training programme was carried out between 14 October 1996 and 8 November 1996. Training was provided by the UK supplier to staff from its local representative, staff from the Ministry of Education, MSU staff who would subsequently be providing support to schools, and Heads and Assistant Heads of schools who would be piloting the modules.

• Commencement on the implementation of pilot modules was carried out between 9 November 1996 to 2 December 1996.

3.3.5   The following difficulties were encountered in the piloting:

• Certain heads of schools complained of insufficient time to implement the pilot modules at their respective

school since they still had to keep up with their other administrative duties. Consequently the need was felt for support staff to assist in working on the modules.

• Certain heads and in some cases school administrative staff found difficulties in implementing the modules and needed regular assistance from staff of the local representative of the supplier to be able to operate the software.

• Difficulties were encountered with the piloting of Curriculum Manager due to lack of school administrative staff. Furthermore, the implementation of this module was not effected by the Education Division since plans were then in progress to adopt the National Minimum Curriculum and the Division was not yet prepared to implement this module.

• Schools piloting Student Attendance had no time to implement the module. One school piloting Cash and Budgeting had no time to implement the modules. The other school needed support in implementing this module. Other difficulties were encountered with respect to Student Administration Manager, Staff records and Timetabling.

3.3.6   In the piloting stage, the heads of schools piloting the modules visited a number of schools in the United Kingdom operating the school information software developed by the same supplier in order to familiarise themselves with the operation of the software in the school environment. At the end of their visit, they made the following requests in a report submitted to the Education Division dated 28 November 1996:

• All schools were to be supported by a fully trained secretary and in the case of large schools the latter needed to be supported by additional clerical staff;

- Schools would have to be supplied with additional networked computers to enable an effective use of all modules of the system;

- The setting up of a "help desk" at the Education Division to enable heads of schools to solve any difficulties encountered with the operation of the software on site.

3.3.7 At the end of the piloting stage, pilot schools were asked to submit a pilot evaluation sheet noting any feedback on the implementation of the software modules. The results of the pilot evaluation sheets were discussed in a meeting for all schools involved in the piloting held on 3 December 1996. The most noteworthy results arising from these evaluation sheets (not made available to NAO) are the following as stated in a report prepared by the UK supplier:

- Users rated the Timetabling module as being fairly difficult to use and the staff records module as being very easy to use;

- There was only one request for a frequently used report that was made available through the ad hoc reporting process;

- The input of Student Attendance data was considered tedious, however, the benefits of generating the monthly attendance report for the Education Division from the attendance module far outweighed the above complaint;

- Support during piloting was deemed to be substantial and there was concern that subsequent to the pilot stage, support will not be as readily available;

- The need to review the provision of clerical staff support at schools as it was felt necessary to delegate the actual processing of the data to clerks.

3.3.8   The UK supplier in the above mentioned report made a number of recommendations arising as a result of lessons learnt from the piloting stage. These included:

- Installations of modules were to be completed for each school prior to commencement of training so that users from schools would be able to start using the software immediately after training sessions;

- Heads of schools were to receive a functional overview of the school information system modules whilst staff operating the software needed to be trained on the full range of the functionality of the software;

- Provision had to be made in the school software modules for any data required centrally by the Education Division prior to full roll out of the modules in schools;

- High quality support would be needed when the software modules would be rolled out in all schools. The supplier recommended a high quality support team with a clear management structure and procedures to carry out the support required.

3.3.9   Following the termination of the pilot stage, the following needs and priorities were established by the project board in a meeting dated 16 December 1996. These included:

- Determining the frequency of reports requested from Heads of Schools by the Education Division head office to establish work plans for data entry and report generation for schools;

- the need for Maltese fonts to produce student reports and letters to parents from the school information system;

- the need to set up a support team from the Education Division headed by the MSU project manager;

- the training period for the remaining schools was set from March 1997 to June 1997;

- the school Head and one other person from each school were to attend training sessions.

3.3.10   In a board meeting dated 19 February, 1997, the project board decided to proceed with the implementation of the software modules in all schools, irrespective of the unresolved UAT defects, and after settling the above conditions as per project board meeting dated 16 December 1996. Concurrently, an attempt to establish user requirements for Central Information System (CENTRIS) was being determined.

3.4   Full implementation of the software modules

3.4.1   The following modules were installed during the period February to April 1997 in the 142 schools by the local representative of the UK supplier as follows:

- Student Administration Manager

- Student Attendance

- Staff Records

- Cash Accounts

- Budgeting

- Timetabling in secondary schools only

3.4.2   The 142 schools that received the above modules can be classified in the following manner:

- 11 Junior Lyceums

- 18 area secondary schools

- 11 trade schools

- 5 boys and girls schools (ex opportunity centres)

- 10 post secondary schools

- 80 primary schools

- 7 special needs schools

3.4.3   Training for the period March to June 1997 to all schools (as scheduled by the project board) covered Student Administration Manager, Student Attendance and Staff Records. Training sessions were carried out by the local representative of the UK supplier. Certain teachers were missing training sessions as these coincided with other seminars they needed to attend.

3.4.4   Following training sessions, schools were asked to enter data in the above modules. The project manager identified the need for a second personal computer, a second licence for the school information system and computer network to be installed in large schools to maintain the integrity of the data.

3.4.5   The Education Division was unable to recruit staff to form part of the support team and therefore first line support was subcontracted to MITTS Ltd. MITTS Ltd had set up the School Information System support team by the end of July 1997.

3.4.6   Site visits by MSU were performed to monitor the implementation of the above modules in the above schools. A report on the results of these site visits was presented to the project board in June 1997. The project board evaluated the project progress and decided to set the following deadlines for live implementation of the following modules in all schools:

**Table 3.4: Software modules installed and deadline
set for implementation**

Module	Deadline for module implementation
Student Administration Manager	30 October 1997
Student Attendance	30 October 1997
Staff records	31 December 1997
Cash acccounts	31 December 1997
Time-tabling	No deadline set
Budgeting	This module was subsequently dropped

Source: Project board minutes dated 23 July 1997

3.4.7 In a project board meeting of 19 February 1997, the MITTS project manager pointed out that some areas of the School Information System, notably Student Attendance and Timetabling, would need further modification to be applicable to post secondary schools. Furthermore, specific requirements of post secondary schools would not be catered for by the School Information System. The project manager suggested a separate exercise whereby the specific requirements of post secondary schools would be identified. This exercise was never performed. It is pertinent to note that the seven schools selected by the MSU project team to prepare the requirements analysis prior to issue of tender (as described in Part 2) did not include a post secondary school. Neither did the contract between MSU and the UK supplier specifically mention post secondary schools. In our opinion, this was a serious shortcoming at the planning stage with respect to post secondary schools.

3.4.8 In October 1997, there was a change in the management of the project. The whole project was divided into two parts namely School Information System and Central Information System. Two project boards were set up to monitor the progress of the School Information System and Central Information System. The Operations Department of the Education Division retained the ownership of the School Information System project whilst the ownership of the

Central Information System was transferred to the Planning Department of the Education Division. The two project boards were to report to the project steering committee chaired by the Director General Education.

3.4.9 By the end of 1997, progress had been made with respect to the updating of students information in the Student Administration Manager. However, usage of Staff Records and Student Attendance was still very low. At that stage, it was felt that school heads were not convinced of the benefits of the system. Furthermore, school heads required administrative support in order to be able to operate effectively the school information system. Consequently, new recruitment of clerks was in progress to assist schools in the implementation of the School Information System.

3.4.10 Training for the next batch of modules namely Cash, Budgeting and Timetabling was carried out during the period October 1997 to March 1998. Two persons, including the Head of School, from each school were requested to attend training in these modules. A union directive requested school staff not to attend training, since it felt that updating the software modules was not a task to be performed by headmasters. This stalled the progress of the implementation of the above modules. Furthermore, the operation of the Cash Accounts module was considered to be complex and the need was felt to request an amendment to the software to cater for the financial report submitted by schools to the Education Division. The steering committee decided not to proceed with the installation of the Budgeting module to save on licence and training costs. The implementation of the Budgeting module was also considered to be complex and subsequently dropped. Furthermore, recovery courses were held in respect of Student Administration Manager and Staff Records.

3.4.11 The table overleaf summarises the history up to this point of implementation/non implementation of each of the software modules originally tendered:

Table 3.5: History of software modules up to implementation / non-implementation

Software module	Tendering Stage	Testing Stage	Piloting Stage	Implementation Stage
Student Administration Manager	Included	Included	Included	Included
Student Attendance	Included	Included	Included	Included
Staff - records - attendance	Included To be developed	Included To be developed	Included To be developed	Included To be developed
Curriculum Manager	Included	Included	Dropped	Not implemented
Examination Manager	To be developed	To be developed	To be developed	To be developed
Time-tabling	Included	Included	Included	Included
Cash Accounts	Included	Included	Included	Included
Budgeting	Included	Included	Included	Dropped
Premises Manager	Included	Included	Dropped	Not implemented
Inventory	Included	Dropped	Not piloted	Not implemented

Source: NAO working papers

3.4.12 The steering committee advised MITTS Ltd to slow down the implementation of the School Information System modules, as it was being felt that schools could not initially cope with the additional workload and concurrently maintain the operations of the school. It was increasingly becoming evident that the original implementation plan was unrealistic as it attempted to introduce all software modules in a relatively short period, which with hindsight, was too burdensome for schools. In our opinion, planning for the introduction of an adequate IT system should take into consideration the level of IT literacy of the staff implementing the system and an adequate time period be set for implementation. Furthermore, adequate training should be given to instil the necessary confidence in staff to be able to manage the change process.

3.4.13 Apart from the unrealistic targets originally set, two general elections were held during the project timespan from 1995 to January 2001. MITTS contend that

reassessment of policies following the change in administration contributed to the slowdown in implementation of the project.

3.4.14   In view of the above developments, the steering committee, acting on a recommendation from MITTS Ltd, decided to rescope the project based on lessons learnt and progress made to date. It was decided that the initial rollout of a new module would be performed in 11 pilot schools and then subsequently the module would be rolled out in all schools. The timeframe required for the implementation of all modules had to be widened. Such a decision necessitated a re-negotiation of the contract with the UK supplier.

3.5   Supplier performance

3.5.1   In the meantime, MITTS Ltd had already begun to express concern at the following non performance by the supplier:

- The Examinations module had not been developed as agreed in the contract;

- A feasibility report on the link between the Classification report (part of Student Administration module) as prepared by schools and the Year 6 Placement programme, and the Central Information System had not been prepared by the UK supplier[2] ;

- A new version of Staff records previously requested had not been delivered;

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[2] The Classification report is prepared annually by schools where they state their lesson and teacher requirements per subject for the following scholastic year. The Year 6 Placement programme software performs the transfer of students from Year 6 primary schools to the destination secondary schools, It was the intention of the Education Division to link the Classification report and the Year 6 Placement programme to the Central Information System.

- An additional functionality in the Student Administration module to include transport had not been delivered;

- A report generator in respect of all modules had not been delivered;

- The Central Information System had not been delivered;

- Training delivered in October 1997 by the UK supplier was not to the level required.

3.5.2 Furthermore, the Education Division had reduced its Timetabling licence requirements from 62 licences to 40 licences and, through MITTS Ltd, requested a swap of these licences for Cover[3] an additional software module which could assist school heads in performing absent teacher replacements. The UK supplier did not accept to swap the licences. The Timetabling module licences had been purchased by the supplier from another UK firm. The supplier severed its working relationship with this firm and could no longer offer support for the Timetabling module. Support for this module is now being offered locally.

3.6   Re-negotiation of contract

3.6.1 In view of the above developments, the steering committee gave its approval for the re-negotiation of the contract with the UK supplier. A revised agreement dated 15 September 1998 between the UK supplier and MITTS, as approved by the Education Division, stipulated the following principal amendments to the conditions stipulated in the original contract:

- Both parties agreed to a revised project plan that extended the implementation period of all the school software modules to June 2006;

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[3] Cover is an additional software module intended to be exchanged for extra licences of Time-tabling

- Payments to the supplier were to be effected against deliverables and not in stage payments.

3.6.2   The above was in effect a renegotiation of a new timeframe for the implementation of all modules (except for Budgeting). It was a total replan of the project since the original plan failed totally to meet the original timeframes. The new contract also extended the original maintenance and support from July 2000 to July 2005.

3.6.3   The following is a summary of the extended program of works as per renegotiated contract:

Table 3.6: Extended program of works as per renegotiated contract

Scholastic Year	Pilot	Full implementation
1998/1999	Student Attendance	Staff Records
1999/2000	Cash and Budgeting	Student Attendance Cover (in 36 schools)
2000/2001	No piloting of modules	Cash Budgeting
2001/2002	Examinations	No roll out of modules
2002/2003	Curriculum Manager	Examinations
2003/2004	No piloting of modules	Curriculum Manager
2004/2005	Assets Manager (Premises/Inventory)	No roll out of modules
2005/2006	No piloting of modules	Assets Manager (Premises/Inventory)

Source: SIS project plan as attached to revised agreement dated 15 September 1998.

3.6.4   Deliverables included training, software development and licences, and maintenance and support.

3.6.5 By the date of the above agreement, seven stage payments of Stg 91,795 to the UK supplier had already been effected amounting to Stg 642,565 as per the original contract. The agreement was signed on the assumption that this amount of Stg 642,565 covered the payment of all software modules except for Examinations Manager, Cover and the Central Information System, even if the other modules had not yet been implemented. Consequently, as per original contract there was still an unpaid balance of Stg 183,590 up to July 2000, assuming that all software and services would have been delivered (to recapitulate refer to Part 2 page 46).

3.6.6 Under the new agreement the following additional funds, totalling Stg 470,118 (including Stg 183,590 balance from original contract), were committed as payments by MITTS Ltd to the UK supplier.

Table 3.7: Payments against deliverables as per revised agreement dated 15 September 1998

	School Information System		Central Information System		Maintenance and Support	Total
	Software licences and development	Training	Software licences and development	Training		
	Stg	Stg	Stg	Stg	Stg	Stg
1998/1999	15,000	20,404	7,000	Nil	27,150	69,554
1999/2000	5,000	9,604	7,000	2,585	36,200	60,389
2000/2001	Nil	Nil	7,000	Nil	38,000	45,000
2001/2002	20,415	5,940	8,500	Nil	45,050	79,905
2002/2003	Nil	11,880	Nil	Nil	52,100	63,980
2003/2004	Nil	Nil	Nil	Nil	69,150	69,150
2004/2005	Nil	5,940	Nil	Nil	76,200	82,140
Total due	**40,415**	**53,768**	**29,500**	**2,585**	**343,850**	**470,118**

Source: Companion schedule to SIS project plan

3.6.7   This new commitment would have rendered total due to the UK supplier (as per original and revised agreements) the amount of Stg 1,112,683 to cover the School Information System and the Central Information System, including maintenance and support services, up to the year 2005. This amounts to an increase of Stg 286,528 over the original contract value of Stg 826,155.

3.6.8   There were also the following main changes to the original contract conditions which reflect payments against deliverables on basis of new time frames:

• Training in the original contract covered all schools whilst as per revised agreement, training was to be provided to trainers and support staff only.

• As per original contract, the entire Central Information System had to be developed for a one time cost of Stg 29,500. As per revised agreement, the payment of Stg 29,500 covered only the development of Centris Administration, Staff, Attendance, Cash, Curriculum and Asset Manager. This payment did not cover the development of CENTRIS Examinations, Budgeting and Timetabling. The Central Information System for the latter modules was to be developed at an additional cost.

• Under the original contract, maintenance and support was being provided at an annual fee of Stg 45,593 and upgrades were being provided at an annual fee of Stg 32,783. This amounted to Stg 51.80 per software licence per school per annum. The revised agreement stipulated a maintenance and support charge of Stg 50 per software licence per school per annum, including upgrades of modules. However, while in the year a module is piloted in 11 schools only, the maintenance and support fee was charged as if the implementation covered all schools.

3.7   The Central Information System

3.7.1   As stated in Part 2, the Invitation to Tender (ITT) requested the following functionality from the Central Information System:

- the electronic transfer of information from the school's computer to the Education Division data centre through modem or diskettes;

- the downloading of information from the Education Division data centre to the schools;

- the import and export of ASCII data to and from external systems;

- the ability to perform selective data transfer; and

- the transfer of entire subsets of data to other schools on transfer of students or staff to other schools.

3.7.2   The ITT requirements did not state specifically which information contained in each software module of the School Information System was to be collated centrally.

3.7.3   In the original contract signed between MITTS Ltd and the UK supplier, the latter stated it would develop a central computer system for the Education Division on its preferred hardware platform after an analysis of the Division's requirements. The contractor also promised to develop a report generator to query data stored on the central system and to develop a number of standard fixed reports and enquiry routines. The development of the above central system was to be performed at a cost of Stg 29,500. Training for the above system was to be charged at a one time payment of Stg 2,585.

3.7.4   In September 1996, the UK supplier proposed to deliver the Central Information System in line with the School Information System, i.e to introduce CENTRIS modules at the same time as SIS modules were being introduced in schools.

3.7.5   A central system workshop was held in November 1996 to determine the requirements of the Central Information System. During this workshop, members from the Education Division presented their requirements to the UK supplier with respect to CENTRIS Student Administration Manager. User requirements for CENTRIS with respect to the other School Information System modules were not developed. A user specification document with respect to CENTRIS Student Administration Manager only was subsequently prepared by the UK supplier in December 1996. This document outlined the user requirements with respect to CENTRIS Student Administration Manager and included the additional modifications required in the School Information System Student Administration Manager to cater for CENTRIS Student Administration Manager.

3.7.6   A number of requirements presented in the November workshop had not been sufficiently addressed by the UK supplier. As a result, the Education Division and MITTS Ltd proposed that a prototype CENTRIS Student Administration Manager be first developed by the supplier before the final product is delivered. The outline system specifications of CENTRIS Student Administration Manager as prepared by the UK supplier were finally approved by the Education Division and MITTS Ltd in May 1997, after the supplier presented replies to most of the queries raised by the Education Division and MITTS Ltd.

3.7.7   In August 1997, MITTS Ltd requested a revised program of works from the UK supplier since no progress had been made with the delivery of the other modules of the CENTRIS Information System. The revised program of

works was submitted at the end of August 1997 and stated that the proposed delivery of the CENTRIS Student Administration Manager module would take place in March 1998 with live operation available by June 1998.

3.7.8   The Education Division did not accept the revised program of works covering only one module, although it accepted the delayed delivery date. It insisted that the entire Central Information System be finalised by December 1998, covering all modules. However, detailed user specifications had not yet been prepared in respect of the other modules apart from CENTRIS Student Administration Manager.

3.7.9   Three test versions of the CENTRIS Student Administration Manager module were submitted to MITTS Ltd during 1998. These versions contained very little functionality and the latest two versions did not operate on an Informix Database Management system but on an Omnis database management system against what was originally contracted for.

3.7.10   All modules, including CENTRIS Student Administration Manager, of the Central Information System were never delivered. The report generator that was to work across all modules and span different scholastic years was also never delivered.

3.7.11   The above problems were amply highlighted to the UK supplier in a letter dated 11 June 1999. The supplier responded to the above difficulties by alleging the following matters:

•   The Education Division requirements for CENTRIS went substantially beyond the scope of what was only outlined in the original contract;

•   The supplier no longer had the technological capability to develop and maintain a solution in Informix over the long term.

3.7.12   In view of the above, the UK supplier proposed to subcontract the Central part of the project to its local representative.

3.7.13   A document entitled *"Central Information System for the Education Division"* was prepared by the local representative of the UK supplier and MITTS Ltd. The above document attempted to list the user requirements of a Central Information System with respect to student and staff details, the classification exercise, the transfer of year 6 students to secondary schools, school details, ad hoc reporting and other matters applicable to all modules as per School Information System. However, NAO opines that this document was not developed enough for the implementation of the Central Information System.

3.7.14   Alternatively, and as a last resort, the UK supplier offered an off the shelf CENTRIS package to the Education Division in December 2000. However, this off the shelf software was unacceptable to the Education Division and was refused.

3.8   Current Status

3.8.1   In view of the above developments, the Education Division in January 2001 imposed a moratorium on further rollouts of modules and started consolidating what has been achieved so far. It also decided to stop proceeding with the setting up of a Central Information System.

3.8.2   The Education Division also instructed MITTS Ltd to terminate the contract with the UK supplier. MITTS Ltd thus entered into a contract termination agreement in August 2002 with the supplier whereby MITTS Ltd waived all claims in its favour in return for a copy of the source codes of 8 out of the 10 contracted modules. MITTS Ltd. also requested a copy of the technical documentation supporting the above modules.

3.8.3   The Education Division informed NAO that it is reluctant to allow MITTS Ltd to constomise software.

3.8.4   The Education Division will re-assess its IT policy on school management.

3.8.5   The Education Division also decided not to renew the contract for the year 2001 with MITTS Ltd for the management of the School Information System (See Part 2, pages 47 - 49). Only the maintenance and support contracts have been renewed with MITTS Ltd for the year 2001.

3.8.6   Furthermore, in July 2001, there were 217 pending defects in the five of the School Information System modules installed (See Table 3.5 on page 67). The distribution and level of faults in the relative modules are given hereunder:

Table 3.8: Summary list of outstanding defects

Module	Severity Level						Total
	1	**2**	**3**	**4**	**5**	**N/A[4]**	
Student Administration Manager	4	10	17	12	Nil	30	73
Student Attendance	1	Nil	3	Nil	Nil	18	22
Time-tabling[5]	Nil	3	5	Nil	Nil	1	9
Staff Records	4	27	23	Nil	Nil	14	68
Cash Accounts	8	7	30	Nil	Nil	Nil	45
	17	**47**	**78**	**12**	**Nil**	**63**	**217**

Source: School Information System T-Plan Professional Incident Reports dated July 2001

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[4] Unclassified defects
[5] This module was part of the Student Administration Manager module as different from the ad hoc module which was originally contracted for and referred to in the Tables found in this report.

3.8.7   The 154 outstanding defects rated at severity levels 1 to 5 were discussed with the Education Division in June 2000 and subsequently referred to the UK supplier who promised to amend all outstanding defects by new versions of the above modules by November 2000. The new versions however, contained a further 63 defects the severity level of which was not prioritised by MITTS Ltd since the 154 previous defects had not yet been resolved; thus the 217 outstanding (July 2001) defects.

3.8.8   The 217 outstanding defects remain outstanding after the following versions of the modules have been issued by the supplier. Actually very few of these versions have been implemented as summarised in the table below:

Table 3.9: Summary of software versions issued and implemented

Module	Total number of versions	Actually implemented
Student Administration Manager	18	4
Student Attendance	18	4
Staff Records	7	3
Cash Accounts	5	2
Time-tabling	2	2

Source: MITTS Ltd documentation

3.9   Support

3.9.1   In the original maintenance and support contract signed on the 6 June, 1996, the supplier bound himself to perform the following services:

•   To correct any demonstrable errors in the software if the said software or its enhancements do not perform in accordance with the software specifications;

- To use reasonable endeavours to effect changes and/or enhancements to the software as required by the customer;

- To provide support and assistance with technical questions, issues and any problems relating to the software;

- To provide maintenance and support services to the customer.

3.9.2 Support services to schools during the piloting stage were performed by the supplier and its local representative. It was recommended in a project board meeting held on 17 October 1996 that maintenance and support be carried out by staff from the Education Division after the end of the piloting stage. Since it was difficult for the Education Division to recruit staff, maintenance and support continued to be performed by the local representative of the UK supplier until MITTS Ltd completely took over support from July 1997.

3.9.3 In the revised agreement dated 15 September, 1998, the supplier committed itself to provide second line support services whilst first line support services were to be provided by MITTS Ltd. An outline of first line and second line support services are provided below:

3.9.4 *First line support services*

- The setup and maintenance of a support team of staff with detailed knowledge of the software modules to support their use;

- The provision of good quality first line Help Desk services to users;

- The provision of hardware and networking advice and support to users;

- The provision of on-site services to schools to rectify faults not satisfactorily resolved over the phone;

- The reporting to the UK supplier of any identified faults within the software for their eventual resolution by the latter;

- The recording of user requests for program enhancements and their submission to the UK supplier for eventual inclusion in the software.

- The performance of system testing.

3.9.5 *Second line support services*

- The maintenance of the software modules in working order such that they fulfil the functional specifications of the software;

- The maintenance and update of documentation relating to the software;

- The provision of software updates;

- Provision of help desk facilities to the first line support team;

- Provision of on site support when requested by the first line support team;

- Provision of training to the first line support team.

3.9.6 As from January 2002, first line support services are being provided by the Education Division. No organization has as yet been appointed to provide second line support services.

3.10 Training

3.10.1 As stated earlier, initial training was performed by the UK supplier to members of staff from its local representative,

members of the Education Division and heads of schools involved in the piloting. When members of staff of the local representative were accredited, they provided training in the modules rolled out namely Administration Manager, Student Attendance, Staff records, Cash accounts and Timetabling. Training was held at the MITTS Ltd training rooms at Swatar. Training in the above modules was repeated in each scholastic year. Training was initially aimed at Heads and Assistant Heads of Schools. Subsequently, training was given to the Head of school and one of the clerical staff.

3.10.2 Since training was an ongoing process, the steering committee decided also to accredit members from the Education Division who would provide training themselves. Two rooms from Maria Regina Junior Lyceum were earmarked for this purpose and a team of trainers, headed by a manager, were accredited with training. The training rooms at Maria Regina Junior Lyceum were equipped with hardware and the necessary infrastructure, and training in the implemented modules is being provided by the Education Division.

3.10.3 The financing of the above project will be discussed in the following part.

Part 4
Financing the
Systems

Part 4   Financing the Systems

4.1.1   The financing of the School Information System was effected in two directions. MITTS Ltd contracted the provision of software licences and related services from the UK supplier. The Education contracted the provision of software licences and related services from MITTS Ltd. The contracts regulating the above relationships are listed hereunder:

4.2   Contracts Covering the School Information System and Central Information System

4.2.1   MITTS Ltd effected payments to the UK supplier as per the following contracts:

- The main contract for the provision of software licences and services signed by both parties dated 6 June 1996 covering period 6 June 1996 to 15 September 1998;

- The maintenance and support contracts signed by both parties dated 6 June 1996 covering period 6 June 1996 to 15 September 1998, included as Appendix I to the main contract;

- The revised agreement to the above contracts signed by both parties dated 15 September 1998 covering period 15 September 1998 to 2006. As mentioned above this contract terminated in August 2002 (see page 76)

4.2.2   The Ministry of Education effected payments to MITTS Ltd as per the following contracts:

4.2.3 *Main contracts*

- 1997 annual contract, dated 25 March 1997, for the provision of services and equipment for all IT projects in progress, including maintenance and support, at the Ministry of Education;

- 1998 annual contract, dated 3 March 1998, for the provision of services and equipment in respect of the School Information System;

- 1998 annual contract, dated 3 March 1998, for the provision of services and equipment in respect of the Central Information System;

- 1999 annual contract, dated 1 February 1999, for the provision of services and equipment in respect of the School Information System;

- 1999 annual contract, dated 1 February 1999, for the provision of services and equipment in respect of the Central Information System;

- 2000 annual contract, dated 16 May 2000, for the provision of services and equipment in respect of the School Information System.

4.2.4 *Maintenance and support contracts*

- Six monthly contract, dated 5 March 1998, for the maintenance and support of software applications at the Education Division for the period January to June 1998;

- Six monthly contract, dated 23 July 1998, for the maintenance and support of software applications at the Education Division for the period July to December 1998;

- 1999 contract, dated 19 February 1999, for the maintenance and support of software applications at the Education Division;

- 2000 contract, dated 10 April 2000, for the maintenance and support of software applications at the Education Division;

- 2001 agreement to amend 2000 contract for the maintenance and support of software applications at the Education Division.

4.3 The MITTS/UK Supplier Main Contract

4.3.1   MITTS Ltd in its contractual relations with the UK supplier, on behalf of the Education Division, failed to put into effect critical clauses found in the main contract to its favour. These clauses are discussed below.

Critical Provisions in Main Contract

Provision regarding software specifications

4.3.2   Sub-Article 7.01

4.3.2.1   *"The Contractor guarantees and undertakes that, provided it is operated in accordance with the Contractor's instructions, the Software will perform in accordance with the Contractor's published specifications and the Documentation existing at the date of delivery and will fulfil the functional requirements and specifications set out in the Software Specification."*

4.3.2.2   As stated in Part 3 page 77, there are at present 217 pending defects in the software which are unresolved. Furthermore, five modules namely Curriculum Manager, Budgeting, Premises Manager and Inventory have not been

implemented. The Examinations Manager module has not been developed. Consequently, the functional requirements and specifications set out in the software specification have not all been fulfilled.

Provision regarding revised programme of works

4.3.3   Sub-Article 5.02

4.3.3.1   *"If for any reason, the Project is falling behind schedule and a Completion Date is not to be achieved due to a delay for which the Contractor has prime responsibility, then the Contractor shall immediately submit to the Project Board for approval a detailed revised Programme of Work."*

4.3.3.2   Under the original contract, a revised programme of works was not submitted in respect of the School Information System modules that had to be developed by the contractor. These included the Examinations module, Staff attendance and other software enhancements (including report generator and the classification report) as per the programme of work included as Appendix C of the main contract. The programme of works was revised at a late stage during the project through the revised agreement dated 15 September 1998.

4.3.3.3   Although a revised programme of works was submitted in the case of the Central Information System, it did not include all modules, but only CENTRIS Student Administration Manager. The revised programme of works stated that the proposed delivery of the CENTRIS Student Administration Manager would take place in March 1998.

4.3.3.4   No revised programme of works was submitted with respect to the other CENTRIS modules, however, these requirements had never been discussed in depth with MITTS

Ltd and the Education Division so prime responsibility of the delay in these cases did not rest with the contractor.

Provision regarding default by contractor

4.3.4   Sub-Article 5.03 (iii)

4.3.4.1   *"If the revised Programme of Work extends beyond the initial Completion Date of a phase by more than half of the total allocated program time for the phase as a result to a delay for which the Contractor is responsible then the Contractor may be considered to be in breach of the Contract and the Customer may in such case apply its right to terminate as at Article 15.04 or apply a penalty of Lm200 for mere delay for each day in respect of which the Contractor shall be in default of the Completion Date up to a maximum of 10% of the total Software price... provided that if the Customer chooses to apply the penalty and the Contractor remains in default for sixty days or more, the Customer, may, upon or after the lapse of the sixtieth day of default also apply its right to terminate as at Article 15.04."*

4.3.4.2   No penalties were claimed in those cases where the revised programme of works required exceeded the completion date of that phase by more than half of the time allotted to that phase, and the prime responsibility for such a delay was of the contractor. For example, the revised programme of work of CENTRIS Student Administration Manager extended beyond the initial completion date of 11 April 1997 by more than half of the total allocated programme time,[6] however, no penalties were claimed by

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[6] The total allocated programme time for the implementation of the Central Information System was 8 months from 5 August 1996 to 11 April 1997. Thus the revised planned delivery date of March 1998 with respect to the CENTRIS Student Administration Manager exceeded the original completion date of the Central Information System by more than four months.

MITTS Ltd as per the original contract. The extension in the programme of work was however, approved in the revised agreement dated 15 September 1998. The Education Division has forfeited its right to claim damages since contract termination proceedings have commenced.

Provisions regarding acceptance certificates and conditions

4.3.5   Sub-Article 8.05

4.3.5.1   *"For items to be delivered by the Contractor to the Customer with Acceptance Criteria (i.e. software meets user specifications), the Customer shall, within a previously agreed period of time following delivery, test the same by reference to the Acceptance Criteria and if accepted issue an Acceptance Certificate to the Contractor."*

4.3.5.2   After the phases 1, 2 and 3 of initial testing of eight modules (Refer to Part 3, pages 54-58) was carried out, an Acceptance Certificate was issued subject to pending defects being resolved. The issuance of an Acceptance Certificate should not be conditional. All defects should have been resolved prior to issuance of Acceptance Certificate, especially in respect of modules which were never implemented i.e. Budgeting, Curriculum and Premises Manager.

4.3.6   Sub-Article 8.06

4.3.6.1   *"In the case of non-acceptance the Customer shall notify the Contractor in writing and provide supporting evidence of any material defect and establish a reasonable period of time within which the Contractor shall be required to remedy the defect and re-submit the relevant items for acceptance."*

4.3.6.2   MITTS Ltd informed the UK supplier of the defects in the eight modules submitted to initial testing. Some of

the defects were resolved by the UK supplier, but other defects merited modifications to the software. These defects had to be addressed in subsequent versions of the School Information System software modules. However, in later versions of the software, some defects were resolved, but the new versions would contain other defects.

4.3.7 Sub-Article 8.07

4.3.7.1 *"If any item to be delivered by the Contractor to the Customer is used in a live environment at the pilot schools, then the item is considered to be accepted by the Customer."*

4.3.7.2 MITTS Ltd ought not to have proceeded with live implementation of the modules given the number of outstanding defects, but should have insisted that the defects be resolved prior to implementation.

Provisions in maintenance and support contract regarding escrow agreement

4.3.8 Sub-Articles 11.02 and 11.03 of maintenance and support contract

4.3.8.1 **Sub-Article 11.02** *"The Contractor shall at the request and expense of the Customer enter into an escrow agreement for the deposit of a copy of the source coding of the Software together with all the associated Documentation. The Contractor shall not be entitled to any remuneration, compensation or reimbursement whatsoever for entering into such escrow agreement."*

4.3.8.2 **Sub-Article 11.03** *"The escrow agreement entered into pursuant to the terms of the Contract, shall contain provisions for the release of the deposited materials to the Customer for*

maintenance and support purposes of the Software at no additional costs to the Customer in the event of:

I   The Contractor discontinues the Service or,

II   The bankruptcy or liquidation of the Contractor or an arrangement with creditors or the like or,

III   The termination of the Contract by the Customer under the provisions of Sub-Article 5.05[7], provided that if the matter has been referred to arbitration, the materials shall only be released to the Customer in the event of an award favourable to the Customer."

4.3.8.3   According to explanations given by MITTS Ltd, MITTS Ltd initiated negotiations with the UK supplier to enter into an Escrow agreement around May 2000. A draft agreement was being reviewed by both parties but nothing was concluded. The above escrow agreement was thus not entered into between MITTS Ltd and the supplier. Had the above escrow agreement been concluded, it would have been possible to access the source code on eventual successful termination of the contract by the Customer, following arbitration in favour of MITTS Ltd. MITTS Ltd informed NAO that, as an alternative, they were making a claim to be given the source code of the modules implemented to date as part of the process of termination of the contract in order to avoid litigation. The UK supplier as per termination of Schools Information System Contract dated 20 August 2002, has agreed to provide MITTS Ltd with the source code of 8 of the modules, including those modules which have not yet been implemented.

Provision regarding termination of contract

4.3.9   Sub-Article 15.04

4.3.9.1   *"Subject to Article 5.00, the Contract may be terminated forthwith by either party on written notice if the*

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[7] Sub-article 5.05 is similar to sub-article 15.04.

other party shall be in material breach of the terms of the Contract and, in the event of a breach capable of being remedied, fails to remedy the breach within sixty days of receipt of notice thereof in writing."

4.3.9.2   The UK supplier failed in its obligations to MITTS Ltd especially with respect to non delivery of software which had to be developed and the failure to resolve pending defects resulting from UAT. Notwithstanding the fact that MITTS Ltd have complained to the supplier in writing regarding non delivery of software and services by the supplier, the latter still failed to comply with its contractual obligations. In view of the fact that neither the original contracts nor the revised contracts were brought to successful completion, the Education Division, through MITTS Ltd opted to terminate both contracts.

Provision regarding payments following termination

4.3.10 Sub-Article 15.08

4.3.10.1   *"If the Customer terminates the Contract under Sub-Article 15.04, the Customer may choose to either retain or return any or all of the Licences acquired under this Contract. Provided that the Customer shall remunerate the Contractor for the Licences retained and not already paid for, and that the Contractor shall refund to the Customer monies already paid in respect of Licences returned."*

4.3.10.2   *"In order to determine whether either additional remuneration or refund is due in respect of Licences to be retained or returned, account will be taken of the stage payments already made, after first making allowance for any other deliverables which may already have been supplied by the Contractor to the Customer, and*

for any service already provided under the terms of the Software Maintenance and Support Contract."

4.3.10.3   Seven stage payments of Stg 91,795 have been effected to the UK supplier amounting to Stg 642,565. This is in excess of what has been delivered to MITTS Ltd as will be discussed later. In view of the fact that neither the original contracts nor the revised agreement were brought to a successful completion, MITTS should claim for a refund of monies overpaid.

4.3.10.4   In our opinion, in the above two cases, MITTS Ltd could have efficiently forwarded complaints on the basis of the above clauses prior to the revised agreement which might have prejudiced their case against the UK supplier.

Provisions in the revised agreement dated 15 September 1998.

4.3.10.5   Provisions for payments in the revised agreement dated 15 September 1998 have been amply discussed in Part 3, pages 69-72.

4.3.10.6   When entering into contracts with foreign suppliers, the following matters are to be taken into consideration:

•   the jurisdiction applicable in case of litigation

•   the law of which country to apply.

4.4   Contracts between the Ministry of Education, and MITTS (Refer to pages 85 to 87)

4.4.1   As from 1997, annual contracts re SIS and CENTRIS for the provision of deliverables were signed between

the Ministry of Education and MSU. As has already been seen in Part 2, the annual deliverables contracted for included

- the provision of hardware,

- CENTRIS software development,

- the implementation of school information system (SIS) modules,

- provision of networking facilities and training.

- Separate annual contracts for maintenance and support were entered into between MITTS Ltd and the Ministry of Education.

4.4.2   The six main contracts covering years 1997 to 2000 between the Ministry of Education and MITTS Ltd contained similar clauses to the ones found in the main contract between MSU/MITTS and the UK supplier. These clauses are summarised below:

- If MITTS Ltd is delayed in the performance of its obligations as a result of the delay of the Education Division, then the former party is entitled to an extension of its programme of work;

- If a particular software licence is implemented in a live environment, this is considered to be accepted by the Education Division;

- As soon as part of the Programme of Work is completed by MITTS Ltd, an Acceptance Certificate by the Education Division had to be issued;

- Any changes to the Programme of Work had to be agreed upon by both parties.

4.4.3   The penalties imposed covering above contracts can be summarised as follows:

• The 1997 contract did not stipulate any penalties. Not only, but it also demanded prompt payment of all invoices, even in those cases where the Education Division had reason to question the validity of amounts owing.

• The 1998 School Information System and Central Information System contracts stipulated that if the programme of works extends beyond the completion date by more than 50% of the allotted time, MITTS Ltd were liable to pay damages up to a maximum of 20% of the annual contract and limited to the amount already paid for by the Education Division. The penalty rate was not stipulated in the contract.

• The 1999 and 2000 contracts provided for the same penalty clauses except for the fact that tolerable delay in contract time was reduced to 25% of the allotted time.

4.4.4   The maintenance and support contracts also provided for penalties amounting to the proportional amount of one annual fee in respect of the service for which liability is being claimed.

4.4.5   These contracts may be considered as a back to back agreement by MITTS Ltd with the UK supplier and the Ministry of Education. In NAO opinion, the conditions of the contract entered into between MITTS Ltd and the Ministry of Education were not always clearly defined.

4.5   Payments covering Main MITTS/UK Supplier Contracts

4.5.1   The Main Contract

4.5.1.1   As has already been stated in Part 2 page 45, the total amount due to the UK supplier as per original contracts dated 6 June 1996 fully delivered was Stg 826,155.

4.5.1.2   This amount was to be paid in nine stage payments of Stg 91,795 (Part 2, page 46). The final stage payment was to be effected on 31 January 1999.

4.5.1.3   Table 4.1 below shows the value of deliverables as per original contract between MITTS and the UK supplier and the amount of overpayment according to NAO.

Table 4.1: Value of deliverables as per original contract and amount of over-payment according to NAO

Payments under original main contract up to 15 September 1998	Actual Payments	Value of Software and Services delivered (according to NAO)	Variances (Overpayment)	Remarks
	Stg	Stg	Stg	
Seven stage payments of Stg 49,061 to cover software	343,427	159,037	(184,390)	This overpayment is in respect of unimplemented modules.
Seven stage payments of Stg 42,734 to cover services	299,138	290,288	(8,850)	This overpayment is in respect of services not delivered bythe UK Supplier.
Additional services not included in contract	69,152	69,152	-	
VAT (4 payments at Stg 6,410.10 and 3 payments at Stg 2,136.70)	32,050	Nil	(32,050)	VAT was charged on services by the UK Supplier.
Total overpayment	743,767	518,477	(225,290)	

Source: NAO working papers

4.5.1.4   The following is a more detailed explanation of VAT overpayments and other payments not included in contract.

4.5.1.5   *VAT payments*

Up to the date of the revised agreement dated 15 September 1998, seven stage payments of Stg 91,795 amounting to Stg 642,565 (Lm390,875) were made to the UK supplier. Each stage payment of Stg 91,795 included Stg 42,734 due for services rendered by the UK supplier in Malta (Part 2, page 46). VAT was charged on the services part of the stage payments as shown in Table 4.2:

Table 4.2: VAT charged on services part of contract

Description	Amount
Main contract – Services rendered	**Stg**
Seven stage payments of Stg 42,734	299,138
VAT at 15% levied on 4 stage payments VAT at Stg 6,410 per stage payment	25,640
VAT at 5% levied on 3 stage payments VAT at Stg 2,137 per stage payment	6,411
Total VAT paid	32,051

Source: NAO working papers

4.5.1.6   The total VAT paid in Maltese lira amounted to Lm19,219. This was due to the VAT Department in Malta since the place of supply of the services performed was in Malta. Section 10 of the Value Added Tax Act, 1994, the VAT law applicable at the time, provides that *"when a taxable supply of services is made by a person who is not established in Malta to a taxable person established in Malta the said taxable person established in Malta shall be deemed to have himself supplied those services in the course or furtherance of his economic activity and the provisions of this Act, including the obligation to apply for registration and to account for and to pay the tax, shall*

apply accordingly". Consequently, whenever a local customer receives an invoice for services performed in Malta by a foreign firm, the latter does not charge VAT on the face of the invoice. An invoice is then raised locally with VAT charged and then claimed back from the VAT Department. However, the UK supplier levied VAT on its invoices and did not pass them to the VAT Department in Malta.

4.5.1.7 *Additional payments not included in contract*
Furthermore, up to the date of the revised agreement, additional payments to the UK supplier not included in the contract amounted to (Stg 69,152) Lm44,025. These were paid for the following services:

Table 4.3: Additional services provided by the UK supplier and not included in contract

Description of services and software	Amount
	Stg
Training	53,582
Consultancy fees	8,060
Software services	5,100
Accomodation expenses	1,200
Other expenses	1,210
	69,152

Source: NAO working papers

4.5.1.8 We would like to comment on the above additional training costs:

- The cost of one training day per primary school per original main contract was Stg 333 per day whilst the equivalent cost per secondary school amounted to Stg 353 per day. The total additional training of the Administration Manager module to primary and secondary schools was levied at the

above rates and amounted to Stg 26,171. This additional training was necessary because a number of key people working on the project or using the system were no longer involved and were replaced by others.

• Additional training for Cash Accounts module was levied at a higher rate than the above at Stg 371.66 per day for primary schools and Stg 393.33 per training day for secondary schools. The total invoice value of additional training for cash accounts amounted to Stg 10,666.

• There were also additional training costs charged at higher rates per day. This training included system awareness training and accreditation training for which no provision had been made in the contract. The total value of these invoices amounted to Stg 16,745.

4.5.1.9 At the time of signing of the revised agreement and according to contractual provisions, there were still two outstanding stage payments of Stg 91,795 amounting to Stg 183,590.

4.5.2   The Revised Contract

Underpayment to the UK supplier as per revised agreement dated 15 September, 1998.

4.5.2.1 The actual value of deliverables up to July 2001 as per revised agreement dated 15 September, 1998 amounted to Stg 98,817, out of which Stg 44,488 were actually paid, resulting in an outstanding balance of Stg 54,329.

Net overpayment to the UK supplier

4.5.2.2   According to NAO, the net overpayment to the UK supplier as per the main contract and revised agreement is given below:

Table 4.4: Net overpayment to the UK supplier

Details	Actual payments	Value of software and services delivered (according to NAO)	Variances (Over)/under payments
	Stg	Stg	Stg
Total overpayment as per main contract dated 6 June 1996	743,767	518,477	(225,290)
Balance outstanding as per revised agreement dated 15 September 1998	44,488	98,817	54,329
Net overpayement to the UK Supplier (Stg).	788,255	617,294	(170,961)
Net overpayment to the UK Supplier (Lm).			**Lm 113,037**

Source: NAO working papers

4.5.2.3   When entering into a contract with a foreign supplier, it is imperative to ensure that the contractor provides a financial guarantee that would make good for any default, penalties or liabilities on his part. Such guarantees should be enforced and withdrawal of funds from these guarantees should be effected in the case of non performance by the supplier.

4.6 Payments made against MITTS/Education Contracts (For list of contracts, please refer to pages 85 to 87)

Payments made against main contracts

4.6.1   The table shown overleaf is a summary of IT related services delivered by MITTS Ltd to the Education

Division as per six main contracts covering 1997 to 2000 and payments made against such services. The table also shows payments made in 2001.

Table 4.5: Payments by Ministry of Education to MITTS Ltd excluding maintenance and support

Description	1997	1998	1999	2000	2001	Total
	Lm	*Lm*	*Lm*	*Lm*	*Lm*	*Lm*
Opening balance	Nil	Nil	(62,597)	17,584	16,982	N/A
SIS invoices	352,714 [8]	153,532	102,529	80,927	Nil	689,702
Centris invoices	Nil	40,690	26,024	Nil	Nil	66,714
Total services delivered	352,714	194,222	128,553	80,927	Nil	756,416
Total payments	(352,714)	(256,819)	(48,372) [9]	(81,529)	(12,401)	(751,835)
Year end balance	**Nil**	**(62,597)**	**17,584**	**16,982**	**4,581**	**4,581**

Source: NAO working papers

4.6.2   In 1996 there was a payment of Lm181,316 to MITTS Ltd on behalf of the Education Division which was not covered by a contract. Therefore total transfers to MITTS Ltd by and behalf of the Education Division amounted to Lm933,151.

4.6.3   There were services for the value of Lm13,168 in 1999 and Lm15,306 in 2000 totalling Lm28,474 for which the Education Division issued a Client Authorisation Form authorising the expenditure but for which no invoices have been raised by MITTS Ltd. We were unable to determine whether these services were actually performed.

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[8] Includes SIS and CENTRIS invoices since in the first year they were not kept separate.
[9] In 1999, there were lack of funds re. hardware upgrades and therefore the amount of Lm40,000 was transferred to the School Information System account. This transfer is not included above.

Maintenance and support contracts

4.6.4   The amounts paid in respect of maintenance and support for the project were as follows:

Table 4.6: Maintenance and Support costs

Year of service	Amount Contracted Incl. VAT *Lm*	Amount paid Incl. VAT *Lm*
1997	22,055	21,121[10]
1998	104,926	104,926
1999	106,238	106,238
2000	118,240	118,240
2001	80,292	80,292
Total	**431,751**	**430,817**

*Source: Maintenance and Support contracts
and DAS payments*

4.6.5   The following is a summary of the total transfers from the Ministry of Education to MITTS Ltd.

Table 4.7: Summary of total services delivered and transfers made from Ministry of Education to MITTS Ltd.

	Amount invoiced	Total paid	Variance
	Lm	Lm	Lm
1996 - Pre-contract transfers	181,316	181,316	-
1997 to 2001 - Transfers in respect of SIS and CENTRIS projects	756,416	751,835	4,581
1997 to 2001 - Maintenance and support fees	431,751	430,817	934
Total Transfers as per contract	1,188,167	1,182,652	5,515
Total transfers to MITTS Ltd	1,369,483	1,363,968	5,515

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[10] Minor differences between amount contracted due to change in tax rates.

4.7   Deliveries under MITTS/UK supplier Contracts

4.7.1   The difference between what was contracted for in the main contract and what was actually delivered is shown in Appendix A. There is still a value of Stg 376,830 of undelivered services as per main contract. There is a value of undelivered services with respect to the revised agreement of Stg 187,711 as shown in Appendix B being the difference between the amount contracted for amounting to Stg 286,528 and amount actually invoiced amounting to Stg 98,817. This highlights a very low level of efficiency with respect to the implementation of both contracts.

4.8   Deliveries under MITTS/Education Contracts

Fees payable by Education to MITTS covering the six main contracts (refer to page 86)

4.8.1   The annual contracts were drawn up by MITTS Ltd based on estimates of hardware, labour and outsourcing expenditure, as explained in Part 2 page 48, to be incurred on the SIS and CENTRIS project for that year. The cost estimates for year 1997 - 1998 were not available for inspection by NAO. Only the cost estimates for years 1999 - 2000 were submitted to NAO. This hindered NAO in determining whether fees charged by MITTS were fair and reasonable.

4.8.2   The hardware estimate contained a detailed list of all hardware to be delivered to the client at the relevant costs. The labour element contained the estimated number of hours to be spent on the project by the project manager, project leader and systems officer and their respective charge out rates. The outsourcing expenditure part would list all estimated third party expenditure to be incurred on the project, consisting mainly of payments to the UK supplier. The resulting charges from these estimates were included in the contracts as hardware, labour and outsourcing fees by MITTS Ltd to the Ministry of Education.

Actual deliveries against what was contracted for under MITTS/Education contracts

4.8.3　　The actual amounts invoiced to the Ministry of Education and subsequently paid against the amounts budgeted as per annual contracts are shown in Appendix C. The following information should be read in conjunction with this appendix. Comments on the resulting main variances in delivery follow:

Variances between contracted and actual amount delivered in 1997 contract

4.8.4　　The total amount of hardware delivered to the Education Division including VAT amounted to Lm83,071 and the estimated amount of hardware as per contract including VAT amounted to Lm112,137, thus giving rise to unavailed of hardware of Lm29,066 including VAT. Hardware delivery notes in respect of Lm32,275 of hardware equipment were not found.

Variances between contracted and actual amount delivered in 1998 contracts

1998 variances in respect of School Information System contracts

4.8.5　The hardware remaining undelivered in 1997 was delivered in 1998. Outsourcing expenditure was Lm83,338 less than contracted for.

1998 variances in respect of Central Information System contracts

4.8.6　　The total amount paid in respect of Central Information System of Lm40,690 can be considered to be an overpayment as the Central Information System was not delivered. The variance in hardware arose because of the payment of the Central Information System server which should have been delivered in 1997. This server is now being used by the Libraries Department. No outsourcing expenditure was actually incurred on the CENTRIS project.

Variances between contracted and actual amount delivered in 1999 contracts

1999 variances in respect of School Information System

4.8.7   Actual hardware delivered in 1999 was Lm14,771 higher than that contracted for. However, outstanding expenditure was Lm34,545 less than that contracted for. This was due to the fact that stage payments to the UK supplier were stopped.

1999 variances in respect of Central Information System

4.8.8   In this case also, the significant reduction in outsourced expenditure in 1999 arose due to the fact that stage payments to the UK supplier were stopped. The full amount of Lm26,024 can be considered to be an overpayment since the Central Information System was never delivered.

Variances between contracted and actual amount delivered in 2000 contract

2000 variances in respect of School Information System

4.8.9   The variance in hardware arose due to the fact that it was estimated that 52 laser printers would be delivered to the Education Division. However, 123 printers were actually delivered to the Education Division, thereby increasing the cost of hardware. The outsourcing expenditure contracted for in the year 2000 consisted of the provision of training services of the School Information System software modules. Training in that year was being provided by the Education Division itself.

General comment on all contracts

4.8.10 In 1998 and 1999, there was a substantial increase in project management fees from Lm24,515 in 1997 to Lm59,824 in 1998 and Lm84,180 in 1999. The management fees were reduced in the year 2000 to Lm38,916. The 1999 project management fees were based on 1,300 labour hours. Actual hours spent on the project in 1999 amounted to 2,079 hours. The estimated number of hours for the year 2000 were not submitted by MITTS Ltd. Actual hours spent on the project in the year 2000 amounted to 1,700 labour hours. The table hereunder summarises the project management fees paid against estimated and actual labour hours.

Table 4.8: Labour hours spent by MITTS Ltd on the project

Year	Estimated labour hours	Actual labour hours	Project Management Fees
1997	N/A	N/A	24,515
1998	N/A	4,357	59,824
1999	1,300	2,079	84,180
2000	N/A	1,700	38,916

Source: Timesheets at MITTS Ltd

4.9   MITTS payments to third parties

4.9.1 Payments to third parties as per job expenditure report submitted by MITTS Ltd is as shown in Table 4.9 overleaf.

Table 4.9: SIS and Centris project payments by MITTS Ltd to third parties (Foreign and various local suppliers)

School Information System	Stg	Lm
Hardware issues on the project		204,780
RMMS Ltd payments for software and services		
Software licences	159,037	96,970
Installation and implementation costs	37,000	22,557
Project team costs	77,850	47,466
Training	144,611	88,173
Maintenance and support	120,404	73,413
Software development	9,240	5,630
Additional training and other services	69,152	42,162
Overpayment	170,961	113,037
Other ancillary services		
Training		15,232
Classroom leasing		5,480
Transport services		4,621
Software development		7,889
Catering Services		1,547
Outsourcing services		20,719
Total SIS payments		*749,676*
Centris Information System		
Centris server		20,808
Total Centris payments		*20,808*
Total project payments to third parties		**770,484**

Source: MITTS Ltd Job Expenditure Report

4.10   Summary

4.10.1   The following is a summary of all the figures mentioned in this Part:

Value actually delivered against value originally contracted

Table 4.10: Variance between contracted amounts and amounts actually delivered

	Contracted	Actual value delivered	Variance
Value delivered by the UK Supplier to MITTS Ltd			
- as per main contract	Stg 826,155	Stg 449,325	Stg 376,830
- as per revised contract (up to July 2001)	Stg 286,528	Stg 98,817	Stg 187,711
- additional services	-	Stg 69,152	(Stg 69,152)
Value delivered by MITTS Ltd to Education	Lm 1,352,095	Lm 1,188,167	Lm 163,928

Source: NAO working papers

4.10.2   In all cases delivery of services fell short of what had been planned and contracted.

Value actually paid against value delivered

Table 4.11: Summary

	Value Delivered	Amount Paid	Amount (overpaid) / Underpaid
Value paid by MITTS Ltd to the UK Supplier	Stg 617,294	Stg 788,255	(Stg 170,961)
Value paid by Education to MITTS Ltd as per contracts 1997 to 2001	Lm 1,188,167	Lm 1,182,652	Lm 5,515
Value paid by Education for pre-contract services	Lm 181,316	Lm 181,316	-
Total value paid by Education to MITTS Ltd.	**Lm 1,369,483**	**Lm 1,363,968**	**Lm 5,515**

Source: NAO working papers

Total payments for SIS/CENTRIS projects
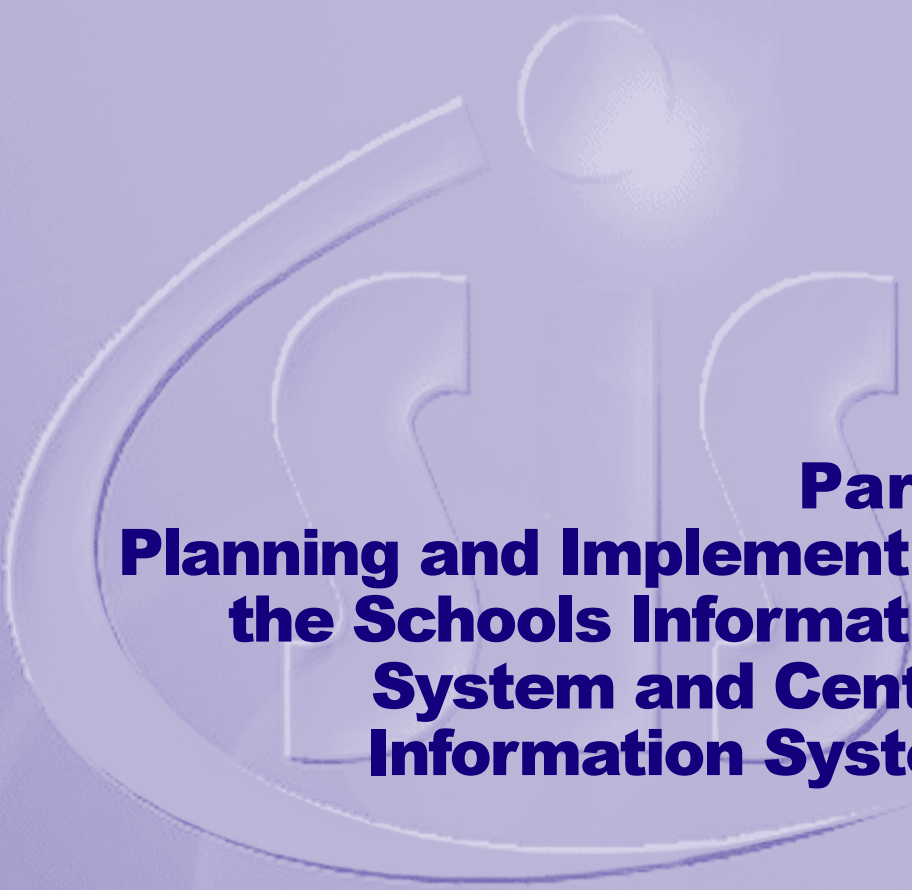
Table 4.12 Total payments for
SIS/CENTRIS Projects

	Lm
By MITTS Ltd to third parties	770,484[11]
By Ministry of Education to MITTS Ltd.	1,363,968

Source: NAO working papers

4.10.3   The above Part dealt with the financing of the project. The following Part will deal with the efficiency and effectiveness of the project.

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[11] See breakdown of this figure in Table 4.9.

Part 5
Planning and Implementing the Schools Information System and Centris Information System

Part 5 Planning and Implementing the School Information System and Central Information System

The previous Part dealt with the financing of the School Information System and the Central Information System projects. This Part will be dealing with the efficiency and effectiveness of the various stages of the projects.

5.1 Evaluation - the planning stage

Strategic plan

5.1.1   The strategic plan for the implementation of the School Information System and Central Information System was submitted late to NAO.

5.1.2   Furthermore, the Education Division was not involved at planning stage. Planning the project was the sole responsibility of MITTS Ltd. Although the project did not deliver the expected benefits, it instilled an IT culture in the Ministry of Education and its Departments, which was lacking till then.

5.1.3   There was lack of ownership of the project on the part of the Education Division. The Education Division ended up being the user of the system without fully assuming ownership. MITTS Ltd championed the project

Poor CENTRIS Systems analysis

5.1.4   The system functional requirements were very detailed with respect to the School Information System software modules.

5.1.5   However, no proper planning of detailed business requirements of the Central Information System was carried out. The Invitation to Tender (ITT) as regards CENTRIS was deficient in that it only stated that schools should be able to electronically transfer information from the schools' computer to the Education Division through modem or diskettes, and likewise the Education Division may download information from its data centre to the schools. This was a very basic requirement. No proper assessment was performed of what is required centrally by the Education Division. To mention a few examples, the ITT did not state how the processing of the Classification Reports[12] at the Education Division was to be computerised. No plan was performed with respect to how the data required in the Quarterly Return[13] was to be captured from the School Information System and then transferred electronically to the Education Division. No plan was performed with respect to absenteeism reports submitted to the Education Division. No plan was made with respect to financial information and reports to be submitted to the Education Division. No plan was made with respect to the collection of information regarding inventory and premises management, staff attendance reports including returns of supervision duties during breaks, and examination performance reports. The link to the Year 6 Placement Programme was also not determined. A detailed systems analysis of the Central Information System should have been performed to cover above requirements and more. Instead the analysis was set as a deliverable within the contract. Such a centralised environment did not form part of the UK educational system and therefore the UK supplier had had no previous experience in this regard.

No plan was made of the Human Resources required to implement the system

5.1.6   Furthermore, no account was taken of the human resources available in schools and the degree of

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[12] This report determines teacher requirements by schools.
[13] This return includes detailed electronically generated information on students at schools.

computer literacy of staff available. This was one of the several factors hindering timely project implementation.

5.1.7 At planning stage, one should conduct a comprehensive systems analysis and should take into account the resources available to implement the project. If existing resources are insufficient, one should plan how to procure the lacking resources.

Unrealistic timeframes for project implementation

5.1.8 Project milestones as set out in the ITT were unrealistic (please refer to Part 2 page 34). This was due to the following reasons:

- Several modules needed to be implemented within a short timespan;

- Staff at schools and the Education Division were not adequately prepared and were insufficient in number;

- The tender was awarded to a supplier who at the time had not yet developed the central system, the examinations module and the staff attendance module as these were not available off the shelf. It was unrealistic to develop the above modules in such a short timespan.

Unclear technical platform

5.1.9 The Management System required by the ITT was Informix. The chosen supplier promised to deliver the IT system using Informix. At a later stage, when test versions of the Central Information System were submitted to MITTS Ltd, it was discovered that they were developed using an Omnis database.

Poor adjudication criteria

5.1.10   Table 2.2 in Part 2 page 42 outlines the weightings given to the software requirements by the adjudicating board during the tender evaluation process. The functional requirements which related to the software meeting the requirements of the Education Division were given a 10% weighting only. Hence even where the functional requirements were not adequate it only affected marginally the difference in weighting given to bids. For example, the second best tenderer fulfilled all the functional requirements and was given a 10% rating with respect to functional requirements. The chosen supplier had to develop the Examinations and Staff Records module together with the Central Information System as these were not readily available. Notwithstanding, he was allotted a marking of 9.4%, which in effect only resulted in a 0.6% difference between the two tenderers. Furthermore, the adjudication board had decided that tenderers having missing critical functional requirements would be eliminated. However, it was later decided that bidders would only be eliminated if the bidder does not bind himself to develop them at a fixed price. The tender was awarded to a bidder who had missing critical requirements but who bound himself to develop them at a fixed price.

Shifting parameters

5.1.11   After issue of the ITT, there was a change in the number of schools that would be implementing the School Information System. The ITT stipulated that the School Information System would be implemented in 154 primary schools and 62 secondary schools. The number of schools was reduced to 80 primary schools and 61 secondary schools. A revision of cost estimates report by the adjudicating board was drawn up documenting the revised calculations in respect of three tenderers, as the other two tenderers had already been eliminated. This could have affected adversely the

remaining two tenderers as the revised calculations were not performed in their regard.

Gaps in requirements in awarding tender

5.1.12   The tender was awarded to a UK supplier as per contract dated 6 June 1996. The contract stipulated that the supplier would deliver the contracted modules, and develop the Exams module, the Staff Attendance module and the Central Information System. The contract stipulated that stage payments would be effected to the supplier and such payments were not made against deliverables. This was a serious shortcoming, thus resulting in an overpayment for services not delivered. Furthermore, stage payments made project cost control more difficult.

5.1.13   The contract included the following modifications which had to be performed on the software after the contract was awarded:

•   Maintain transport route supervisor

•   Integrate Premises module with class and timetable information to determine room utilisation

5.1.14   The above modifications were never performed. Furthermore, while the report generator was specified as a requirement within all modules, only Administration Manager was provided with fully-fledged report generation facilities. The Staff Records module cannot even generate a staff list.

5.1.15   Thus the planning stage was not efficient, as the systems analysis, and tendering procedures were found lacking in various respects as outlined above.

5.1.16   NAO opines that poor planning is attributable mainly to MITTS Ltd.

5.2   Evaluation - the implementation stage

5.2.1   According to the original plan, implementation and control of the project was envisaged to be vested in a project board of one executive chairperson from the Education Division, two senior users from the Education Division and a senior technical member from MSU (later MITTS Ltd). The role of the executive chairperson was to provide overall guidance and continually assess the project progress. The actual composition of the project board consisted of the chairperson, who was then the Director of Operations of the Education Division, ten senior officials from the Education Division and three MSU officials, including the project manager. However, although the Education Division failed to assume full ownership, MSU championed the project.

5.2.2   Criticism of the implementing stage follows:

Software testing

5.2.3   After tender award, the software was tested to ensure that the school information system met user requirements. In our opinion, it would have been advisable to perform software testing prior to tender award.

5.2.4   Notwithstanding, the software testing was carried out with respect to only 8 out of the 10 modules contracted. In the initial software testing, 60 defects were reported (See Part 3, page 57). In spite of these defects, a Certificate of Acceptance of Work Delivered was issued subject to outstanding errors being resolved. A Certificate of Acceptance should not be conditional. If outstanding errors were not resolved, then MITTS Ltd and the Education Division should not have gone ahead with the implementation of the modules.

5.2.5   The main contract provided in clause 8.07 that if any item to be delivered by the Contractor to the Customer

is used in a live environment at the pilot schools, then the item is considered to be accepted by the customer. The fact that the implemented modules were used in a live environment, they were deemed to have been accepted by the customer as per contract and made it more difficult for MITTS Ltd to insist on the resolution of defects.

5.2.6   Furthermore, proper control of outstanding defects was the responsibility of MITTS Ltd. At present, there are 217 pending defects. Adequate attention should be given to the severity level of defects, and priority should be directed towards the more serious defects. The fact that there are 217 pending defects indicates a low level of efficiency in the post-testing defects resolution mechanism.

Piloting stage

5.2.7   The piloting of seven of the software modules took place in six pilot schools. Each pilot school was asked to pilot two or three software modules. It was decided not to pilot the full range since the planned duration of the pilot was seven weeks and the schools were unable to cope with the initial implementation of all the software modules and concurrently maintain the normal operational procedures of the school. This points to the fact that the original plan was unrealistic.

5.2.8   Furthermore at planning stage, one should have distinguished between training headmasters as owners of the information system and school clerks who would be operating the system. Training should have been oriented towards the particular category. This shortcoming has resulted in additional training costs of Stg 69,152 being paid to the UK supplier. Apart from this, one should also have instilled a culture change - resistance is to be expected whenever new methods of operation are introduced.

Full implementation of the software modules

5.2.9   First of all, one needs to note that the fact that the Central Information System had not yet been developed by the time full implementation of the software modules had to be implemented, was a major shortcoming in implementing the whole project. Furthermore, at planning stage the possibility of the Central Information System not being developed by the time full implementation had to occur was not given due consideration. This was a serious deviation from the original plan.

5.2.10   Only five of the software modules were actually installed in 142 schools. This was a major deviation from the original plan. The supplier had bound itself to perform the initial installation in all schools. Thus the Education Division did not get the full benefit of the service since the initial installation did not include all modules and those installed did not cover all schools.

5.2.11   In the piloting stage, the UK supplier had recommended that schools be supported by additional clerical staff for a more effective implementation of the modules. This recommendation by the supplier was implemented during implementation stage.   The supplier had also recommended that schools be supplied with additional networked computers to enable an effective use of all of the modules of the system. The networking of the software modules of the School Information System has not yet been implemented to date. This is greatly reducing the effectiveness of the system for management control by headmasters as these computer systems are thus being operated by clerks and school secretaries with no direct access to the system by headmasters.

5.2.12   At implementation stage, it was discovered that some areas of the School Information System would need further modification to be applicable to post secondary

schools. Specific requirements of post secondary schools were not catered for by the School Information System. The project manager suggested a separate exercise for post secondary schools. This points to further inefficiency at planning stage. The seven schools selected by the MSU project team to prepare the requirements analysis prior to issue of tender did not include a post secondary school. Neither did the contract between MSU and the UK supplier specifically cater for post secondary schools. An adequate systems analysis of post secondary schools should have been performed at planning stage.

5.2.13 As stated in Part 3, page 65, in October 1997, there was a change in the management of the project. The whole project was divided into two parts namely School Information System and Central Information System. Two project boards were set up to monitor the progress of the School Information System and Central Information System. The Operations Department of the Education Division retained the ownership of the School Information System whilst the ownership of Centris was transferred to the Planning Department of the Education Division.

5.2.14 By the end of 1997, progress had been made with respect to the updating of student information in Administration Manager. However, usage of Staff Records and Student Attendance was still very low.

5.2.15 It was felt that school heads were not convinced of the benefits of the system. This further emphasises the fact that user training is of utmost importance for the effective implementation of a new IT system. Training should include not only explaining the mechanics of the system but also demonstrating the usefulness of a management information system as a tool for the better management of schools.

5.2.16   A union directive requested staff not to attend training during the period October 1997 to March 1998. This points to the importance of consultation prior to the implementation of a new project so that all parties agree to the advantages of the new system.

5.2.17   Acting on a recommendation by MITTS Ltd, the steering committee decided that the initial rollout of a new module would be performed in 11 pilot schools and then subsequently the module would be rolled out in all schools. This necessitated a re-negotiation of the contract with the UK supplier as per revised agreement dated 15 September 1998. This indicates that the original plan was unrealistic. Moreover, the fact that MITTS Ltd re-negotiated the contract with the UK supplier could imply that they were satisfied with the supplier performance when in fact various defects in the modules and lack of supplier performance had already become evident.

5.2.18   Moreover, MITTS Ltd argue that reassessment of project policy following changes in administration contributed to the slowdown in the implementation of the project.

Central Information System

5.2.19   The technical specifications of CENTRIS were missing from the ITT. This required the contractor to develop separately a detailed systems analysis for the Central Information System. The timeframe set for the development of the Central Information System as per contract was thus unrealistic. The lack of centralisation subsequent to piloting was thus a major deviation from the original plan. Moreover, the absence of adequate report generating facilities was another major deficiency in the system. Furthermore, a central system was not in operation in the UK, and thus the selected supplier had

no previous experience in the development of a centralised educational system.

5.2.20   Furthermore, a lot of time and effort was wasted in designing central system requirements during project implementation which led to no tangible results apart from a preliminary report on central system requirements. Two test versions of CENTRIS presented to MITTS Ltd had limited reporting capabilities and were developed using Omnis and not Informix as required in the tender. In NAO opinion, the effectiveness of the whole information system was greatly impaired by the non development of the Central Information System.

Supplier performance

5.2.21   By the time of the revised agreement dated 15 September 1998, the supplier had already not performed on a number of counts namely that the Exams module had not been developed as agreed in the contract, a feasibility report on the link between the Classification Report and the Year 6 Placement Programme with the Central Information System had not been developed, and the Staff Attendance module had not been delivered.   Furthermore, the UK supplier severed its working relationship with the firm supplying the timetabling module, and could no longer offer support for the Timetabling module.

5.2.22   Consequently, the UK supplier had already been showing signs of non performance by the time the signing of the revised agreement was taking place. MITTS Ltd should have been more demanding in the revised agreement with the supplier and insisted on the enforcement of penalties in case of eventual non performance.

5.2.23   The revised agreement was a renegotiation of a new timeframe for the implementation of all modules. It was a total replan of the project since the original plan failed totally to meet the original timeframes.

5.2.24 MITTS Ltd did not request approval from the Contracts Department prior to signing the revised agreement. This was a contract procedure flaw since MITTS should have submitted a report with their recommendations to the Director of Contracts prior to entering into any revised commitment with the supplier. The contract had been issued by the Contracts Department so any amendments had to have its approval.

5.2.25 In NAO opinion, implementation failures arose due the fault of the:

- Education Division by not adequately preparing its staff prior to implementation and not being involved enough in the project at planning stage to determine the actual number of modules required;

- MITTS Ltd who could have managed the project more efficiently and effectively - mostly with respect to the implementation of modules and User Acceptance Testing;

- The UK supplier who did not fulfil its contractual requirements.

5.2.26 Having discussed efficiency issues at planning and implementing stages, effectiveness issues of the project, in respect of that part of the contract actually delivered, are discussed below.

5.3 Effectiveness of School Information System (that part delivered)

5.3.1 In order to evaluate the effectiveness of the project against what was originally intended by government policy, NAO selected a sample of 32 schools from 133 schools and interviewed the school heads and school clerks through a questionnaire. The following is a summary of

relevant findings of these interviews. The modules actually installed in schools were Administration Manager, Attendance Manager, Staff Records, Timetable (in secondary schools only) and Cash Accounts. Modules not delivered were: Premises Manager, Inventory Manager, Budgeting. Curriculum and Examinations Management.

Level of confidence in usage of the modules available

5.3.2   The average level of confidence of users in usage of the modules installed is given below:

Table 5.1: Average level of confidence in usage of modules

Module	Level of confidence as a %
Student Administration Manager	82
Student Attendance	79
Staff Records	32
Cash Accounts	83[14]
Time-tabling	55

Source: NAO working papers

5.3.3   Student Administration Manager and Student Attendance are the two modules mostly in use and so operators feel very confident in operating the systems. The Cash Accounts module is seen to be beneficial and operators level of confidence is high. A number of schools consider this module to be a valid tool in managing finance in their schools and looked forward to its implementation. Although the level of confidence in timetabling is only

[14] At the time of the interview this module was installed only in 10 schools.

55%, the level of confidence in usage will tend to increase as school heads and assistant school heads will gain more experience in using the module.

5.3.4 Staff Records module is not being utilised as it does not generate useful reports. It does not even generate a simple staff list. Furthermore, the non delivery of Staff Attendance module and Replacements module has decreased the effectiveness of this module since staff attendance and the setting of teacher replacement duties are still being performed manually.

5.3.5 The average overall confidence level per school in the usage of all modules is 66%.

Ownership of the system by Heads of Schools

5.3.6 In the course of our interviews, we have perceived that 15 school heads of the 32 school heads (47%) interviewed own the system in the sense that they actively manage the system and extract reports as an aid to managing their schools. The other 17 school heads (53%) do not actively manage the School Information System but have delegated the running of the system to clerks or school secretaries who in NAO's opinion are not qualified enough to make optimal use of the modules.

Usage of reporting facilities of the School Information System modules

5.3.7 This facility, which constitutes a critical function of the project and which should be conducive to enhanced management, is poorly utilised.

5.3.8 The Administration Manager has a number of reports which are different variations of details of a class list. Schools select only the reports which suit their needs.

5.3.9 The most frequently used report in Attendance Manager is the Class list with students' addresses and transport. Another type of report much used is that generating absentee letters to parents and attendance breakdown. In our opinion, more frequent use of the other reports in this module help control absenteeism more effectively.

5.3.10 No usage is being made of the staff records reports. These reports have low functionality and consequently are not being used by schools. Only one school of the 32 interviewed stated that it is making use of the personal card within the Staff Records module.

5.3.11 The Cash Accounts module has a number of reports which need familiarisation of basic accounting rules in order for it to be implemented fully. The most frequently used reports from this module are the Income report and the Expenditure report because these are reports required to be submitted to the Division.

5.3.12 School heads and assistant heads are making use of the three reports available in the Timetabling module namely the Master teacher timetable, the teacher timetable and the class timetable. School heads and assistant school heads have claimed that this module has helped them in preparing the annual timetable.

Benefits from using the School Information System

5.3.13 When heads of schools were asked which benefits were derived from the School Information System on line, the following responses were given:

- 31% of the total schools interviewed have stated that the School Information System helped them in better managing their schools;

- 72% of the schools interviewed have stated that information is more easily accessible;

- 66% of the total schools interviewed have stated that time utilised in performing administrative duties has been reduced;

- 84% of the schools interviewed have stated that through the School Information System, more timely reports are produced.

5.3.14 School heads have expressed their concern on the lack of networking of the School Information System in order to have access to the system through classroom level allowing teachers to update attendance in the classroom.

5.3.15 Education Division argues that the benefits obtained from using the School Information System are low in relation to expenditure incurred in procuring the system.

Training and support

5.3.16 Training for the implemented modules is being provided by the Education Division itself. This is a praiseworthy initiative since the Education Division could be self sufficient in its training needs.

5.3.17 Support is presently also being carried out by staff from the Education Division.

Lack of central system at the Education Division

5.3.18 School heads have commented on the fact that due to the absence of the Central Information System, repetitive data entry is being performed in respect of admissions. Moreover, schools still have to submit manually a number of reports including the Quarterly Returns, the Classification Report outlining teacher requirements for the following year, the rate of absenteeism of students, the number of hours of supervision during breaks, and financial reports.

5.3.19 The Quarterly Returns require a substantial amount of information on students which is partly being extracted from the School Information System. Had the Central Information System been functioning, this information could have been extracted centrally without schools having to fill in forms manually.

5.3.20 The Classification Report which is a complex annual exercise performed by schools heads to determine teacher requirements for the following scholastic year cannot be extracted from the School Information System. The submission of year 6 students to the Education Division is done manually, processed in a separate programme at the Education Division. Once students are assigned to secondary schools, admissions are then entered manually. The year 6 transfer of students has not yet been computerised.

5.3.21 The CENTRIS had to facilitate data transfer between schools, from schools to the Education Division and to build a database which had to aid the Division in its planning and monitoring role. In our opinion, the absence of the central system has reduced substantially the effectiveness of the project. The objective of government policy was not achieved in this regard.

5.4   Current developments

5.4.1 As has already been stated in Part 3 page 76, the Education Division imposed a moratorium on further rollouts of modules and is trying to consolidate what has been achieved so far. Furthermore, MITTS Ltd has terminated all contracts with the UK supplier as per contract termination agreement dated 20 August 2002. This contract termination provided for an amicable settlement between MITTS Ltd and the supplier whereby MITTS Ltd waived all claims in its favour in exchange for the source code of 8 out of the 10 modules originally contracted for.

5.4.2   The following chapter will deal with conclusions reflecting NAO opinion on the project.

Part 6
Conclusions

Part 6   Conclusions

6.1   Conclusions

6.1.1   The School Information System and Central Information System were to be implemented at schools and at the Education Division respectively in order to assist School Heads in the efficient administration of their schools and to aid the Education Division in its planning and monitoring role.

6.1.2   The objectives of the School Information System were partly achieved, whilst the objectives of the Central Information System were not achieved. The benefits obtained from partial implementation of the School Information System and non implementation of the Central Information System were low in comparison to the expenditure incurred.

6.1.3   In NAO's opinion, the factors giving rise to failure to implement the above projects fully are the following:

- Insufficient planning at the initial stages of the project - including unrealistic time frames for the implementation of the project, no consideration for low IT literacy of staff, the absence of a systems analysis for CENTRIS. The project cost schedule did not tie payments to deliverables.

- Project ownership and management were poor. The Education Division was not involved at the planning stage. Planning the project was the sole responsibility of MITTS Ltd.

- The implementation and control of the project were also below the standard required for success.

Consequently, only half of the SIS modules were delivered, which still contained severe software defects. The Central Information System was never delivered.

6.1.4 MITTS Ltd, on behalf of the Education Division, failed to apply adequately provisions in the contract that safeguarded MITTS Ltd/Education Division interests. This resulted in an overpayment of Stg 170,961 to the foreign supplier.

6.1.5 There was also lack of management of the School Information System on the part of school heads. Not all school heads actively managed the system, but some have delegated the running of the system to clerks or school secretaries.

6.1.6 MITTS Ltd, acting on instructions from the Education Division, terminated the contract with the UK supplier in August 2002 whereby it waived all claims in its favour in exchange for the source codes of 8 out of the 10 originally contracted modules. MITTS Ltd also requested a copy of the technical documentation supporting the above modules.

6.1.7 The Education Division informed NAO that it is reluctant to allow MITTS Ltd to customise software. The Education Division will re-assess its position on IT policy in school management with the scope of relaunching the policy.

Part 7
Recommendations

Part 7   Recommendations

7.1.1   The following is a set of recommendations to address shortcomings/conclusions which emerge from the School Information System performance audit. Apart from addressing past shortcomings, the recommendations should be seriously considered in the way ahead in the School Information System project and in case of other similar and not so similar projects. The recommendations below address issues concerned with the planning and implementation of the project.

Planning the project

7.1.2   The project plan should consider the following:

- a complete systems analysis of the project should be performed;

- an adequate assessment of the resources required to implement the project so that the procurement of additional resources can be effected;

- a reasonable time schedule to implement the project should be set;

- a cost schedule which ties payments to deliverables;

- the design of a management information system to monitor project performance;

- the design of a contractual relationship with the eventual contractor that includes contingency plans and penalties in cases of non-performance;

- jurisdiction and country law applicable should be clearly defined in the contract;

- an adequate bank guarantee be set up to cover the eventuality of non performance by the supplier;

- the choice of a reasonable selection criteria when assessing bidders. Preferably, these selection criteria should have the approval of CIMU;

- the establishment of a project organisation structure that establishes clear responsibilities between the parties involved in the project. Ownership of the project should be assumed by the department (in this case) the Education Division from project inception;

- a standard procedure should be in place (possibly included within the conditions of the government award of tender) that system testing be performed prior to award of tender;

- Provision should be made at planning stage for the transfer of control of the project from the supplier and/or intermediary organisations to the department (provision of training, maintenance support) as early as possible;

- original plans are to be adhered to. Major deviations from the plan should only be accepted in exceptional cases and after a thorough analysis of the consequences of the changes in plan. (The absence of the Central Information System during tender award made centralisation after piloting very difficult to achieve);

- consultation with employees who would be using the system and their representatives should be sought so that change would already get the approval of the parties concerned.

- The functions and duties of all stakeholders in the project are to be clearly defined.

Implementing the project

7.1.3 During implementation the following should be taken in consideration:

- Training for the project should commence as early as possible. Training should include not only the mechanics of operating the system but the management information to be extracted from it;

- Project implementation should be timed to allow staff implementing the system time to acquire proficiency in using the modules prior to the introduction of further modules;

- The provision of in house training and maintenance and support services should commence as early as possible;

- A suitable management information system should be set up to monitor costs of the project. Actual costs should be compared to budgeted costs and variances calculated and investigated. Cost overruns as a result of non-performance by supplier should be identified. For example, if the software does not meet specifications, the project will incur additional costs in terms of User Acceptance Testing;

- Networking facilities should be in place in schools to maximise the use to be made of the software modules;

- A proper systems analysis at planning stage and a reasonable timeframe will avoid major deviations from original plan during project implementation;

- Tender conditions should be adhered to as much as possible. Any changes in contract terms and conditions should always obtain the approval of the Contracts Department;

- Feedback from schools regarding difficulties encountered should be encouraged. A suitable means of communication should be set up whereby difficulties encountered by schools and their resolution are communicated to all schools.

- The project at school level should be managed, or under the continuous control of the Head of School, or delegated to a member of the management staff, preferably with knowledge of IT and its strength.

Project evaluation and the way ahead

7.1.4 As stated above, the SIS project has been beneficial in introducing computerisation in schools. In order to continue reaping benefits from this project it is proposed to:

- Re-assess the position regarding the unimplemented modules. For example, the introduction of the Assets Manager Module might prove beneficial to schools and the Education Division when Government switches the accounting system to accruals basis. However, implementation/non-implementation of unimplemented modules should preferably be made in consultation with school heads. This will further enhance the process of decentralisation of schools and will increase participative decision making in government;

- Once the source code of all modules is obtained, as per contract termination agreement, perform a revised systems analysis of important administrative tasks not

yet computersied. Perform modifications to existing modules or develop new ones to cater for these tasks;

- Perform a systems analysis of information required centrally. Perform modifications to existing modules to generate the information and provide for the electronic transfer of this information to the Division;

- Evaluate the impact of the introduction of e-government on the School Information System. The Division should assess the impact of the introduction of e-government on absentee reporting, exam results notification, school circulars, timetabling, and other matters;

- The Education Division may opt to replace the entire School Information system. In our opinion, this should be performed only if the benefits to be obtained in replacing the entire system far exceed the costs involved in scrapping the previous system and replacing it with the new one. Should the above be the case, due care should be taken so that the shortcomings identified in this report would not be repeated.

Appendices

Appendix A : Comparing contracted deliverables against actual deliveries as per 1996 MITTS and the UK supplier contract

Description of deliverable	Value of software and services contracted	Actual value delivered	Value of undelivered software and services	Remarks
	Stg	Stg	Stg	
Software licences				
Student Administration Manager	33,228	33,228	Nil	
Student Attendance	16,614	16,614	Nil	
Staff Records	11,558	11,558	Nil	
Cash Accounts	57,707	57,707	Nil	
Facility Timetabling	39,930	39,930	Nil	
Options (to be operated with Timetabling)	10,382	Nil	(10,382)	Module not implemented
Examinations	11,181	Nil	(11,181)	Module not implemented
Premises Manager	17,577	Nil	(17,577)	Module not implemented
Inventory	11,557	Nil	(11,557)	Module not implemented
Curriculum Manager	33,227	Nil	(33,227)	Module not implemented
Budgeting	33,739	Nil	(33,739)	Module not implemented
Central System development Central Information System	29,500	Nil	(29,500)	Central System not developed

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Description of deliverable	Value of software and services contracted	Actual value delivered	Value of undelivered software and services	Remarks
	Stg	Stg	Stg	
Software enhancements				
Software enhancements	37,000	Nil	(37,000)	Software Enhancements not developed
Installation and implementation costs				
Installation and implementation costs	37,000	37,000	Nil	
Project team costs				
Project Management costs	60,450	60,450	Nil	
Project team costs	17,400	17,400	Nil	
Training				
Initial training	76,390	76,390	Nil	
Central Information System training	2,585	Nil	(2,585)	
Training to primary schools	30,000	30,000	Nil	
Training to secondary schools	24,000	24,000	Nil	
Total as per main original contract	**591,025**	**404,277**	**(186,748)**	
Maintenance and support				
Period Aug 1997 to July 1998				
Maintenance and support	45,593	26,205	(19,388)	M & S was not provided on all modules.
Software upgrade costs	32,783	18,843	(13,940)	M & S was not provided on all modules.
Period Aug 1998 to July 2000				
Maintenance and support	91,187	Nil	(91,187)	M & S was regulated by revised contract
Software upgrades	65,567	Nil	(65,567)	M & S was regulated by revised contract
Total as per maintenance and support contract	**235,130**	**45,048**	**(190,082)**	
Total value of software and services	*826,155*	*449,325*	*(376,830)*	

Appendix B: Comparing contracted deliverables against actual deliveries as per 1998 MITTS and the UK supplier revised agreement

Nature of deliverable	Amount contracted for	Amount invoiced / Accrued for	Value not delivered	Remarks
	Stg	Stg	Stg	
SIS Software services				
Exams Investigation	5,000	Nil	5,000	Service not delivered
Deploy cover module instead of 21 licences of timetabling	5,000	Nil	5,000	Service not delivered
Deploy exams module	20,415	Nil	20,415	Service not delivered
Centris Software services				
CENTRIS Admin, Staff, Attendance	7,000	Nil	7,000	Service not delivered
CENTRIS Cash module	7,000	Nil	7,000	Service not delivered
CENTRIS Curriculum	7,000	Nil	7,000	Service not delivered
CENTRIS Asset Manager	8,500	Nil	8,500	Service not delivered
Year 6 link investigation	10,000	Nil	10,000	Service not delivered
Training for SIS modules				
1998	20,404	9,762	10,642	Not all training was delivered
1999	9,604	4,459	5,145	Not all training was delivered
2000	Nil	Nil	Nil	
2001	5,940	Nil	5,940	Training was not delivered
2002	11,880	Nil	11,880	Service was to be provided in future
2004	5,940	Nil	5,940	Service was to be provided in future

(continued ...)

Nature of deliverable	Amount contracted for to July 2001	Amount invoiced / Accrued for	Value not delivered	Remarks
	Stg	Stg	Stg	
Training for CENTRIS modules				
1999	2,585	Nil	2,585	CENTRIS was not developed
Maintenance and support				
1998	27,150	11,313	15,837	Maintenance still outstanding
1999	36,200	15,863	20,337	Timetabling support overpaid
2000	38,000	24,676	13,324	Maintenance still outstanding
2001	45,050	23,504	21,546	Maintenance still outstanding
2002	52,100	Nil	52,100	Service was to be provided in future
2003	69,150	Nil	69,150	Service was to be provided in future
2004	76,200	Nil	76,200	Service was to be provided in future
Amounts not contracted for				
Software development	Nil	8,250	(8,250)	Service still outstanding
Sundry visit by staff from the UK supplier	Nil	990	(990)	Service still outstanding
Total amount contracted for	*470,118*	*98,817*	*371,301*	
Amount still outstanding from original contract	*(183,590)*	*Nil*	*(183,590)*	
Additional amount contracted for	*286,528*	*98,817*	*187,711*	

Appendix C: Contracts between MITTS Ltd and Education Division
Variances between amount contracted and amount invoiced

	1997			1998			1999			2000		
	As per contract	Actual amount invoiced	Variance	As per contract	Actual amount invoiced	Variance	As per contract	Actual amount invoiced	Variance	As per contract	Actual amount invoiced	Variance
	Lm	Lm	Lm	Lm	Lm	Lm	Lm	Lm	Lm	Lm	Lm	Lm
SIS												
Hardware	112,137	83,071	29,066	2,500	25,761	(23,261)	4,048	18,819	(14,771)	25,987	38,999	(13,012)
Project Management fees	25,596	24,515	1,081	40,688	40,688	-	59,708	59,708	-	38,916	38,916	-
Outsourcing expenditure	245,351	245,128	223	170,421	87,083	83,338	58,547	24,002	34,545	49,397	3,012	46,385
Total	**383,084**	**352,714**	**30,370**	**213,609**	**153,532**	**60,077**	**122,303**	**102,529**	**19,774**	**114,300**	**80,927**	**33,373**
CENTRIS												
Hardware	Included with SIS			4,500	21,554	(17,054)	1,265	1,475	(210)	Contract not renewed.		
Project Management fees	Included with SIS			19,136	19,136	-	24,472	24,472	-	Contract not renewed.		
Outsourcing expenditure	Included with SIS			22,150	-	22,150	15,525	77	15,448	Contract not renewed		
Total	**Nil**	**Nil**	**Nil**	**45,786**	**40,690**	**5,096**	**41,262**	**26,024**	**15,238**	**Nil**	**Nil**	**Nil**