

Information Technology Audit

Employment and Training Corporation

Report by the Auditor General

July 2014





Information Technology Audit

Employment and Training Corporation

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List of Abbreviations

The following is a list of abbreviations, which are used inter-alia throughout the document.

ADSL	Asymmetric Digital Subscriber Line
AS	Asylum Seeker
CCTV	Closed-Circuit Television
CdB	Corporate Database
CDR	Corporate Data Repository
CEO	Chief Executive Officer
CIMU	Central Information Management Unit
CoBit	Control Objectives for Information and related Technology
DHCP	Dynamic Host Configuration Protocol
DoS	Denial of Service
ECDL	European Computer Driving Licence
e-Documents	Electronic Document
e-Form	Electronic Form
e-Government	Electronic Government
e-ID	Electronic Identity Card
ERDF	European Regional Development Fund
e-Safety	Electronic Safety
e-Service	Electronic Service
ESF	European Social Fund
ESTS	Extended Skill Training Scheme
ETC	Employment Training Corporation
EU	European Union
EURES	European Employment Services
FSS	Final Settlement System
Gb	Gigabit
GMICT	Government of Malta Information and Communication Technology
HRIU	Human Resources Information Unit
HRMS	Human Resources Management System
ICT	Information and Communications Technology
INT	“Ibda Negotzju Tiegħek”
IP	Internet Protocol
IT	Information Technology
ITS	Institute of Tourism Studies

LAN	Local Area Network
LCU	Law Compliance Unit
LTR	Long Term Resident
LTU	Long Term Unemployed
MAGNET	Malta Government Network
Mbit	Megabit
MITA	Malta Information Technology Agency
MQRIC	Malta Qualifications Recognition Information Centre
NACE	Nomenclature for Economic Activities in the European Union
NAO	National Audit Office
NEA	National Employment Authority
NI	National Insurance
OPM	Office of the Prime Minister
P2P	Peer to peer
PABX	Private Automated Branch EXchange
PAP	Profiling, Personal Action Plan
PC	Personal Computer
PrEA	Private Employment Agencies
RDP	Registered Disabled Person
SAN	Storage Area Network
SCCM	System Centre Configuration Manager
SEP	Symantec Endpoint Protection
SLA	Service Level Agreement
TAF	Training Aid Framework
TAS	Technician Apprenticeship Scheme
TCN	Third Country National
TEFL	Teaching English as a Foreign Language
TELT	Test for English Language Teachers
UPS	Uninterrupted Power Supply
URL	Uniform Resource Locator
VLTU	Very Long Term Unemployed
VPN	Virtual Private Network
VOIP	Voice Over Internet Protocol



Executive Summary

Executive Summary

The National Audit Office (NAO) has conducted an Information Technology (IT) audit at the Employment and Training Corporation (ETC). This audit sought to examine the entity's IT operations including its e-Government services, optimise the entity's IT-enabled investments and ensure that IT is successful in delivering the business requirements.

The aim of this report is to collect and analyse evidence to determine whether the ETC has the necessary controls to ensure that their IT and Information Systems maintain data integrity, safeguard assets, allow organisational goals to be achieved effectively and assist in making efficient use of the Government IT related resources. This report identifies potential risks and makes recommendations to mitigate those risks.

Key Findings and Recommendations

The key issues addressed in this report (Chapter 2 refers) focused on how the ETC is managing its IT resources, in terms of hardware and software applications, network infrastructure and supplier management. The main findings and corresponding recommendations are listed below:

- a. The ETC does not have a formally documented ICT strategy;
- b. The majority of staff save their data on their local workstation rather than saving it on personalised folders on the server;
- c. The NAO noted that the ETC has no system manuals and no user manuals for most of its IT applications;
- d. The NAO observed that the ETC IT Unit does not keep track of all its IT hardware maintenance calls and software updates;
- e. The ETC has procured a number of multi-function printers, which were not being used to their full potential.

The IT audit reviewed 13 software applications used within the ETC, 11 e-Government forms, the ETC website and the ETC facebook page (Chapter 3 and 4 refers), in terms of ease-of-use, the security controls in place, account management, hosting services and backups. The main findings and corresponding recommendations are listed below:

- a. The NAO noted that the vetting and approval processes of some e-Forms is directed to the same e-mail addresses implying that the two processes are handled by the same officer;
- b. The e-Forms are not being used and their functionality needs to be reviewed;
- c. The e-Forms can only be accessed from the Governmental portal and are not available through the ETC website;
- d. The NAO noted that certain software applications:
 - i. Do not match the internal business process;
 - ii. Are not being utilised to its full potential;
 - iii. Are causing duplication of work;
 - iv. Do not meet the needs of the end user;
 - v. Do not adhere to password management best practices.
- e. The EURES Malta website was not kept up to date;
- f. The Content Management System is being accessed by two users sharing the same password;
- g. The ETC does not have the facility to delete the files uploaded on its website since the Content Management System does not cater for this functionality.

The report also includes a review of the entity's IT operations (Chapter 5 refers) and recommended that the ETC:

- a. Review all the features of the multi-function printers currently in use so that "scan to e-mail" and "secure printing" services are available where applicable;
- b. Keeps backup logs;
- c. Improves physical security at its branches.

Chapter 6 of this report then documented all the aspects related to Information Security. In this regard, the NAO suggested that a Business Impact Analysis and a Risk Assessment exercise is carried out so that a Business Continuity plan can be drafted.

The final chapter of this report lists the Management comments submitted by the ETC.



Chapter 1

Overview

Chapter 1

Overview

The ETC was established in 1990 by means of the Employment and Training Services Act and currently falls under the portfolio of the Ministry of Education and Employment.

The principal functions of the Corporation are to provide and develop a national public employment service and provide training courses that promote employability within the local labour market. These functions are enshrined in the Corporation's mission statement:

“To provide and ensure equitable access to training programmes and employment opportunities and to contribute towards the social and economic development of the community.”

The Corporation's Head Office is situated in Ħal Far. Moreover, services to the public are also provided from the ETC branch in Gozo, its training centre in Ħal Far, the Youth Stop in Valletta and the regional job centres in Valletta, Mosta, Birkirkara, Qawra, Vittoriosa, Zejtun and Victoria (Gozo). The renewal of registration by unemployed persons that are seeking employment is done from the ETC Area Offices and from certain Social Security offices.

This document is a report issued by the IT Audits and Operations Section within the NAO covering the ETC IT Audit exercise. It documents the current state of affairs with respect to IT and IS and provides an inventory of the IT technology and business processes at the ETC.

Furthermore, it lists the findings that resulted from the Risk Based IT audit carried out by the NAO and details the related recommendations.

1.1 Background

The ETC is responsible for enhancing employability by recommending policies and implementing initiatives aimed at empowering, assisting and training jobseekers. The raison d'être is to facilitate their entry or re-entry into the active employment market, promoting workforce development through skills and competency development, and by assisting employers in their recruitment and training needs.

Employment Services

The employment services forms one of the main pillars of the Corporation and over time a myriad of services have been developed to address the needs of jobseekers as well as those of employers. Table 1 below shows the number of job vacancies notified to ETC and the number of submissions and placements made by the Corporation.

Placement Services	January – December								
	2009	2010	2011	2012			2013		
				Total	Malta	Gozo	Total	Malta	Gozo
Job Vacancies	7,791	9,477	13,653	14,234	13,574	660	15,683	14,791	892
Submissions	58,234	71,195	65,806	176,496	174,731	1,765	256,693	255,198	1,495
Placements									
Private	2,893	2,426	2,229	2,990				3,450	
Public	1,134	1,617	1,199	1,308				1,529	
Placement to Vacancies Ratio	52%	43%	25%	30%				32%	

Table 1: Vacancies and Placements

Training Services

In 2010, a new state-of-the-art training complex was inaugurated increasing ETC's capacity to handle more courses. This project was funded through the European Regional Development Fund (ERDF).

The Corporation's training arm focuses on the continued implementation of the Employability Programme, which is co-financed by the European Social Fund (ESF). The training courses offered are open to unemployed registrants and employed or inactive persons. The courses offered include job skills, basic skills and work orientation courses, "Ibda Negozju Tiegħek" (INT) entrepreneurship Scheme, traineeships and the Training Subsidy Schemes.

During 2011, the ETC started the delivery of the Test for English Language Teachers (TELT), Teaching English as a Foreign Language (TEFL) and basic first aid courses.

The ETC also offers course tasters to fifth form students who may not be interested in furthering their studies beyond the secondary level. Furthermore, the ETC, was nominated (through legal notice LN370 of 2010) to deliver obligatory courses for third country nationals who want to apply for long-term residence permits in Malta.

As depicted in Table 2 below, the total number of participants in ETC courses organised in 2013 was 1,919 and 766 participants attended training during the first three months of this year (2014).

Period	Males	Females	Total
Jan - Apr 2012	2,541	1,458	3,999
May - Aug 2012	953	430	1,383
Sep - Dec 2012	559	308	867
Jan - Apr 2013	716	323	1,039
May - Aug 2013	399	261	660
Sep - Dec 2013	106	114	220
Jan - Mar 2014	484	282	766

Table 2: Participants in ETC Courses

1.2 Organisation Structure

The ETC is presently composed of the units listed below:

- **Office of the Chairman** - The Chairman is responsible of ensuring the effective operation of the Board in conformity with the highest standards of corporate governance. Furthermore, the Chairman ensures that issues related to strategy, performance, value creation and accountability are discussed by the Board, promoting constructive debate and effective decision-making.
- **Office of the Chief Executive Officer** – The Chief Executive Officer (CEO) has the overall responsibility of managing the Corporation including the management of the day-to-day operations of the entity and overall achievement of planned targets.
- **Finance Section** – This unit manages all financial matters; implementation and financial control of the Employment Aid Programme and TAF; tendering, procurement and law compliance.
- **Operations and Corporate Services** – The Operations and Corporate Services manages the corporation’s strategy, European Union (EU) affairs, labour market intelligence, research, apprenticeships, trade testing, training programme design and quality assurance of training, people management, corporate services, Information and Communications Technology (ICT) and customer care.
- **Employability** – This unit is responsible for jobseekers’ services (includes registration and supported employment), employers’ services (including job matching) and employment licences, training coordination and management of the skills centre, regional job centres, services in Gozo, maintenance of the national human resources database, as well as the employment schemes including the Community Work Scheme, Work trial Scheme and Bridging the Gap.

The ETC operates from more than one location and has branches in Gozo, and in various regions around Malta. Table 3 below lists the location of all the ETC Offices describing the services offered at each site.

Location	Address	Description
Head Office	Hal Far Road, Hal Far	This is the ETC's Head Office.
Gozo	Sir Arturo Mercieca Street, Victoria	This office offers all the services that are provided by the ETC to Gozitan citizens. Moreover, it caters for staff that perform ETC's back-office work such as those in the Human Resources Information Unit.
Qawra	Kumpless Access Qawra, Frejgatina Street, Qawra	This is a job centre for the Northern region.
Mosta	Mosta Job Centre, St. Anne Street, Mosta	This is a job centre for the Central region.
Birkirkara	Birkirkara Job Centre, Birkirkara Civic Centre, Tumas Fenech Street, Birkirkara	This is a job centre for the region of Birkirkara.
Birgu	Birgu Job Centre, Kumpless Access Birgu, St. Edward Street, Birgu	This is a job centre for the Cottonera region.
Zejtun	Paolo Freire Institute, December 13th Square, Zejtun	This is a job centre for the Southern region.
Valletta JC	St. Zachary Street, Valletta	This is a job centre for persons frequenting Valletta.
Registration Unit, Valletta	Kumpless Access Valletta, 72, Melita Street, Valletta	This is where the first registrations are performed.
Valletta Youth Stop	76, Old Theatre Street, Valletta	This is where youth targeted services are offered.
Pembroke	Kumpless Bice Mizzi Vassallo, Alamein Road, Pembroke	This branch runs the Job Bridge Programme targeted for young persons with intellectual disability. This Programme caters for the acquisition of skills in three main areas: Employability, Social and Independent Living.

Table 3: ETC Locations

The ETC's Head Office in Ħal Far is composed of eight different blocks as detailed in Table 4 below.

Block	Description
Block A	Head Office
Block B	Employment Services - where most of the client services are offered.
Block C	Training - This is the section that houses most of the sections that oversee the allocation of funds such as the apprenticeship scheme, the Training Aid Framework (TAF) etc.
Block D	This block is currently being used for auxiliary temping staff.
Block E	Operations - Within this block, the offices of the Finance, Procurement, IT etc are housed.
Block F, G, H	Skills Training Centre - These blocks consist of offices housing staff that manage the skills centre and the training classes/labs where courses are held.

Table 4: ETC Blocks

The ETC has a staff compliment of 253 employees (excluding trainers), of which 248 are full-time including nine working on reduced hours and 11 working with a tele-working arrangement and five are part-time. The staff distribution amongst ETC's different branches is detailed in Table 5 below.

	Full Time	Part Time
Ħal Far	215	5
Mosta	3	
Birgu	4	
Pembroke	4	
Valletta	4	
Valletta Access	4	
Qawra	2	
Zejtun	1	
Birkirkara	1	
Gozo	10	

Table 5: Human Resources at the ETC (excluding trainers)

As mentioned above, the figures in Table 5 do not include trainers providing their services to the ETC. This is because the ETC does not engage trainers to deliver its training courses. Instead a number of tenders were issued and awarded to private training service providers (cooperatives and companies) to offer such training courses on ETC's behalf. Currently, the ETC has three training service providers that were contracted to deliver its training programmes.

The organisation chart in **Annex A** depicts how the ETC is set up.

1.3 Legislation

The ETC carries out its functions under the main and subsidiary legislation listed below:

Employment

- Employment for the purposes of the Pensions Ordinance Order - 93.01
- Persons with a Disability (Employment) Act - Chapter 210
- Standard Percentage of Employment of Persons with Disability Order – 210.02
- Designated Employment of Persons with Disability Order - 210.03
- Part-time Employment of Persons with Disability Regulations - 210.04
- Public Transport (Regulation of Employment) Act - Chapter 214
- Employment Commission Act - Chapter 267
- Employment and Training Services Act - Chapter 343
- Register of Applicants for Employment (Part Two) Order - 343.20
- Technician Apprenticeship Scheme - 343.22
- Manpower Records (Commencement or Termination of Employment) Regulations - 343.23
- Extended Skill Training Regulations - 343.25
- Register of Part-Time Employment Regulations - 343.27
- Collective Redundancies (Protection of Employment) Regulations - 452.80
- Transfer of Business (Protection of Employment) Regulations - 452.85
- Young Persons (Employment) Regulations - 452.92
- Equal Treatment in Employment Regulations - 452.95
- Extension of Applicability to Service with Government (Equal Treatment in Employment) Regulations - 452.100
- Extension of Applicability to Service with Government (Protection of Maternity Employment) Regulations - 452.105
- Members of Parliament (Public Employment) Act - 472

Employment Agencies

- Employment Agencies Regulations - 343.24

Employment and Industrial Relations

- Employment and Industrial Relations Interpretation Order - 452.89
- Employment and Industrial Relations Act - Chapter 452
- LN461 of 2010 - Employment and Industrial Relations Act - Temporary Agency Workers Regulations, 2010

Employment Licences

- Immigration Act - 217
- Fees payable for Residence Permits and Employment Licences Regulations - 217.01
- Immigration Regulations, 2004 - L.N. 205 of 2004
- Posting of Workers in Malta Regulations - 452.82
- Status of Long-term Residents (Third Country Nationals) Regulations - 217.05
- Family Reunification Regulations - 217.06
- Free Movement of EU Nationals and their Family Members Order - 460.17
- Conditions of Admission of Third-country Nationals for the purposes of Studies Regulations - 217.09
- Third Country Nationals for Scientific Research Purposes (Specific Admittance Procedure) Regulations - 217.09
- Procedural Standards in Examining Applications for Refugee Status Regulations - 420.07
- LN433 of 2011 - Immigration Act (CAP.217) - Conditions of Entry and Residence of Third-Country Nationals for the purpose of Highly Qualified Employment Regulations, 2011

Business Promotion

- Business Promotion Act - Chapter 325
- Business Promotion Regulations - 325.06

As a public entity, the ETC is also regulated by the following legislation:

- Public Administration Act Chapter 497;
- Financial Administration and Audit Act Chapter 174;
- Public procurement regulations.

1.4 E-Government Services and ICT at the ETC

1.4.1 E-Government Services

The ETC has been one of the initial government entities to offer its services to citizens electronically. Together with the Malta Information Technology Agency (MITA), the ETC has developed the following online forms known as e-Forms:

- **Application form for courses** - This form can be used by individuals who are interested in applying for any courses that the ETC offers in order to enhance their present skills or gain new skills. This e-Form is accessible all year round;
- **Apprenticeship Scheme Application Form** - This form can be used by applicants showing interest in joining an apprenticeship scheme offered by the ETC. The application period is officially open for one week around the end of May. In the case of apprentices with the Institute of Tourism Studies (ITS) the specific period during which applications can be submitted is specified by the ITS in accordance with the Institute's specific needs;
- **Employment License Application** - This form can be used by employers to apply for an employment license for a prospective employee. The form can be used to either apply for a new employment license or for an extension of an existing and valid employment licence. This e-Form is accessible all year round;
- **Engage Apprentices Request Form** - This form can be used by employers that have an interest in engaging apprentices for employment. Applications can be submitted all year round;
- **Jobseekers advisory registration** - This form can be used by jobseekers – particularly if they intend to register for work. Registration for work means that they are ready and willing to take active steps to improve their employability and to seek and take up work. Applications can be submitted all year round;
- **Manpower records** - This form can be used by employers to report an employee engagement or employee termination. This e-Form is accessible all year round;
- **Objection for lapsing** - Individuals who are registering with the ETC are required from time to time to attend interviews, courses and seminars offered by the corporation. If for some reason the individual is unable to attend he/she must have a valid reason and could complete this electronic application to justify his/her actions. Justifications can be submitted all year round;
- **Trade Testing Application Form** - Trade Testing has been set up in order to assess individuals who have acquired knowledge, skills and competence in a particular occupation but do not possess a formal qualification. This application form is used by individuals wishing to sit for such a test. Applications can be submitted all year round;

- **Transfer or Termination of Apprenticeship** - This form can be used to request a transfer of apprenticeship, to change the apprenticeship calling, to terminate the apprenticeship, to rescind the agreement with the employer, or to terminate the apprenticeship with ETC. This e-Government service is accessible all year round;
- **Vacancy submission form** - This form can be used by employers to notify the ETC that they have a vacant post within their organisation. Applications can be submitted all year round;
- **Work phase attendance sheet** - This form can be used to log the apprentice's monthly attendance. This e-Government service is generally available between July and December.

For the purpose of this IT audit, the NAO has evaluated all the above mentioned e-Forms.

1.4.2 Applications

The IT Systems used at the ETC are:

- **Advisors Appointments** - An application used by the ETC's employment advisors to set appointments with their clients;
- **Apprenticeship Scheme** - This application is used by the staff within the apprenticeship scheme section to manage the information about employers, apprentices as well as the agreements between the two;
- **Common Database Online Query (CdB)** - The CdB is a central data repository used by Government entities to access information about persons, addresses, organisations and the inter-relationships between these subjects;
- **Client Application - Courses** - The courses information system is used to manage all the training courses the ETC delivers to its clients. This software application holds data describing each course organised including its pre-requisites, attendance, client details and client qualifications;
- **Data Analyser** - This is ETC's data warehouse. This software application is used to compile statistics and issue reports;
- **Employment Licenses Database** - This application enables the management of employment licenses, including information about applications for employment licenses, the related employers, related citizens and their different license applications as well as statuses;
- **End of Month reports and Automated Processes** - The ETC provides national information and statistics in relation to employment. This data is generated directly from the databases either through direct querying by staff or through separate automated processes;

- **Enrolment Card System** - A software application that stores the registrants biometric data (fingerprints) and issues a magnetic card that is then used together with the fingerprint to authenticate a registrant at the kiosks located within different locations throughout Malta and Gozo and renew his/her job registration;
- **Fleet Management System** - This software application is used to issue and keep track of fuel chits for ETC vehicles;
- **Human Resources Information Unit (HRIU) system** - This software application is used to input all engagement/termination forms, employment updates, trade licences and placements made by private employment agencies;
- **Human Resource Management System (HRMS)** - The HRMS records all the information about ETC's personnel. This system also includes a Payroll system that provides complete payroll processing of all the employees. This functionality includes the maintenance of ETC's employee details, the management of leave, actual payroll calculation, printing of payroll reports and payslips, processing of direct credit payment and submission of periodical Final Settlement System (FSS) returns as required by the current legislation;
- **InfoCentre** - This is a software application that is used by most of the ETC staff and contains information about the ETC schemes, Client/Employer details, the ETC courses, the ETC Vacancies, Strike-offs, etc.;
- **Law Compliance System** - This system assists the Law Compliance Unit in maintaining records of any hot line calls, reports or inspections that are carried out by this unit. This application thus assists the Law Compliance unit in ensuring that the law is abided to and all employees are registered properly, ensuring the protection of their rights;
- **National Employment Authority (NEA) Appeal System** - This software application is used by the ETC to manage information regarding people who appealed after being struck off the employment register. This information would then be used to defend the case when appearing before the NEA who would review the appeal and determine whether the decision taken was justified or not;
- **Profiling, Personal Action Plan (PAP) and Medical Application** - This system is the main tool used by the Employment advisors while assisting an unemployed person. Within this system, the users input the information about the person and based on this information identifies the best opportunities that should be tapped into by the client. This system is also equipped with a PAP module that is used by the Employment Advisors to provide personalised programmes of training and a Medical application module to assist disabled persons registered with the ETC;
- **Registration System** - This system is used to manage and maintain the Unemployment Registers and record the personal details of registrants, their job preferences, and details of any permits or licences held by such registrants.

For the purpose of this audit, the NAO has evaluated the software applications listed below:

- Advisors Appointments
- Apprenticeship Scheme
- Client Application - Courses
- Data Analyser
- Employment Licenses Database
- End of Month Reports and Automated Processes
- Enrolment Card System
- HRIU System
- InfoCentre
- Law Compliance System
- NEA Appeal System
- Profiling, PAP and Medical Application
- Registration System

In addition, the NAO has also reviewed the ETC website and its Content Management System, the EURES Malta website, the ETC intranet and the ETC Facebook page.

1.4.3 IT Labs and Infrastructure

The ETC has five labs in its Hal Far Training Complex and one lab in its Offices in Gozo as detailed hereunder:

- Room 33 - a training lab within the Hal Far Training complex comprising of an overhead projector, 12 PC's connected to a wired LAN and a printer. This is the main lab that houses the two private ADSL connections which are used to connect all the PC's within the training labs to the world wide web. This lab also houses the Fortinet network security appliance which has includes a firewall and website filtering capabilities;
- Room 37 - a training lab within the Hal Far Training complex comprising of an overhead projector, an interactive white board, 11 PC's connected to a Wi-Fi LAN and a printer;
- Room 15 - a training lab within the Hal Far Training complex comprising of an overhead projector, an interactive whiteboard, 12 PC's connected to a Wi-Fi LAN and a printer;
- Room 5 - a training lab within the Hal Far Training complex comprising of 11 PC's connected to a Wi-Fi LAN and an overhead projector;
- Room 6 - a training lab within the Hal Far Training complex comprising of an overhead projector, 11 PC's connected to a Wi-Fi LAN and a printer;
- A training lab within the ETC Gozo branch comprising of a lab comprising of an interactive whiteboard, an overhead projector and of 20 PC's, connected to Wi-Fi LAN.

The ICT Infrastructure at the ETC consists of:

- **Servers and Storage Hardware** - The ETC has seven physical servers comprising of three Windows servers and three VMware servers and one Unix server. Furthermore, the ETC has fourteen virtual machines including 12 Windows and two Linux and two storage area networks (SAN);
- **Personal Computers** - 449 PC's of which 77 are used for computer labs;
- **Local Area Network (LAN) Network** - The LAN is supported by the ETC. Asymmetric Digital Subscriber Line (ADSL) lines connect the entity to it's branches around Malta. Furthermore, the entity is connected to Malta Government Network known as MAGNET and its Gozo branch through a fibre-optic 10Mbit line;
- **Wi-Fi Network** - The ETC has a Wi-Fi network at its main offices in Hal Far. The Wi-Fi was installed so as to provide a private internet connectivity to senior management from Chairman's office

and boardroom. Furthermore, the ETC has set up two other Wi-Fi connectivities at the Hal Far and the Gozo training centres that are being used to provide a private ADSL internet connection to the training labs;

- **E-mail System** - The ETC uses the Government e-mail system supported by MITA;
- **Office Automation Software** - Office Automation software licenses are purchased by the ETC;
- **Telephone System** - A Private Automatic Branch eXchange (PABX) is in place.

For the purpose of this IT audit, the NAO has reviewing the management and maintenance of the above listed infrastructure.

1.5 Audit Scope and Objectives

The scope of this engagement was to analyse the IT and the Information Systems used by the ETC, identify any potential risks and make recommendations to mitigate those risks.

The IT Audit carried out by the NAO consisted of three different stages:

- Initially, a pre-audit questionnaire was sent to the ETC to gather the necessary information on the audit site prior to undertaking an on-site audit. The aim of the questionnaire was designed to familiarise the NAO audit team with the ETC and its IT setup prior to the audit visit;
- The entity's overall strategic direction, objectives, internal structures, functions and processes were then studied in order to gain a comprehensive understanding of the organisation and its environment. This included in-depth interviews with key officials and stakeholders, as well as observations and a review of documentation;
- The third stage involved examining the manner in which the entity uses its IT investments, the user friendliness, maintenance and security of its IT systems, the business continuity and disaster recovery measures adopted and the supplier management. This audit also looked at workflow management to evaluate the processes and procedures involved so as to recommend how these may be improved in terms of increasing efficiency and reducing any possible errors.

Therefore, the objectives of this report were to:

- Document all the information collected during the numerous interviews held with various officials;
- Summarise the documentation collected and elicit the area/s of concern;
- Determine whether ETC's IT systems operate effectively, efficiently and economically;

- Record the findings and identified related risks; and
- List the recommendations.

1.6 Audit Methodology

In order to attain the above objectives, a number of interviews were held with a number of officials at the ETC Head Office. The NAO also visited five ETC branches and interviews were held with the employees working in each branch.

Reference was also made to the Control Objectives for Information and related Technology (CoBit) set of best practices. CoBit is a comprehensive set of resources that contains all the information organisations need, so as to adopt an IT governance and control framework. CoBit provides good practices across a domain and process framework in a manageable and logical structure to help optimise IT-enabled investments and ensure that IT is successful in delivering against business requirements. The controls that were considered during this audit are listed in **Annex B**.

1.7 Structure of the Report

The report includes six further chapters, each documenting the information collected and highlighting the findings and recommendations with reference to particular aspects of this audit:

- Chapter 2 deals with the IT management perspective and analyses the procedures of the IT Unit evaluating the manner in which ICT resources are managed;
- Chapter 3 reviews ETC's deployment of various e-Government services;
- Chapter 4 evaluates the ETC' suite of software applications in greater detail;
- Chapter 5 reviews the IT operations of the ETC including the use of social media, and assesses the IT risk management, business continuity and disaster recovery;
- Chapter 6 assesses the Information Security and evaluates the security measures adopted by the ETC to maintain the confidentiality, integrity and availability of data; and
- Chapter 7 lists the management comments.

1.8 Acknowledgements

The NAO would like to express its appreciation to all the staff within the ETC who were involved in this audit, particularly the IT Unit, the Head of Operations and Corporate Services and all the executives involved in this audit for their time and assistance.



Chapter 2

Information Technology Management

Chapter 2

Information Technology Management

2.1 Information Technology Unit

The ETC has an in-house IT Unit that is responsible for ETC's software, hardware and IT infrastructure. This unit is composed of two sections as detailed below:

- **Software Section** - This section develops applications aimed at improving ETC's services and liaises with suppliers with reference to software procured and maintained by these third parties. Such applications are either used by the ETC staff, during the provision of services to clients, or by the clients themselves, through the ETC and EURES Malta websites, and through the Job Banks available at the Job Centres. This section is also in charge of performing database queries to extract the required information for senior management or to reply Parliamentary Questions. Furthermore, this section maintains the Corporation's websites and Intranet.
- **Hardware Section** - The hardware section is responsible for the Corporation's ICT infrastructure, including the administration and maintenance of hardware installed at the primary site in Hal Far and all the hardware residing at the ETC branches that are spread around the Maltese Islands. (The support of the IT equipment used for training is however, outsourced to an external supplier and is managed by an ETC official working at the Training centre). The IT Hardware section is also in charge of the telephone and computer network including all the networking equipment. Furthermore, this section handles the IT inventory management and assists the Administration and Purchasing Division with the procurement of IT related equipment.

The ETC's IT Unit is manned by eight officers including an IT manager, four officers in the Software Section and three officers in the IT hardware section including an apprentice. During the course of this IT audit, the Corporation replaced its IT manager who had resigned for personal reasons. The NAO noted that the new IT manager was appointed after the previous IT Manager's notice was over and thus no formal handover took place.

The NAO observed that although the Corporation's IT requirements are discussed in ad-hoc meetings, between the Head of Department and the IT Unit manager, these meetings are scheduled as a consequence of arising matters. The NAO suggests that regular meetings are scheduled and held between the IT Unit and management to discuss the ongoing IT requirements, provide feedback on ongoing IT projects and discuss any improvements to IT operations.

2.2 ICT Strategy

An ICT Strategy is a comprehensive plan consisting of objectives, principles and tactics relating to the use of ICT technology in an organisation. The ICT strategy is intended to express how technology is to be utilised so as to achieve the goals outlined in the business strategy of that particular organisation.

Nowadays, ICT is not just an enabler but can also be considered as a driver and thus an organisation should have an ICT Strategy to ensure that the money being spent on ICT is being used to the best effect to further the organisation's strategic aims.

An ICT Strategy is essential to ensure that all ICT development projects form part of an overall plan and prevent fragmented ICT development without the required central control and planning. Furthermore, the NAO considers that an ICT Strategy is essential for organisations like the ETC where resources are limited and one needs to derive the maximum value from its ICT investment.

The ETC does not have a formally documented ICT strategy, however, the IT Manager has a yearly plan documenting the top priority projects.

The NAO suggests that the ETC formulates a strategy that:

- Makes reference to the IT and Information Systems projects and explains how these projects are linked to the ETC Business Strategy, and how these projects shall be implemented;
- Prioritises future ICT investment;
- Covers the development being planned in the next three to five years; and
- Refers to the Logical and Physical architecture of the ETC IT systems.

Through this ICT strategy, management can gauge whether IT is delivering strategically and can ensure that the IT investment is not misdirected and draining resources which could otherwise be deployed differently, to the benefit of the organisation.

The IT Strategy document may be compiled by the Head of IT in close collaboration with the Head of Operations and Corporate Services and the Corporation's CEO. Furthermore, this strategy must be kept up to date and changed in response to new organisational circumstances or business priorities, budgetary constraints, available skill sets, core competencies, new technologies and a growing understanding of user needs and business objectives.

2.3 ICT Budget

During the course of this IT audit, the NAO reviewed the actual ICT capital and recurrent expenditure of the ETC during the last three years and that planned for 2014.

	2011 (actual)	2012 (actual)	2013 (actual)	2014 (planned)
New IT Investment	€119,856	€88,055	€235,282	€265,000
IT Support	€42,496	€50,121	€49,659	€55,200

Table 6: ICT Expenditure

The NAO noted that as depicted in Table 6 above, the IT investment in 2013 increased considerably when compared to the previous years. The NAO observed that this increase was largely driven by an increase in computer hardware and network infrastructure investments. As detailed in Table 7 below, the NAO observed that the investment in computer hardware during 2013 increased by 312% upon that of 2012. This attributed to the procurement of two servers, 13 desktop computers for Gozo's new computer lab and a number of laptops for the Corporation's employees. A similar increase of 189% was noted in the network infrastructure investments, which was mainly driven by the purchase and installation of a storage area network device.

IT Investment	2012	2013
Computer hardware	€27,103.44	€111,749.14
Network Infrastructure	€21,712.83	€62,812.99
Software	€39,239.06	€60,719.87
Total	€88,055	€235,282

Table 7: Breakdown of IT Investments during 2012 and 2013

The NAO was informed that the ETC plans to continue upgrading its network infrastructure, its computer software and the Corporations IT hardware during 2014 and has thus planned for such expenses in its budget.

The NAO recommends that as a best practice, the ETC carries out a cost/benefit analysis of its IT and Information Systems related expenditure and investments. This exercise can be done by the IT Unit together with the Accounts Department and the results should then be passed on to senior management.

2.4 Project Life Cycle

The NAO deems project management as a very important function and has thus reviewed the ETC's project life cycle, in terms of hardware and software. The NAO reviewed the processes involved in procurement, maintenance and disposal of hardware equipment and the planning, development, acquisition, testing, implementation and maintenance of software applications.

2.4.1 Hardware project life cycle

Procurement

The ETC opted not to join the Government's PC leasing scheme and thus has procured all its IT hardware including computers, laptops, printers, photocopiers, scanners, projectors, servers, routers, switches etc. The procurement process is generally kicked off with a request to the IT Unit, who would analyse all requests received and approve/reject them accordingly. The IT Unit would then define the specifications of the required hardware, obtain the necessary approvals from senior management and acquire the hardware needed in line with government procurement regulations.

The NAO recommends that as a best practice, the ETC should formalise its procurement process and implement a system whereby all requests are made through a documented requisition form.

Maintenance

The NAO noted that the ETC's IT technical staff carries out first-line support on all IT equipment at the ETC Head Office and the ETC branches (excluding the training labs). However, specialised support is obtained from contractors for the:

- Support on Linux and Informix systems;
- Specialised support on networking equipment;
- Maintenance of IT hardware at the ETC's Head Office and the ETC's branches; and
- Support and maintenance of all PC's and IT equipment at the Hal Far Training Centre.

The NAO noted that only a few calls on IT related maintenance are currently logged in by the IT helpdesk. In this regard, the NAO suggests that this same principle is applied to all IT maintenance calls. The IT helpdesk would then be able to analyse trends of problematic suppliers or calls of a particular nature, which may collectively indicate a common source. Furthermore, the IT Unit would be able to track job chits and keep track of hardware sent back to suppliers. Such information can also help in decision-making.

The NAO also recommends that this same recommendation is applied to IT related maintenance calls in connection with the ETC's Training Centre.

Disposal

During the course of this audit, the NAO enquired about the disposal procedure adopted by the ETC for IT hardware which is either obsolete or beyond repair. The NAO was informed that from time to time a board is formed to decide which hardware is to be disposed off and to ensure that this is done accordingly. The NAO was also informed that the board keeps a record of all hardware being disposed off, although a copy of such records was not given to the NAO.

The NAO recommends that the ETC ensures that all the boards formed to survey the disposal of hardware, submit a list of all IT equipment being disposed off to senior management and all lists are kept in one central place. The boards should also be responsible to submit a copy of such lists to the Accounts Department and to the person in charge of the hardware Inventory. Furthermore, the NAO recommends that such lists should include:

- Date of survey;
- Members on the board of survey;
- Item Inventory Number;
- Item Serial Number;
- Item Description;
- Reason for disposal (ex. Certified beyond economical repair, Certified obsolete).

Moreover, the NAO recommends that when the IT Unit certifies hardware as beyond economical repair or obsolete, this certification is done in writing and handed to the board of survey together with the item in question. Such certifications are to be attached to the board of survey's final disposal report.

The NAO also enquired about the procedure adopted by the ETC when disposing off hard disks or other hardware that may contain data. The NAO was informed that the IT Unit adopts the Desktop Services Procedure (GMICT R 0084:2009)¹ in terms of PC Disposal and Data Wiping, and ensures that data on equipment being disposed could not be retrieved by any third party.

¹ Desktop Services Procedure - https://www.mita.gov.mt/MediaCenter/PDFs/1_GMICT_R_0084_Desktop_Services.pdf

2.4.2 Software project life cycle

During the course of this IT audit, the NAO reviewed the manner in which the ETC manages software development projects and the manner in which off-the-shelf or outsourced software is procured.

The NAO observed that the ETC implemented a structured, systematic way of building or procuring software applications. The NAO was informed that the ETC implemented a three phased approach as detailed below:

1. **Requirements Analysis:** During this phase, the ETC holds a number of meetings with a pre-selected group of users and creates simple prototypes to offer better visibility to these users. As a result of these meetings the ETC would then define and document the requirements. These documented requirements would then be discussed with Senior Management and a decision is taken as to whether the project is developed internally by the ETC's IT staff or outsourced.
2. **Development:**
 - **Outsourced Applications:** If project is being outsourced, the tender is drafted, and after adjudication of the bids, the ETC manages the supplier's delivery and supports the supplier to integrate the system with the other existing databases and systems;
 - **In-House Development:** In-house software development is done using an "agile approach" with each development iteration spanning over a month.
3. **Testing:** Testing of applications that are developed internally is carried out on four different levels:
 - **Unit Testing:** Tests are developed for every method within the library;
 - **Performance Testing:** Done by the developer to ensure that the system is performing up to the required level;
 - **System Testing:** is the next level of testing and focuses on testing the system as a whole. This is done by a person from the IT Unit who was not involved in the development of the system, such as the Website Administrator or the Junior Developer;
 - **User Acceptance Testing:** This is the last phase of the software testing process, whereby the users test the software before the launch of the system, to make sure it can handle required tasks in real-world scenarios, according to specifications. Generally this session serves both as training as well as testing.

Applications that are outsourced are generally tested by the supplier and the ETC is generally only involved in the last phase during the User Acceptance Testing.

Notwithstanding the above, and as detailed in Chapter 4, the NAO noted that certain software:

- Does not match the internal business process;
- Is not being utilised to its full potential;
- Is causing duplication of work; and
- Does not meet the need of the end user.

The NAO suggests that the ETC refers to Annex C and reviews the above mentioned project life cycle to ensure that all the questions detailed in this template are being tackled.

Furthermore, the NAO suggests that the above-mentioned project lifecycle is also followed when the ETC is implementing enhancements to its current software.

Moreover, the NAO recommends that the ETC keeps logs documenting all the enhancements carried out, the bugs reported, the software application versioning and the User Acceptance Testing feedback.

During the course of this IT audit, the NAO noted that the ETC has no system manuals and no user manuals for most of its IT applications. The NAO observed that this situation has already attributed to in-house software being unsupported after the developer, who had built this software resigned from the Corporation leaving no system manuals and in one particular instance no source code was left. The NAO suggests that the ETC's IT Unit creates and maintains a source code repository of its internal developed software that is accessible by multiple IT officers.

The NAO also suggests that the ETC carries out a business process re-engineering exercise, to study how its current IT systems can meet the end users' and to identify software enhancements, which would minimise duplication of work, whilst ensuring current software requirements are met.

The NAO also recommends that the ETC embarks on a study to verify whether the present software applications can be integrated together into one or two main systems incorporating all modules.

2.5 Third Party Suppliers

The ETC has entrusted MITA, being the IT Agency for the Government of Malta, with the provision of e-mail and Internet services at its main premises in Ħal Far and in all its branches around Malta and Gozo. MITA provides the ETC with an ADSL connection to the MAGNET at each site and provides 24x7 monitoring of these connections.

Furthermore, MITA is providing the ETC with access to MITA's Service Call Centre offering first-line support for the reporting and resolution of incidents regarding e-mail and Internet.

During the course of this IT audit the NAO noted that the ETC however, has various service and maintenance contracts with other third-party suppliers. The NAO reviewed a sample of these contracts and agreements and recommends that the ETC ensures that:

- These contain suitable Data Protection Clauses. The sample clauses issued by Office of the Prime Minister (OPM), to guide Government departments/entities can be used;
- Maintenance contracts are drafted for IT related services being acquired from third parties;
- All IT related contracts and agreements are still valid. In the case of long term contracts which are renewed automatically, the Corporation should ensure that these contain a clause stating that these are automatically renewed from year to year;
- The Standard Rates are still valid. The Corporation should ask suppliers to send a notification of any standard rate changes in writing, so that the rates paid are in agreement with those specified in the contracts;
- All contracts and agreements list the completion dates of the related IT projects.

The Corporation should also ensure that contracts are kept up to date and if necessary, a covering letter documenting changes, which is signed by both parties should be done. Furthermore, the ETC should ensure that all third-party suppliers abide by the terms and conditions in the contracts, especially delivery dates.

2.6 Network Infrastructure

2.6.1 Local Area Network and Wide Area Network

The ETC's Local Area Network (LAN), as depicted in Figure 1, operates using one Gigabit (Gb) Ethernet switches and is designed by connecting all blocks to the ETC main server room, which is physically located in Block E. The ETC's LAN is extended to the different outposts through private ADSL connections.

The ETC's main building in Hal Far is then connected to the Government Network generally referred to as MAGNET, via a fibre optic 10Megabit (Mbit) connection.

Furthermore, two of the ETC's offices, namely the Valletta Youth Stop and the Valletta Access are connected to MAGNET through a fibre optic 10Mbit connection. This was implemented since these offices are sharing the same building with other Government entities, which are connected to the MAGNET service.

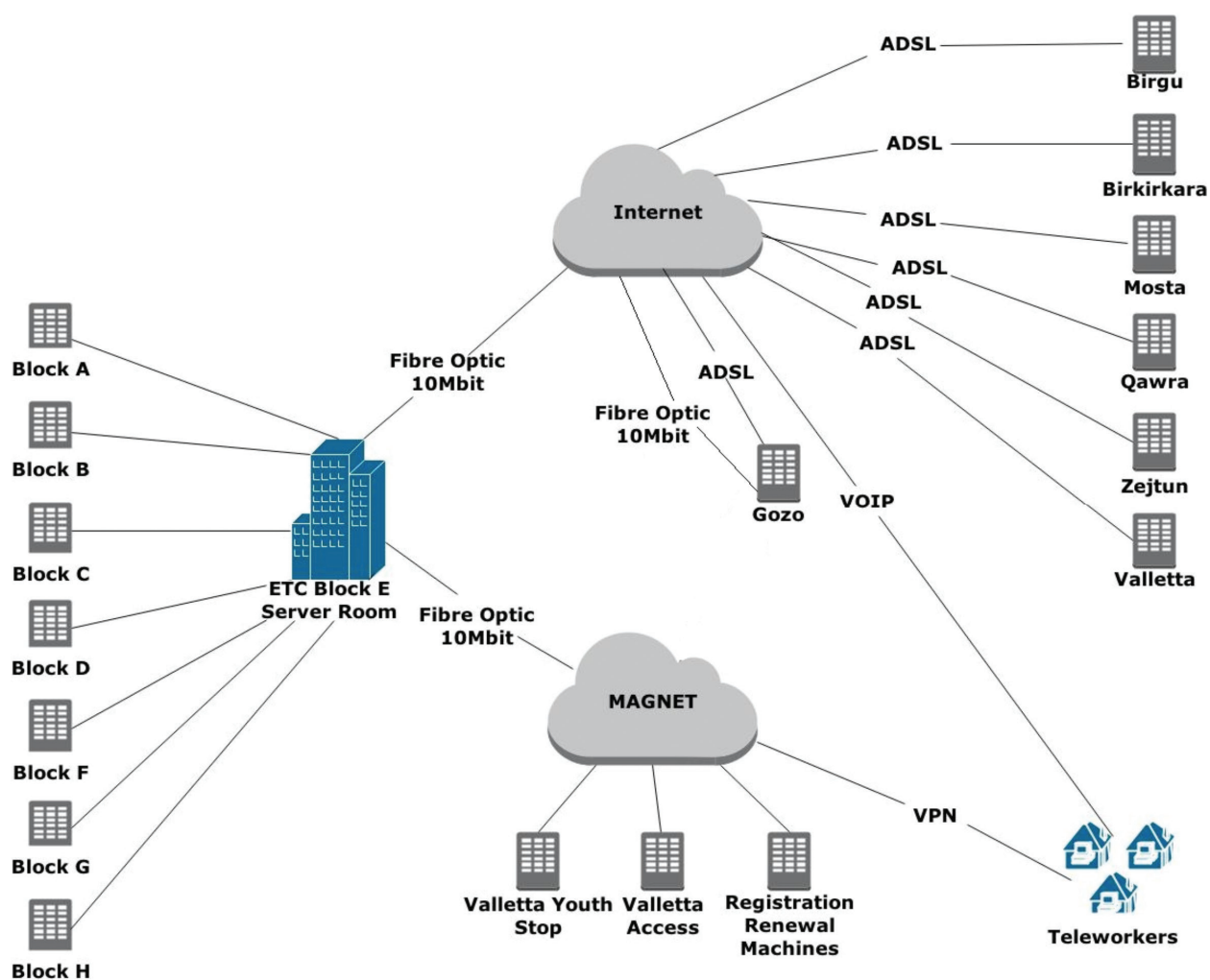


Figure 1: ETC Network Diagram

The ETC's Registration Renewal Machines are also connected to the Corporation through the MAGNET. Similarly, this was implemented since these machines are mostly located within the Social Security Department outpost sites and such sites are connected to the MAGNET network.

The MAGNET network connectivity is monitored and maintained by MITA on a 24/7 basis.

As part of the Core Services contract, the MAGNET network connectivity is monitored and maintained by MITA on a 24/7 basis.

Moreover, the ETC branch in Gozo is connected to the internet via a fibre optic 10Mbit connection and is also connected to a private ADSL connection which is used by the training lab and has also been kept for redundancy purposes.

Furthermore, ETC employees working from home on a teleworking arrangement are provided with a Voice over Internet Protocol (VOIP) connection via a third-party service provider and a connection to ETC's software applications through a Virtual Private Network (VPN) access on MAGNET.

The Corporation also has a separate segregated network (Figure 2) that is used to provide Internet service to the Hal Far computer training labs. This service is provided with two private Internet ADSL connections which are connected to a web filtering device. The Internet service is then delivered to the devices through a hybrid of Wi-Fi and wired network.

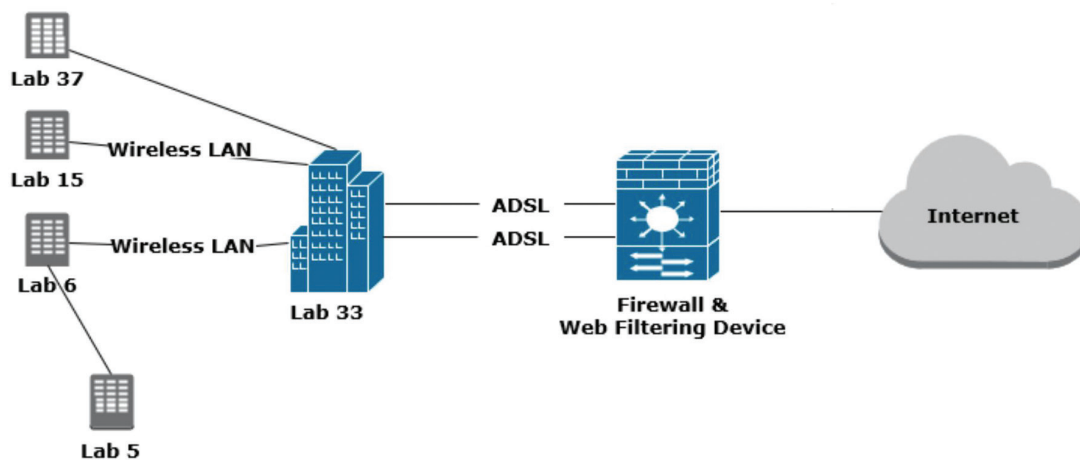


Figure 2: Training Centre Network Diagram

During the course of this IT Audit, the NAO noted that:

- The majority of staff save their data on their local workstation rather than saving it in one's personal folder on the server. From the interviews carried out, the NAO concluded that this was due to lack of awareness, since most of the people interviewed neither knew that saving their data on their local workstations is risky nor knew that they all had a personal folder, which is backed up daily on the server, that could be used for this purpose. The NAO therefore suggests that the ETC informs all employees of the assigned personal folders on the server and the importance of using such folders when saving their data. The ETC should explain to all employees the risks associated with saving data on the local workstation and the importance of backups.

- The ETC has procured a number of multi-function networkable printer/scanners. The NAO, however noted that these machines are not being used to their full capacity. The NAO suggests that the IT Unit informs all users about the features of such machines including the scan to e-mail features.

The NAO observed that not all networking equipment is connected to an Uninterrupted Power Supply (UPS). The NAO suggests that each device is connected to a UPS that incorporates a network management card. The aim of the network management card is to provide a secure monitoring and control of the UPS via a web browser. The network management card will then be configured to send an e-mail notification to the server administrator in the event of a power disruption. The IT Unit should also regularly test the UPS' and a log of these tests should be kept.

The NAO also noted that the ETC is equipped with two backup power solutions (generators) one of which is standby. Whilst one of the generators provides power automatically in case of a power outage, the other is switched on, as and when required.

The NAO observed that the server room together with its air-conditioning units is connected to the standby generator. The NAO was informed that both generators, are serviced periodically however, the NAO did find a documented log of such services. The NAO suggests that a log of all services performed is kept.

During the course of this IT audit, the NAO enquired whether the ETC has any monitoring tools for its servers and networking equipment. The NAO was informed that the ETC uses vSphere server virtualisation platform to manage its virtualised servers.

The NAO recommends that the ETC invests in monitoring tools, that will consolidate systems and networking equipment in a unified dashboard. Apart from monitoring whether a device is online or not, it will ensure the smooth running of their resources such as the Central Processing Unit (CPU), memory, network connection, disk space and processes running on all servers. The system must cater for both Windows and Unix based systems and should be able to monitor devices that support SNMP (Simple Network Management Protocol). These tools can be configured to alert the network or system administrator immediately if for example a server is running out of disk space or a particular block does not have network connectivity rather than waiting for such a problem to arise or the end-user to report a fault.

Before opting for a particular monitoring tool, the ETC must consider specific criteria that best suits their needs namely: scalability, ease of use, reactive monitoring and total cost of ownership. There are several monitoring software solutions that the ETC could consider, some of which are even open source.

2.6.2 Wi-Fi Infrastructure

The ETC has three segregated Wi-Fi networks connected to separate ADSL lines (provided by a third party) that can be found:

- Block A - can be used by the Chairman, CEO and guests in the main boardroom;
- Hal Far Training Centre - a segregated network connecting all the PC's in the training labs;
- Gozo Lab - a segregated network connecting all the PC's in the training labs.

The NAO noted that the Wi-Fi in Block A was switched off and would be switched on when and if required.

2.6.3 ETC Server room

During the course of this IT audit, the NAO observed how the ETC relocated their server room to a purposely refurbished room.

The NAO held site inspections in the new server room and observed that this room is equipped with a fire alarm sensor and an aerosol fire suppression system. Furthermore, the NAO noted that access to the server room is controlled using a biometric reader.

During these site inspections, the NAO also noted that the server room was:

- Equipped with a Closed-Circuit Television (CCTV) system;
- Fitted with two air-conditioning units which are kept on at all times;
- Had no curtains, fitted carpets and other fire hazards;
- Equipped with a humidity/temperature monitor that sends alerts via e-mail/sms if it reaches a pre-defined threshold;
- Equipped with an adequate fire extinguisher that was serviced regularly;
- Equipped with a Distribution Surge protector;
- Located in a secure part of the building that is not generally accessed by the general public.

The NAO recommends that this room is kept clean and free from clutter.

The NAO also held site inspections in the disaster recovery room. During the first inspection the NAO noted that this room was also being utilised as file storage area and recommended all the files and documents located in this room are located elsewhere as these might pose a risk in the event of a short circuit or fire. During subsequent visits, the NAO noted that ETC took this suggestion on board and cleared this room.

The NAO observed that the disaster recovery room was equipped with two air-conditioning units that were backed up by generator. The NAO however noted that although this room is being kept under lock and key, access to this room is not being recorded. The NAO suggests that an access control system is installed so as to be able to control and monitor access to this room.

2.7 IT Inventories

The NAO acknowledges that one of the toughest tasks of IT managers and administrators is keeping track of computers, network devices and software applications. However, this is considered to be a very important asset since through such information, the ETC would be in a position to keep track of its IT investments and be able to manage these resources as efficiently as possible.

The NAO noted that the ETC's IT Unit is well organised in this regard. The NAO observed that the IT Unit keeps an IT inventory of all IT hardware devices listing its serial number the location and office where it is installed and to whom it has been assigned to.

Furthermore, the NAO observed that the transfer of IT assets are documented using a form entitled "Transfer of Asset Sheet". The IT Unit updates the inventory accordingly, after which these signed sheets are handed over to the finance department for filing. The IT Unit keeps a soft copy of each signed sheet on one of the ETC servers.

During the course of this IT audit, the NAO also examined the manner in which the ETC keeps track of all software licences. The NAO noted that all software licences are documented in an Excel database.

The NAO recommends that as a best practice, the ETC periodically checks these inventories by either carrying out spot checks or by getting periodical confirmation of all listings from the Unit Managers.



Chapter 3

E-Government

Chapter 3

E-Government

3.1 E-Government Applications

Most European States have committed themselves under various national and international action programmes and initiatives to make as many of their public services available online via the World Wide Web.

Governments want to ensure that citizens, businesses, academia and other government entities have simpler, quicker and more cost-effective access to public services.

The ETC has 11 e-Forms that can be used for engaging employees/apprentices, applying for an employment licence, courses and a number of other services as detailed in Table 8 below.

During the course of this IT audit, the NAO enquired about the usage of such e-Forms. From the statistics obtained, the NAO observed that the usage of such forms since being launched was very minimal. As indicated in the table below, only two forms were being used. The NAO have also sought to verify the type of submission quoted hereunder however, the NAO did not obtain enough information to verify whether these statistics included false submissions that may have been done for testing purposes.

	Number of e-Forms submitted
Application Form for courses	181
Apprenticeship Scheme Application Form	1
Employment License Application	2
Engage Apprentices Request Form	3
Jobseekers advisory registration	2
Manpower records	6
Objection for lapsing	4
Trade Testing Application Form	168
Transfer or Termination of Apprenticeship	0
Vacancy submission form	1
Work phase attendance sheet	1

Table 8: e-Form submissions

The NAO has audited each of the above listed e-Forms as documented here under and noted that although these e-Forms were live and could be accessed through the government portal, the ETC did not seem to have taken this project on board to its full extent. The ETC officials did not know who the persons in charge of each of the above forms were and could not ascertain that these e-Forms were actually working according to ETC's needs.

The NAO noted that these e-Forms had a number of errors as listed hereunder and thus sought to obtain the user acceptance documentation of these e-Forms. This documentation however, was not provided. The NAO recommends that the ETC reviews all the below listed e-Forms and carries out a study to verify which e-Forms are working according to the initial specifications.

Following this exercise, the NAO suggests that the ETC embarks on a study so as to find out why such forms are not being used by the audience being targeted. The NAO feels that part of the reason may be the lack of marketing of such e-Forms given the fact that none of these 11 e-Forms is available on the ETC website. The NAO also believes that another reason for the low usage of these e-Forms may be due to the proliferation of the e-ID amongst the targeted audience. The NAO however, noted that the e-ID would be rolled out to all ID card holders in the near future.

The NAO suggests that following the above mentioned studies, the ETC engages into talks with Identity Management Malta and MITA so as to discuss any possible measures to increase e-Form usage.

3.1.1 Application Form for Courses

This e-Form is used by individuals who are interested in applying for any courses that the ETC offers in order to enhance their present skills or gain new ones. This e-Form is accessible all year round.

The applicant initiates the e-Service on his/her own behalf. To submit an application, the applicant has to log in with his/her e-ID. Anonymous, agent and registered user submissions are not accepted.

The business process for this e-Form is as follows:

1. The applicant fills in the application form;
2. The applicant attaches previously scanned copies of his/her certificates (if applicable);
3. The applicant submits the application;
4. The Skills Centre Unit checks the application. The applications with ambiguous or missing information are returned to the applicant for correction. This step is repeated until the application form is completed correctly and accepted by the Skills Centre Unit Vetting Team;
5. The Skills Centre Unit Processing Team approves/rejects the applications. All the rejected applications are provided with a reason for rejection, whilst the approved applications are provided with course instructions.

This e-Form links with the Corporate Data Repository so as to populate the personal details of the applicant automatically in the e-Form.

This e-Form uses a web service that retrieves the course titles that can be selected by the applicant. This web service was developed and is maintained by the ETC.

The NAO noted that the vetting and approval process of this e-Form is directed to three e-mail addresses, two of which are personal mailboxes of two ETC officials whilst the other is the ETC generic e-mail etc@gov.mt. The NAO is of the opinion that since this form falls under the responsibility of the Skills Centre Unit, the input through this form should be directed to the Skills Centre Unit and not the ETC generic e-mail. Furthermore, the NAO observed that the approval and vetting authority for this form is currently the same. The NAO suggests that in order to have an effective approval/vetting process, the approval function and the vetting function should be dealt by separate officers and channelled through separate e-mail addresses.

Furthermore, the NAO noted that:

- On the first screen of this form there is no text under the “Description of Activity” heading, there is a typing error in the word “Authority” and no text under the “Information on Application” heading;
- When uploading certificates, the “Close” button does not function;
- When submitting the e-Form, the text near the “Submit” button is currently stating “This form requires payment to be made with submission. Click the button to be directed to the Payment Page”. However, there is no payment associated with this service and in fact upon pressing the “Submit” button, no payment page is loaded;
- When submitting the e-Form, the user gets no confirmation that this form was submitted. Although the user does get an e-mail stating that his/her application is being processed, the NAO suggests that a pop-up message confirming the submission made, should appear on the screen.

The NAO suggests that the ETC looks into the above findings and amends this e-Form accordingly to avoid unnecessary confusion to the applicant.

3.1.2 Apprenticeship Scheme Application Form

This e-Form is used by applicants showing interest in joining an apprenticeship scheme offered by the ETC. The application period is officially open for one week towards the end of May. In the case of individuals who are following the apprenticeship scheme with the ITS, the specific period during which applications can be submitted is specified by the ITS according to the Institute's specific needs.

The applicant initiates the e-Service on his/her own behalf. To submit an application the applicant has to log in with his/her e-ID. Anonymous, agent and registered user submissions are not accepted.

The business process for this e-Form is as follows:

1. To complete the application form, the applicant must upload a copy of the medical examination report and a copy of the consent letters for applicants aged less than 18 years;
2. The applicant submits the application form;
3. The Apprenticeship Unit checks the application. All applications with ambiguous or missing information are returned to the applicant for correction. This step is repeated until the application form is completed correctly and accepted by the Apprenticeship Unit Team;
4. The Apprenticeship Unit approves/rejects the application. If the application remains pending for three days a reminder is sent;
5. The applicant is informed of the way forward.

This e-Form links with the Corporate Data Repository to populate the personal details of the applicant automatically in the e-Form.

This e-Form consumes one web service that retrieves a list of apprenticeship callings offered by the ETC. This web service was developed and is maintained by the ETC.

The NAO noted that the vetting and approval process of this e-Form is directed to the same e-mail account (apprentice.etc@gov.mt) and entrusted to two named ETC officers. The NAO suggests that in order to have an effective approval/vetting process, the approval function and the vetting function should be dealt with by separate officers and channelled through separate e-mail addresses.

Furthermore, the NAO noted that:

- Although this e-Form should only be available between May and December, it is in fact accessible all year round. The NAO suggests that this is revised and the applicant should be informed that applications can only be submitted between May and December;

- On the first screen of this e-Form the text under the “Description of Activity” and under the “Information on Application” heading is incorrect;
- After the applicant logs in, inputs all his/her personal details and chooses the apprenticeship scheme he/she wishes to join, the e-Form logs the user out;
- Although the user is expected to upload a copy of the medical examination report and a copy of the consent letter when the user is a minor, the NAO noted that there seemed to be no “Upload” button;
- On the last screen of this e-Form, there is a statement stating that this e-Form requires payment to be made with submission, when in reality no payment is required when applying for an apprenticeship scheme.

The NAO suggests that the ETC looks into the above findings and amends this e-Form accordingly.

3.1.3 Employment License Application

This e-Form is used to receive applications for the issue or extension of an employment licence for Third Country Nationals, asylum seekers who wish to work in Malta, Bulgarian or Romanian nationals and their family members. These applications are received all year round and around, 7000 manual applications are received every year.

The business process for this e-Form is as follows:

1. The applicant selects the type of application, whether it is EU, Third Country National (TCN), Long-Term Resident (LTR) or Asylum Seeker (AS), fills the application, and attaches the required documents according to the form specified and as detailed in Appendix B;
2. The applicant submits the application;
3. The e-Form platform sends an acknowledgement of receipt to the applicant, and informs the applicant to submit the position description form;
4. The applicant fills in the position description form and submits the application form;
5. If applicable, the applicant pays the application fee online as per below:
 - EU – New - €58
 - EU – Extension - €34
 - TCN – New - €150
 - TCN – Extension - €80

- LTR – New - €58
 - LTR – Extension - €58
 - AS – New - €58
 - AS – Extension - €34
 - In the case of TCN and LTR, no fee is payable by persons applying for Personal Carer in respect of persons with a disability or the elderly
6. The e-Forms platform, sends an acknowledgement of receipt to the applicant;
 7. The Employment Licences Unit checks the application. All the applications with ambiguous or missing information are returned to the applicant for correction. This step is repeated until the application form is completed correctly and accepted by the Employment Licences Unit. If the application is returned to the applicant, the applicant is not required to pay again;
 8. The Employment Licences Unit selects up to six entities related to the application form (such as the Police Immigration Office, the Department of Citizenship and Expatriates, the relevant embassy etc). These entities are selected from the provided drop down list;
 9. The application is then forwarded automatically to the entities selected;
 10. All the selected entities must either approve or reject to proceed with the application process. Once all entities have either approved or rejected the application, it is assigned back to the Employment Licensing Unit. In cases when one or more approvers rejected the application, the applicant is informed of the rejection;
 11. The Employment Licenses Unit would then approve or reject following internal processing. All applicants are informed of the final decision;
 12. The application details are inserted into an ETC database through the use of a web service.

This e-Form links with the Corporate Data Repository so as to populate the personal details of the applicant automatically in the e-Form.

This e-Form makes use of two web services as detailed below:

- myBills e-Government service that is used to process all online government payments. The myBills service also provides an electronic bill presentment and payment service. By logging through the myBills portal, citizens can view and settle bills issued by the various Government departments and entities. This e-Government service was developed and is maintained by a third party supplier;

- The web service that inserts the application details into the ETC database. This web service was developed and is maintained by the ETC.

The NAO noted that the vetting and approval process of this e-Form is directed to the same e-mail account `employment-licences.etc@gov.mt` and entrusted to one named ETC officer. The NAO suggests that in order to have an effective approval/vetting process, the approval function and the vetting function should be dealt with by separate officers and channelled through separate e-mail addresses.

The NAO was not given any screenshots of this e-Form and thus due to its specific nature, this e-Form could not be evaluated.

3.1.4 Engage Apprentices Request Form

This e-Form is used by employers that have an interest in engaging apprentices for employment. Applications for the October intake are only accepted between March and June. Apprentices may enrol to the Technician Apprenticeship Scheme (TAS) or the Extended Skill Training Scheme (ESTS).

The applicant initiates the e-Service on his/her own behalf. To submit an application the applicant has to log in with his/her e-ID. Applicants who do not own a Maltese ID Card can however, log in using an alternative login assigned by the ETC.

The business process for this e-Form is as follows:

1. The applicant logs into the e-Forms portal using the e-ID or his/her registered credentials;
2. The applicant selects the required form and fills it in;
3. The applicant submits the application form to the Apprenticeship Unit;
4. The Apprenticeship Unit checks the application form. All applications with ambiguous or missing information are returned to the applicant for correction. This step is repeated until the application form is completed correctly and accepted by the Apprenticeship Unit;
5. The Apprenticeship Unit goes through the selection process and then approves/rejects the application;
6. The applicant is then informed of the final application decision;
7. If the application remains pending for three days, the system sends a reminder to the Senior Clerk and the Senior Executive within the Apprenticeship Unit.

This e-Form links with the Corporate Data Repository to populate the personal details of the applicant automatically in the e-Form.

This e-Form makes use of one web service to retrieve the apprenticeship calling that can be selected by the applicant. This web service was developed and is maintained by ETC.

The NAO noted that the vetting and approval process of this e-Form is directed to the same e-mail account `apprentice.etc@gov.mt` and entrusted to two named ETC officers. The NAO suggests that in order to have an effective approval/vetting process, the approval function and the vetting function should be dealt with by separate officers and channelled through separate e-mail addresses.

The NAO also noted that on the last screen of this e-Form there is a statement stating that this e-Form requires payment to be made with submission, when in reality no payment is required when engaging apprentices.

3.1.5 Jobseekers Advisory Registration

This form is used by jobseekers - particularly if they intend to register for work. The “Registration for work” in this context is taken to mean that the jobseekers are ready and willing to take active steps to improve their employability and to seek and take up work. Applications can be submitted all year round.

The applicant initiates the e-Service on his/her own behalf. To submit an application, the applicant has to log in with his/her e-ID. Anonymous, agent and registered user submissions are not accepted.

The business process for this e-Form is as follows:

1. The applicant fills in the application form;
2. The applicant must then attach:
 - A scanned copy of the applicant’s certificate(s). A copy must be attached for each qualification listed in the qualifications section. All certificates in foreign languages should be translated and legalized in English language. The applicant is allowed to upload up to a maximum of 16 certificates;
 - A scanned copy of his/her I.D. Card;
 - A scanned copy showing his/her National Insurance Number;
 - A Curriculum Vitae (C.V.) (if available).
 - If the applicant is an unemployed person in an EU Member State, he/she may opt to transfer the unemployment benefits to Malta. The applicant should register for work within the stipulated dates allowed as indicated on the E303 applications (normally seven days). These applications are then verified by the ETC. The applicant must then go to the Social Security Department to register with the Social Security Institution and present the E303 application from the respective country and an identification document (e.g. passport);

3. The applicant submits the form;
4. The e-Forms platform sends an acknowledgement of receipt to the applicant;
5. The e-Form is then assigned to one of three different e-mail address depending on the Current Status of the applicant and as detailed below:
 - If the applicant selects Unemployed as the Current Status and seeking Full-time job, the e-Form is assigned to e_reg.etc@gov.mt;
 - If the applicant selects seeking Part Time job, the e-Form is assigned to part-time.etc@gov.mt;
 - If the applicant selects Employed as the Current Status and seeking Summer Job or Full Time job the e-Form is assigned to records.etc@gov.mt
6. The Job Seekers Advisory Services Unit checks the application. All the applications with ambiguous or missing information are returned to the applicant for correction. This step is repeated until the application form is completed correctly and accepted by the Job Seekers Advisory Services;
7. Following internal processing (external to the e-Forms platform), the Job-Seekers Advisory Services Unit approves/rejects the application. All applications rejected are provided with a reason for rejection, and an approval e-mail is sent to the approved applicants;
8. Using a web service, the application is then inserted into an ETC database.

This e-Form links with the Corporate Data Repository so as to populate the personal details of the applicant automatically in the e-Form.

This e-Form consumes one web service that inserts the application into an ETC database. This web service was developed and is maintained by ETC.

The NAO noted that the vetting and approval process of this e-Form is directed to the same e-mail addresses and entrusted to seven named ETC officers. The NAO suggests that in order to have an effective approval/vetting process, the approval function and the vetting function should be dealt with by separate officers and channelled through separate e-mail addresses.

Furthermore, the NAO observed that:

- This e-Form is asking the applicant for a scanned copy showing his/her National Insurance (NI) Number. The NAO sought to establish what this statement actually meant, given that an NI number can easily be inputted by the applicant and verified by the system. The NAO therefore suggests that the ETC looks into this criteria and clarifies it;

- Upon completion this e-Form is assigned to e_reg.etc@gov.mt (in cases where the applicant selects Unemployed as the Current Status and seeking Full-time job). However, the NAO noted that this e-mail address does not exist;
- On the last screen of this e-Form there is a statement stating that this e-Form requires payment to be made with submission, when in reality no payment is required when registering one's interest in searching for a job.

The NAO suggests that the ETC looks into the above findings and amends this e-Form accordingly.

3.1.6 Manpower records

This form is used by employers to report the engagement of an employee or the termination of the employment of an employee. This e-Form is accessible all year round.

The employer initiates the e-Service on his/her own behalf. To submit an application the applicant has to log in with his/her e-ID or with a registered username and password. Anonymous, agent and registered user submissions are not accepted.

The business process for this e-Form is as follows:

1. The applicant (employer or organisation person) logs in using his/her e-ID or registered credentials;
2. The form calls a web service to retrieve all the organisations/companies upon whose behalf, the individual can apply for;
3. This form is used by employers to report the engagement of an employee or the termination of the employment of an employee. This e-Form is accessible all year round;
4. The applicant fills in the form on behalf of the selected organisation;
5. The applicant attaches one of the following documents:
 - In cases where the employee is a non-Maltese national but is married to a Maltese citizen, a proof of Freedom of Movement should be attached. This document is acquired from the Department for Citizenship and Expatriate Affairs;
 - In the case where an employee does not hold a Maltese Identification Card number, then a copy of his/her passport or ID Card is required;
 - In the case where an employee is aged less than 16 years, a copy of the School Exemption issued by the Directorate of Education Services and a copy of the authorisation issued by the Department of Industrial and Employment Regulations is required;

- In the case where an employee is 16 year of age but whose birthday falls within the academic year, then a School Exemption issued by the Directorate of Education Services or a copy of the School Leaving Certificate is required.
6. The applicant submits the form;
 7. The e-Forms platform calls a web service to validate the application. The application is not transferred to the respective business unit if the web service returns an error;
 8. Once the web services returns a positive result, an acknowledgement of receipt is sent to the applicant, and the form is transferred to the Human Resources Information Unit;
 9. The Human Resources Information Unit checks the application. Applications with ambiguous or missing information are returned to the applicant for correction. This step is repeated until the application form is completed correctly and accepted by the Human Resources Information Unit;
 10. The Human Resources Information Unit approves/rejects the application. All applicants are informed of the final application decision;
 11. Using another web service, the application details are then inserted in an ETC database.

This e-Form consumes seven web services to get the following lists of information:

1. Organisations the user can apply on behalf of;
2. Gender List;
3. Marital Statuses;
4. Statuses of Stay in Malta;
5. Employment Types;
6. Nature of Employment List;
7. Termination Reasons.

In addition, the e-Form uses two other web services:

1. A web service which validates the application form on submission;
2. Another web service is used to insert the application details in an ETC database.

All web services were developed and are maintained by the ETC.

The NAO noted that the vetting and approval process of this e-Form is directed to the same e-mail addresses and entrusted to the Human Resources Information Unit. The NAO suggests that in order to have an effective approval/vetting process, the approval function and the vetting function should be dealt with by separate officers and channelled through separate e-mail addresses.

3.1.7 Objection for Lapsing

Individuals who are registering with the ETC are required from time to time to attend interviews, courses and seminars offered by the Corporation. If for some reason the individual is unable to attend for a valid reason and could complete this electronic application form to justify his/her actions. Justifications can be submitted all year round.

The employer initiates the e-Service on his/her own behalf. To submit an application form, the applicant has to log in with his/her e-ID. Anonymous, agent and registered user submissions are not accepted.

The business process for this e-Form is as follows:

1. The applicant fills in the justification form;
2. The applicant attaches any supporting document. (ex. A scanned copy of the medical certificate etc.);
3. The application is submitted;
4. The e-Forms platform acknowledges the application by sending an acknowledgement e-mail to the applicant and to the Registration Unit. An acknowledgement screen is displayed to the applicant on submission;
5. The Registration Unit approves or rejects the justification;
6. Using a web service, the application is inserted into an ETC database.

This e-Form links with the Corporate Data Repository to populate the personal details of the applicant automatically in the e-Form.

This e-Form consumes two web services, one used to retrieve the reference number to insert the data collected through this form in an ETC database. These web services were developed and are maintained by ETC.

The NAO noted that the vetting and approval process of this e-Form is directed to the same e-mail address and entrusted to two named officers. The NAO suggests that in order to have an effective approval/vetting process, the approval function and the vetting function should be dealt with by separate officers and channelled through separate e-mail addresses.

The NAO also noted that on the last screen of this e-Form there is a statement stating that this e-Form requires payment to be made with submission, when in reality no payment is required to provide a justification explaining one's absence from attending an interview, a course or a seminar.

During the course of this IT audit, the NAO verified the availability of this e-Form through the Government portal and noted that this form is not available on the Government portal (forms.mygov.mt). The NAO suggests that this e-Form is made available on the Government portal.

3.1.8 Trade Testing Application Form

The Trade Testing Application form has been set up in order to assess individuals who have acquired knowledge, skills and competence in a particular occupation but do not possess a formal qualification. Through the Trade Testing application form, a person can be assessed in a particular area by sitting for the following types of assessment:

- Interview;
- Theory Test;
- Practical Test; and
- Review of Logbooks (in the case of candidates who sit for trade test after completion of an apprenticeship or traineeship scheme).

Individuals who successfully pass the assessments would be awarded a Certificate of Competence.

Applications can be submitted all year round and are used by individuals wishing to sit for such a test.

The employer initiates the e-Service on his/her own behalf. To submit an application the applicant has to log in with his/her e-ID. Anonymous, agent and registered user submissions are not accepted.

The business process for this e-Form is as follows:

1. The applicant fills in and submits the application;
2. If required, the applicant pays the application fee online. Only registered unemployed applicants and applicants applying for Child Care callings MQF Level 4 and Level 5 are exempted from payment. All other applicants are required to pay a fee of €34.95;
3. The e-Forms platform sends an acknowledgement of receipt to the applicant;
4. The Apprenticeship Unit will check the application. Any applications with ambiguous or missing information are returned to the applicant for correction. This step is repeated until the application form is completed correctly and accepted by the Apprenticeship Unit. If the application is returned to the applicant, the applicant is not required to pay again;
5. The application is inserted into the ETC database.

This e-Form links with the Corporate Data Repository to populate the applicant's personal details automatically in the e-Form.

Furthermore, this e-Form uses the myBills e-Government service that is used to process all online government payments. The myBills also provides an electronic bill presentment and payment service. By logging through the myBills portal, citizens can view and settle bills issued by various Government departments and entities. This e-Government service was developed and is maintained by a third party supplier.

This e-Form also consumes two web services; one used to retrieve the apprenticeship callings whilst the second one is used to insert the data collected through this form into an ETC database. These web services were developed and are maintained by ETC.

The NAO noted that the vetting and approval process of this e-Form is directed to the same e-mail address and entrusted to five named officers. The NAO suggests that in order to have an effective approval/vetting process, the approval function and the vetting function should be dealt with by separate officers and channelled through separate e-mail addresses.

3.1.9 Transfer or Termination of Apprenticeship

This form is used to request a transfer of apprenticeship, to change the calling, to terminate the apprenticeship, to rescind the agreement with the employer or to terminate the apprenticeship with the ETC. This e-Government service is accessible all year round.

The employer initiates the e-Service on his/her own behalf. To submit an application the applicant has to log in with his/her e-ID. Anonymous, agent and registered user submissions are not accepted.

The business process for this e-Form is as follows:

1. The applicant approaches the ETC and discusses the case;
2. The ETC investigates the case;
3. The ETC decides whether the form needs to be filled in. If the form is not required, the case is marked as settled by the ETC. On the other hand, if the form is required, the apprentice fills in the form. The apprentice can select from five different requests:
 - a. Transfer of Apprenticeship;
 - b. Termination of Apprenticeship;
 - c. Rescission of Agreement;
 - d. Resignation from Apprenticeship; or
 - e. Change of Calling.

4. If the applicant is requesting a transfer of apprenticeship, the application is automatically assigned to his/her current employer. The current employer fills in the employer comments section and approves/rejects accordingly. If the application is approved, it is dynamically assigned to the new employer. The new employer fills in the commitment section and approves/rejects accordingly. The application is then assigned to the Apprenticeship Unit. The employer details required to assign the task dynamically are retrieved using a web service;
5. If the applicant is requesting a termination of apprenticeship, the rescission of the agreement with the employer or the form for resignation from the apprenticeship are dynamically assigned to his/her current employer. The current employer fills in the employer comments section and approves/rejects accordingly. The application is then assigned to the Apprenticeship Unit. The employer details required to assign the task dynamically are retrieved using the same web service as listed in point 4 above;
6. If the applicant is requesting a change of calling, the task is immediately assigned to the Apprenticeship Unit;
7. The e-Forms platform sends an acknowledgement of receipt to the apprentice and employer(s) involved;
8. Applications with ambiguous or missing information are returned to the applicant for correction. This step is repeated until the application form is completed correctly and accepted by the Apprenticeship Unit;
9. The Apprenticeship Unit will approve or reject the application. Both the employer(s) and the apprentice are informed of the final decision through the e-Forms platform.

This e-Form links with the Corporate Data Repository to populate the personal details of the applicant automatically in the e-Form.

This e-Form also consumes three web services as detailed below:

- One web service is used to retrieve the applicant's employers;
- Another web service is used to retrieve the callings; and
- The third web service is used to export the data collected through this form to an ETC database.

These web services were developed and are maintained by the ETC.

The NAO noted that the vetting and approval process of this e-Form is directed to the same e-mail address and entrusted to two named officers. The NAO suggests that in order to have an effective approval/vetting process, the approval function and the vetting function should be dealt with by separate officers and channelled through separate e-mail addresses.

3.1.10 Vacancy submission form

This form is used by employers to notify the ETC that they have a vacant post within their organisation. Upon receiving the completed form, the ETC will make the information regarding the vacancy accessible from the:

- ETC Website;
- ETC Job Centres;
- ETC Job Banks (these are touch screen computers scattered in certain places which enable jobseekers to look for jobs of their interest); and
- EURES portal (through this portal the vacancy are made available to all Europeans who wish to work in Malta).

Applications can be submitted all year round.

The employer initiates the e-Service on his/her own behalf. To submit an application the applicant has to log in with his/her e-ID or with a registered username and password. Anonymous, agent and registered user submissions are not accepted.

The business process for this e-Form is as follows:

1. The applicant (employer or third party) logs in using his/her e-ID or using his/her registered credentials;
2. This e-Form will then call a web service to retrieve all the organisations/companies for which the person logged in is responsible for;
3. The applicant will select the respective organisation on whose behalf he/she will post the vacancy. If the applicant only has one organisation, then he/she will not have a choice to change the organisation;
4. The applicant fills in the form and attaches a document listing the vacancy details. (This document can be saved/sent in .pdf, .doc, .docx and .rtf format);
5. The applicant submits the form;
6. The e-Forms platform sends an acknowledgement of receipt to the applicant;
7. The Vacancy Profiling Unit receives the application. Applications with ambiguous or missing information are returned to the applicant for correction. This step is repeated until the application form is completed correctly and accepted by the Vacancy Profiling Unit;

8. The Vacancy Profiling Unit approves/rejects the application to register the vacancy;
9. The applicant is notified of the final application decision;
10. Upon approval, the application would be inserted in an ETC database via another web service.

This e-Form consumes 12 web services to get the following lists of information:

1. Organisations the user can apply on behalf of;
2. The organisation default contact details;
3. Occupations;
4. Job Types;
5. Job Terms;
6. Skills;
7. Subjects;
8. Subject Levels;
9. Subject Grades;
10. Languages;
11. Language Level of Knowledge; and
12. Licenses.

In addition, the e-Form uses another web service to insert the application into an ETC database.

All the 13 web services were developed and are maintained by the ETC.

The NAO noted that the vetting and approval process of this e-Form is directed to the same e-mail address and entrusted to seven named officers. The NAO suggests that in order to have an effective approval/vetting process, the approval function and the vetting function should be dealt with by separate officers and channelled through separate e-mail addresses.

3.1.11 Work Phase Attendance Sheet

This form is used to log the apprentice's monthly attendance. Applications are mainly received between July and December.

The employer initiates the e-Service on his/her own behalf. To submit an application, the applicant has to log in with his/her e-ID. Anonymous, agent and registered user submissions are not accepted.

The business process for this e-Form is as follows:

1. The apprentice fills in the attendance sheet;
2. The apprentice attaches any sick leave certificates for each sick leave period marked in the attendance sheet;
3. The application is then forwarded to his/her employer. The employer is determined through the use of a web service;
4. The employer fills in the employer section in the application form. Applications with ambiguous or missing information are returned to the applicant for correction. This step is repeated until the application form is completed correctly and accepted by the respective employer;
5. Once the employer endorses the apprentice, the application is assigned to the Apprenticeship Unit;
6. The Apprenticeship Unit will either approve or reject the application. Both the employer and the apprentice are informed of the final decision through the e-Forms platform;
7. Using a web service, the application would be inserted into an ETC database.

This e-Form links with the Corporate Data Repository so as to populate the personal details of the applicant automatically in the e-Form.

Furthermore, this e-Form consumes two other web services as detailed below:

- A web service to retrieve the employer details. The e-Form will eventually be assigned automatically to the employer before it is sent to the ETC;
- A web service to insert details in the e-Form into an ETC database.

Both web services were to be developed and maintained by ETC.

The NAO noted that whilst this e-Form was accessible online, the ETC IT officials were under the impression that the development of this e-Form had actually stopped due to its complicated nature. It

was also unclear whether the web services listed above were actually developed by the ETC. The NAO has however, observed that from the usage statistics it transpired that there were seven submissions of this e-Form. However, the NAO could not verify these submissions and thus cannot ascertain that these were real submissions and not ones done for testing purposes. The NAO suggests that the ETC looks into this e-Form and verifies whether the “live” version is actually working.

The NAO also noted that the vetting and approval process of this e-Form is directed to the same e-mail address and entrusted to two named officers. The NAO suggests that in order to have an effective approval/vetting process, the approval function and the vetting function should be dealt with by separate officers and channelled through separate e-mail addresses.

Furthermore, the NAO noted that on the last screen of this e-Form there is a statement stating that this e-Form requires payment to be made with submission, when in reality no payment is required when registering the apprentice’s monthly attendance.

3.1.12 Other Findings and Recommendations

During the course of this IT audit, the NAO went through the list of e-Forms pertaining to the ETC and the ones available on the Government portal (forms.mygov.mt).

The NAO noted that on the Government portal there was an e-Form entitled “Registration of an Employer” that was listed as part of the ETC e-Forms. Since the NAO was not provided with any information about this particular e-Form neither from ETC nor from MITA, the NAO looked into this e-Form together with the ETC IT officials and it was confirmed that notwithstanding its caption it was actually owned by another Government Department namely the Inland Revenue Department. The NAO noted that the ETC IT officials informed MITA accordingly and this error was being rectified.

The NAO also observed that the ETC e-Forms cannot be accessed from the ETC website. The NAO noted that whilst the manual version of all ETC forms is available under the Resources Section of the ETC website, the e-Forms are not available. The NAO suggests that all e-Forms are made available under the Resources Section of the ETC Website.

```
exec sql select Key into :Key
from key_table
where algorithm = :SelectedAlgorithm
and User = :UserID;
exec sql select Key into :Key
from public_key_table
where algorithm = :SelectedAlgorithm
and User = :Recipient;
for i in 1 to SelectedFilesList.Count {
    Encrypt(SelectedFilesList[i], Key);
}
```

Chapter 4

Information Technology Applications

Chapter 4

Information Technology Applications

4.1 Software Applications

4.1.1 HRIU System

The HRIU System is a custom-built software application used for:

- **Engagement / Termination:** The data entry of the Engagement and Termination forms. These forms show the current employment status of each person in Malta and Gozo. An Engagement form implies that the specific employee has been successfully engaged with a particular employer. On the other hand, a Termination form denotes that the employment of a specific employee with a particular employer has been terminated. Moreover, the system creates provisional termination when two full time engagement forms are created for a particular employee. The provisional termination form is created for the individual's previous full-time employment one day prior to the date of engagement in his/her new full time employment.
- **Send Backs:** Through this system, the HRIU Section verifies the information on the Engagement and Termination forms received from the employers. If the Engagement/Termination Forms contain any missing information, these are sent back to the employer informing him/her about the missing information and requesting the correct and updated information.
- **Employment Updates:** Each employer in Malta and Gozo is legally bound to update the ETC with his/her current list of employees at least once a year. The HRIU section receives these updates and uses the system to verify that the required Engagement and Termination forms for each employee have been received successfully.
- **Trade Licenses:** A Maltese or Gozitan citizen can opt for a trade license to open and operate a business. Through the HRIU System, the officers concerned can verify whether the trade license received has a related engagement form. If there has not been a related engagement form, the HRIU asks the applicant whether the license was issued on behalf of a third party (such as a shop owner issued a trade license but intends to lease it to another person. In which case the

engagement form should be entitled for the person to whom the shop was leased, and not the owner). When all the missing information has been updated, via the license holder, the relevant engagement form is issued.

- **Tracers:** The HRIU system performs tracers in order to trace any process that is awaiting feedback. For example: if a specific process, such as a trade license for a particular employer is currently pending, then a tracer is opened to keep track of what is going on and the ETC will respond according to the status of the trace. Moreover, the HRIU system traces inactive individuals, issues provisional letters, processes employer updates and placements. The scope behind this process is to ensure that the information held within the employment registry at the ETC is updated at all times.
- **Placements:** The HRIU system is also used to process placements done by the Employability section and ensures that the required Engagement forms have been submitted. The Private Employment Agencies (PrEA) can also make placements, which are similarly processed through the system.
- **Reports:** The system produces various reports such as:
 - **Engagement/Termination:** These consist of daily/weekly reports listing the amount of forms inputted (split by type of form) and segmented by user ID. Moreover, monthly reports include the amount of forms inputted by the economic sector according to gender and age cohort.
 - **Send Backs:** These reports are issued at the End of month.
 - **Employment Updates:** The Daily/Weekly reports include the current number of employers. Employers are segmented by the size of the employer's company and according to the industry sector. The monthly report provides a tracer of those employers that were contacted during the previous month and who have provided feedback (or not) by the end of the current month. The reports also include a list of employers that were referred to the LCU.
 - **Trade Licenses:** The Daily/Weekly reports listing the trade licenses processed by and End of Month licenses processed during the current month and their processed status, namely: engagement forms created; license referred to other persons; record already existing.
 - **Tracer:** The Daily/Weekly reports show the number of tracer forms dispatched and those processed by the HRIU. The monthly reports include the tracer forms processed during the current month.
 - **Placements:**
 - **ETC Placements:** The Daily/Weekly reports include the placement letters issued to employers. A monthly report is also issued showing both the level of feedback received from placement letters sent to employers during the current month and another one

showing the status of requests made to employers in the previous three months together with their respective feedback rate.

- **PrEA Placements:** The Daily/Weekly reports show the number of placement letters issued to employers as highlighted by PrEA and the respective response rate from such employers. A monthly report shows both the level of feedback received from placement letters sent to employers during the current month and another one showing the current position of requests made to employers in the previous three months and their respective feedback rate.

- **Employment History for an individual.**
- **Information on HRIU data.**
- **List of individuals and their details.**

The NAO was informed that this application was developed in .NET by Seasus Ltd and is maintained by this same third party supplier. This system was deployed on the 1st of July 2013, with the aim of replacing a legacy system and lessen the Corporation's dependency on legacy systems. The NAO was informed that a Service Level Agreement was in place with the supplier however, the NAO was not given a copy of this agreement.

The NAO noted that most users where not using this application to its full potential and were still reverting to the old system to view certain records. Upon enquiring further about this system during on-site visits at a number of ETC branches, the NAO noted that most of the users were not given official training and learned how to use this system on their own. The NAO suggests that all users using this application are given an appropriate training course as soon as possible. Upon completion of this training course, the NAO recommends that the old system is disabled and the users would then be obliged to use this new system to its full potential.

Moreover, the NAO noted that a user manual of this system does not exist. The NAO recommends that since this is a crucial application for ETC, a user manual is compiled and distributed amongst all users as soon as possible.

Furthermore, the NAO observed that this application was at times very slow causing long queues especially in ETC's area offices, especially those that are manned by one executive only. Since the beginning of this audit the NAO acknowledges the improvements done in this area. However, the NAO suggests that end user's complaints in this regard are analysed and the ETC should consider asking the supplier to evaluate this system. This may result in a .Net monitoring solution that would enable the developer to drill-down and understand its code execution and latency, as well as identify the actual root cause behind this performance degradation.

The NAO also noted that:

- When a 'change in designation' is done, the date of the 'promotion'/'change in designation' is not shown when printing both the 'List of employees' or the 'Employment history', giving the impression that the employee was employed as shown in the 'change in designation'. The NAO suggests that another column is added showing the date when the change took place to provide data that is more accurate;
- Although the system includes a number of validations to avoid incorrect data input, the users sometimes are faced with a situation where they are not immediately aware as to why the system prompted an error. As can be seen in the following case, whilst processing a termination form and inputting all the termination details, the system generates an error note stating that 'an error occurred' without highlighting the fact that the error was generated because there was no engagement form. The NAO suggests that such error messages should be more user friendly and validations are implemented as early as possible. Thus, if the system requires an engagement form to be inputted prior to the termination form, the system should highlight this to the user and stop him/her from inputting the termination details rather than having him/her inputting all the details and then stop him/her from saving these details;
- Letters generated through the system do not include the ETC logo and the relevant details. Instead, these are printed on ETC pre-printed letter-heads. Considering that letters, like the acknowledgement letters, are printed in thousands every week, the ETC should consider amending such letters to include the letterhead, thus saving on letter-head paper consumption.

The NAO noted that access to this system is controlled by a username and a password. The HRIU system also has different user levels as detailed below:

- **Administrator User:** Access to whole system including system administration;
- **Power User:** Access to whole system;
- **Edit - Full - User:** Read/Write access to whole system;
- **View - Full - User:** Viewing access to whole system;
- **Edit Personal User:** Access is granted to view the whole system and to edit employee details only.

The NAO noted that this system has a full audit trail functionality that records who, when, how and what kind of data has been accessed, inputted, amended or deleted from the system.

During the course of this IT audit, the NAO also enquired whether the system is being backed up. The NAO was informed that a backup is being taken on a regular basis and stored off-site in a fire-resistant safe. However, since no backup logs are being kept the NAO could not ascertain this statement. The

NAO therefore, recommends that the ETC keeps appropriate backup logs recording all un/successful backups.

The NAO also, noted that although the ETC stated that these backups were periodically tested, a log of these restores was not kept and thus the last successful restore date could not be determined. The NAO recommends that this procedure is formalised and a log recording all test restores should be kept.

4.1.2 Law Compliance System

The Law Compliance System is a web based application (Figure 3) that was developed internally by the ETC IT Unit using Microsoft .Net framework. This system assists the Law Compliance Unit in maintaining records of hot-line calls, reports or inspections that are carried out by this unit. This system is also used to plan inspections and to maintain a record of all the cases processed, including court cases. The ETC also uses the system for recording the proceedings and outcome of each case.

Print By Date		
From	<input type="text"/>	
To	<input type="text"/>	
		Print Hotline
		Print Inspection Report
		Print Inspection Report for Pending Cases
		Print Hotline Statistics
		Print Inspections Statistics
		Print Interview Statistics
Print by Case No.		
	<input type="radio"/> Print List	
List	<input type="text"/>	
	<input type="radio"/> Print Range	
From	<input type="text"/>	
To	<input type="text"/>	
		Print Hotline
		Print Inspection Report
		Print Call-in
		Print Prefine Letter
Fines		
Case No.	<input type="text"/>	Preview Fine
		Create Fine
Back to Main Menu		

Figure 3: Law Compliance System - Reports Screen

The Law Compliance system consists of the below listed functionalities:

- Maintain team of inspectors:
 - Create and update - Staff members can be allocated into new ad hoc teams. Therefore, a staff member can be part of multiple teams at the same time. Teams can also be archived by authorised personnel, retaining historical data reports on the system with respect to teams;
 - Inspectors are chosen from the Active Directory Database;
- Create Case:
 - To Input employee or employer details (can be chosen from the database/create new);
 - To Input the allegations and inspectorate reports, to allow for lengthy text comments;
- List of all the cases (subdivided into specific groups);
 - New Inputs:
 - New Cases
 - Unassigned Cases
 - Cases in Progress:
 - On Hold
 - Fines to be Issued
 - Fines Issued
 - Court Cases Pending
 - Processed Cases:
 - No Case
 - Closed Cases
 - Cancelled
 - Court Cases:
 - Courts Outcome
 - Settled Cases
- Scheduling:
 - Call-Ins
 - Court Cases
- Review a specific case

- Create a report in PDF format of the case details
- Reporting:
 - Statistical Reports (weekly, monthly, ad hoc period per type and category of case)
 - Printing of specific case reports, letters or feedback based on provided templates
- Search:
 - Options to locate cases, teams, staff members, actions etc.

The NAO was informed that although this system was developed very recently and has so far served the purposes of the Law Compliance Unit, the system is however, currently unsupported since the developer is no longer working with the ETC and did not leave a copy of this application's source code.

The NAO was also informed that in the near future and after the new HRIU system has been fully commissioned, the ETC will then replace this Law Compliance system by extending the functionality of the HRIU system to cover the Law Compliance Unit Processes. The new Law Compliance System will thus be considered as the second phase of the HRIU project. The ETC explained that since the Law Compliance System is highly dependent on the HRIU System, in terms of data sharing, having one system catering for both units would in the long run simplify the support and maintenance of these IT applications and would make these IT processes more manageable. In this regard, the NAO was pleased to note that the ETC had a very detailed "Requirements Specifications" document detailing all the functionality required for the above proposed system.

The NAO recommends that the new application being developed:

- Complies with the Government's password policy;
- Has an audit trail functionality;
- Has different access rights according to the unit's needs;
- Undergoes a formal user acceptance testing prior deployment; and
- Has a complete set of user manuals.

The NAO noted that this application and its data are being backed up regularly. The NAO suggests that backups are periodically tested and test restores are documented to ensure the proper functioning of the backup process.

4.1.3 Profiling, PAP and Medical Application

This system is the main tool used by the Employment advisors while assisting an unemployed person. Within this system, the users input the information about the person and based on this information, identify the best opportunities that should be tapped on by the client.

This system also incorporates a PAP tool as depicted in Figure 4 below. The PAP is a personalized plan of training or actions that the client is to perform to ensure that he gains the required skills and hence improve his/her employability. This application assists them in designing the activities and enrolling clients to them, while following their progress.

Furthermore, this system also incorporates the Medical module which keeps track of disabled persons and enables the ETC to manage their eligibility to apply for jobs through privileged assistance. Through this module, the ETC has built a Register of Persons with Disability as specified in Article 5 Chapter 210 of the Persons with Disability Employment Act, and uses such data to manage registrants having medical problems or disabilities that hinder them from achieving an employment. Individuals registered on this register are entitled to various schemes and initiatives such as:

- Bridging the gap scheme - This scheme offers individuals an eight week period of work exposure with an employer whilst receiving a weekly allowance of 80% of the minimum wage. Through this scheme the employer would be free from his/her obligations, such as National Insurance contributions, wages and sick leave benefits;
- Sheltered employment training - Job coaches assist jobseekers throughout a training programme that includes practical employment training in various sectors of the labour market;
- Supported employment - This scheme offers a person-centred approach which identifies the person's strengths and weaknesses and connects them to the open labour market through work placements.

This system, which was launched on the 1st of July 2013, has been developed internally by the Corporation's developers using C# MVC 4 version based on Microsoft .NET framework 4.5 and uses the new MS SQL Database.

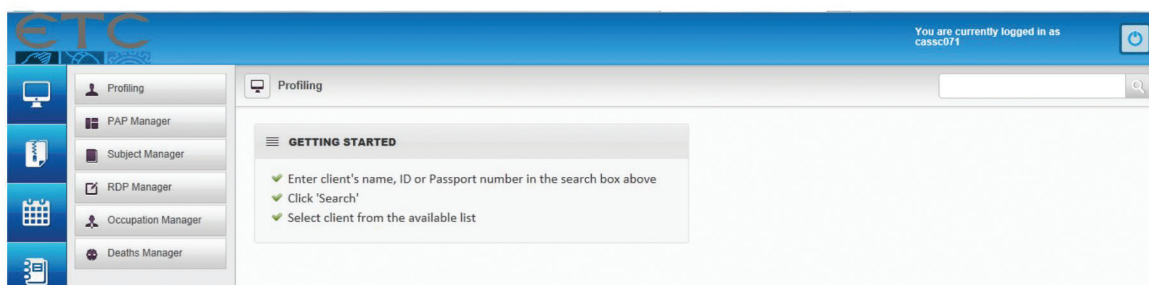


Figure 4: Profiling Module - Interface

The NAO noted that although a User Acceptance Testing was carried out prior to implementing this application, this was an informal one and no User Acceptance Testing records were kept. The NAO also noted that although this system was developed internally, no user or system manuals were compiled. The NAO suggests that a user manual is compiled as soon as possible and a systems manual should be built to assure continuity should the IT officer who developed this application leave the ETC.

The NAO was however, informed that the Jobseekers Advisory Unit organises a three month induction programme during which executives are exposed to the different processes within the ETC and are given hands on training including training on ETC's IT applications by other officers within the sections. The NAO was pleased to note that this induction programme was a very well organised one with a documented timetable and with documented results. All officers undergoing this training programme complete a mandatory log book detailing the:

- Unit/Processes being exposed to during training;
- Date/s during which the person was assigned to this unit;
- Training Received;
- Person/s giving the induction training;
- Officer's first perceptions;
- An overview of the process;
- Learning Outcomes; and
- Officer's suggestions.

The NAO also observed that the Jobseekers Advisory Services section has a set of Standard Operating procedures detailing all the process being carried out by this unit.

During the course of this IT audit, the NAO interviewed a number of ETC officers and observed them whilst using this application. The NAO noted that:

- The Personal details screen incorporated a lot of spacing. The NAO suggests that the extra spacing in this screen is deleted so as to have all the information in the screen fit into one page without the need of having to scroll up and down;
- If an officer edits the data and forgets to press the "Save" button, all changes are lost. The NAO suggests that the application loads a message confirming the users intention to proceed without saving;
- The screen displaying the Qualification list of a particular person has an "Edit" and a "Delete" button at the bottom of the screen. Given that very frequently this list is quite a long one, the

NAO suggests that another “Edit” and “Delete” button are included at the top of the screen making these functions available without the need to scroll up and down;

- The ETC officials are expected to input one’s qualifications one by one and rate the grade obtained as “Good Pass” or “Pass” etc. The NAO suggests that qualifications which are considered as a group should be inputted in one entry. Example: A candidate who has obtained the European Computer Driving Licence (ECDL) would have automatically obtained ECDL modules 1-7, thus this IT application should cater for this by allowing the officer to input the ECDL full qualification and then automatically generate seven entries representing the seven single ECDL modules. Furthermore, the NAO suggests that this IT application would include a hard coded list of what is considered as a “Good Pass”, a “Pass” etc and this value would be populated automatically when the officer inputs the result obtained. This would eliminate human error and simplify the inputting process;
- The qualifications inputted are not being grouped by subject and thus when searching for prospective candidates having a particular qualification, certain candidates may not show up in the list even though they would have obtained a similar qualification in the same field;
- Whilst reviewing the “Pending CV updates”, the system loads an error when rejecting updates;
- The “Pending CV updates” screen does not have an edit function and thus the officer is currently deleting erroneous records and creating them again rather than being able to correct an error;
- A number of reports are currently being generated by the IT Department using an automatic script and sent by e-mail to the officer concerned on a weekly basis. The NAO suggests that this application is equipped with a Report Generator giving the authorised users the facility to issue reports as and when required;
- The medical module currently accepts a single disability and does not provide a facility whereby the ETC officers can input multiple disabilities.

The NAO recommends that the ETC goes through the above listed suggested enhancements and considers implementing the appropriate changes in the near future.

The NAO noted that access to this system is controlled by a username and a password. The Profiling and PAP system also has different user levels as detailed below:

- **NotesOnClients:** ETC personnel require access to manage notes on clients. (If a user has been granted a NotesOnClients role, the user would be able to view or edit records according to his/her role.);
- **ProfilingAdvancedUser:** Can View/Add/Edit/Delete/Data;
- **ProfilingBasicUser:** Can view only data;

- **PAP Administrator:** Can manage (Create/Edit/Delete) exercises;
- **Medical Administrator:** Can manage (Create/Edit/Delete) exercises.

The NAO noted that this system incorporates audit trail functionality recording all additions, editing and deletions, including the details of the officer who did the transaction and the date/time.

During the course of this IT audit, the NAO also enquired about the backup being taken for this application. The NAO was informed that a backup is being taken on a regular basis and stored off-site in a fire-resistant safe. However, since no backup logs are being kept the NAO could not ascertain this statement. The NAO therefore, recommends that ETC keeps appropriate backup logs recording all un/successful backups.

The NAO also, noted that although ETC stated these backups were periodically tested, a log of these restores was not kept and thus the last successful restore date could not be determined. The NAO recommends that this procedure is formalised and a log recording all test restores should be kept.

4.1.4 Registration System

This system is a legacy system that is used to enable people to register with the ETC as job seekers and thus declaring themselves ready and willing to take active steps to improve their employability, seek and take up work.

The Unemployment Register has three main parts:

- Part 1 of the Register is for persons who have never worked, or who have been made redundant. Persons on Part 1 of the Register may be eligible for unemployment benefits;
- Part 2 is for persons who resigned from their previous job, who have missing documents, were dismissed, or who have been removed from Part 1 of the Register;
- Part 3 is for persons who are already in employment but who would like to be notified of other work opportunities;
 - Part 3B is for those persons who are seeking temporary employment, such as students;
 - Part 3C 1 and Part 3C 2 are for those who wish to have a part-time job as a sole employment or as another employment besides their full time or part time job.

Through this system, the ETC builds and maintains the above mentioned registers recording the personal details of registrants, their job preferences, and details of any permits or licences held by such registrants. This data is then used by the ETC to provide a whole range of services depending on the individual's needs.

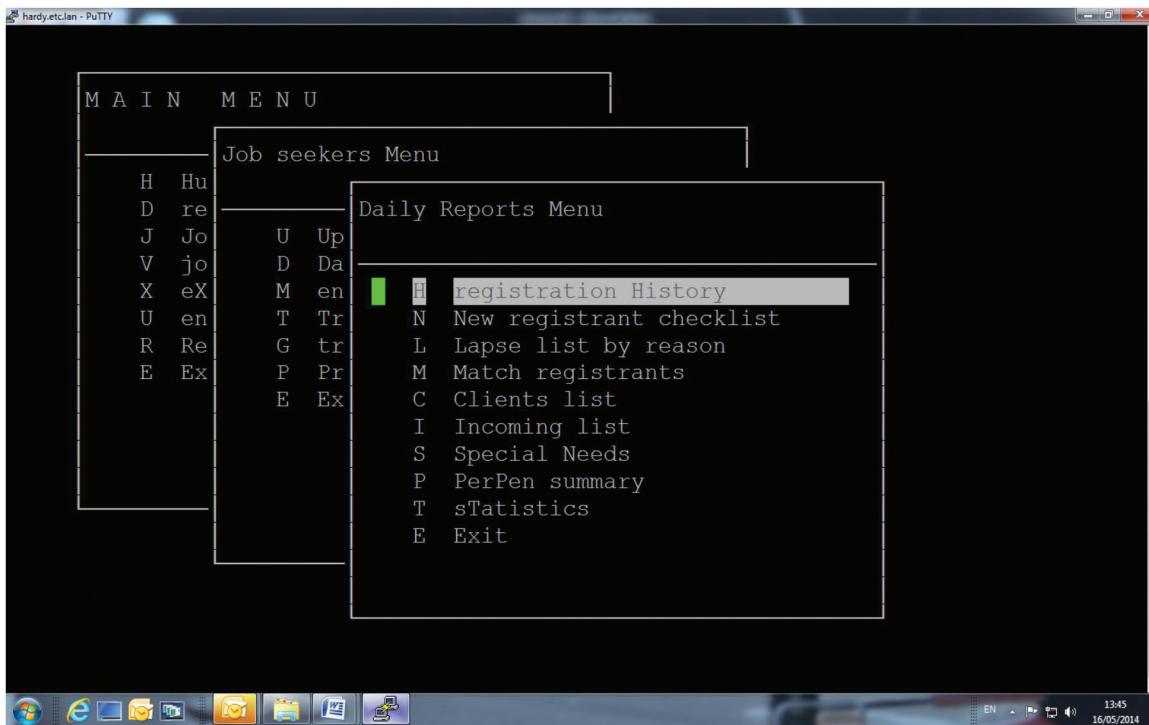


Figure 5: Registrations System - Daily reports

The NAO observed that through this system, the ETC officials can issue a number of reports as depicted in Figure 5 above.

The NAO noted that this system was built in-house in 1997 and although it is still used, it can be considered as one of ETC's worst dependencies because maintenance of such software depends on the skills of one programmer, is costly, risky and very time consuming. Furthermore, this system cannot be integrated easily with other systems and is running on Informix version 11 platform, unlike most of the other ETC software, which has been migrated successfully to MS SQL, thus reducing maintenance costs and utilising better ETC's current skill set.

During the course of this IT audit, the NAO interviewed a number of officers using this system and noted that:

- Since the current system is still using the old database it is currently automatically synchronizing with the new database. The ETC officers have stated that such synchronizations are slowing the system and creating an inconvenience when officers are attending to long queues of people;
- The current system does not have a facility through which one can print registration documents directly and thus the officers would need to first access the individuals record and then print his/her registration document. The NAO recommends that the ETC's developers consider adding a module through which an officer can print such document/s directly giving the ID card No/s;
- The inputting of qualifications in the current system can be facilitated by adding certain automatically processed fields such as when entering a Grade one 'O' level pass the system could automatically classify this as a "Good pass" eliminating the need to input this classification.

The NAO thus suggests that the ETC considers replacing this system with one that:

- Is integrated with the other ETC software applications. The ETC may consider incorporating this system's processes as a module within the Profiling Application;
- Complies with the Government's password policy;
- Has an audit trail functionality;
- Has different access rights according to the unit's needs;
- Undergoes a formal user acceptance testing prior deployment;
- Has a complete set of user manuals; and
- Has an in-built report generator that satisfies ETC's current business needs.

The NAO was informed that a backup is being taken on a regular basis and stored off-site in a fire-resistant safe. The NAO recommends that appropriate backup logs are kept. The NAO also recommends that these backups are periodically tested with such tests recorded on a log book.

4.1.5 Enrolment Card System

The system consists of a number of kiosks located within the different locations throughout Malta and Gozo and an IT Application through which the registrants fingerprints are stored (Figure 6) and a magnetic card (Figure 7) is issued. This magnetic card is then used together with one's fingerprint to authenticate the individual at the mobile kiosk to renew their registration. Upon renewing one's registration, the mobile kiosk issues a chit notifying the individual with the date and time of his/her next expected registration and any other messages that the ETC may have for that particular individual. The messages on the chit include notifications to attend activities such as job search seminars, training courses, job fairs, interviews at the ETC or job interviews with employers. Failure to attend any such activities indicates that one is no longer interested in using ETC's services and hence is deleted from the job seekers register.

The NAO was informed that this system was developed by a third party supplier over 12 years ago.

The NAO noted that the ETC has a SLA with the third-party supplier however, this agreement was not updated and is still featuring all costs in Malta's old currency, the Maltese Lira (Lm). Furthermore, the period of the above-mentioned agreement was not extended in writing. The NAO also observed that amendments to this agreement were handwritten on the original agreement and were not signed by either party.

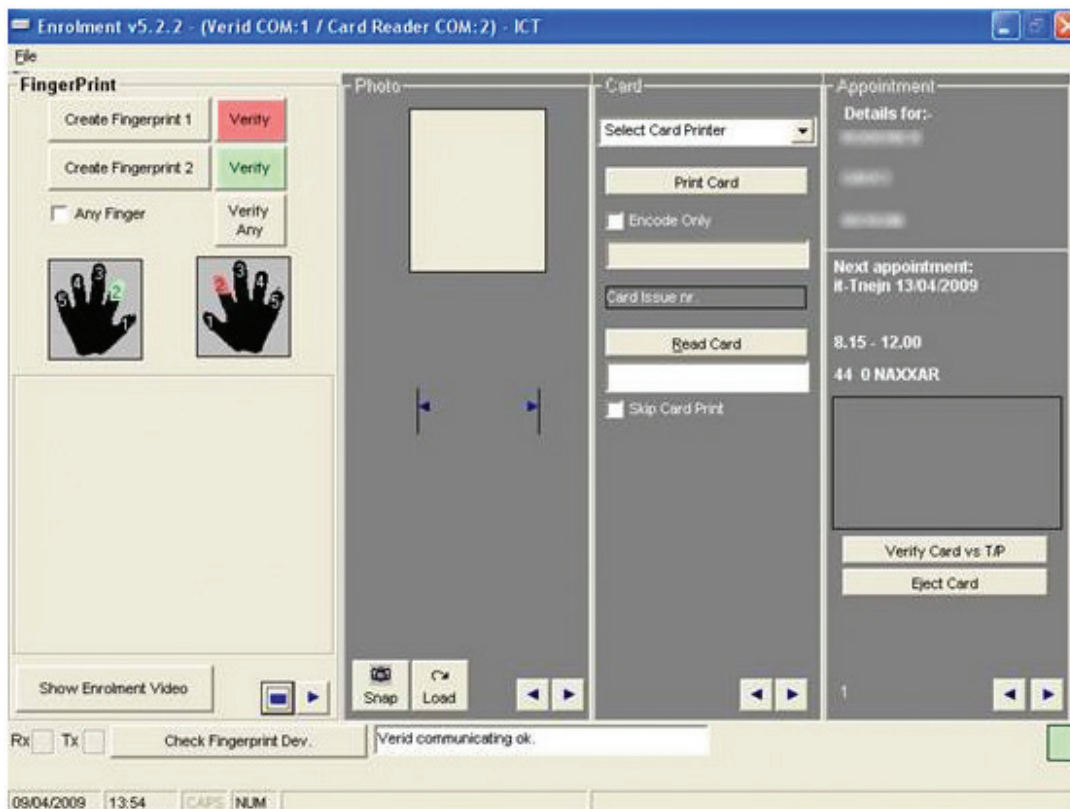


Figure 6: Enrolment Registration System

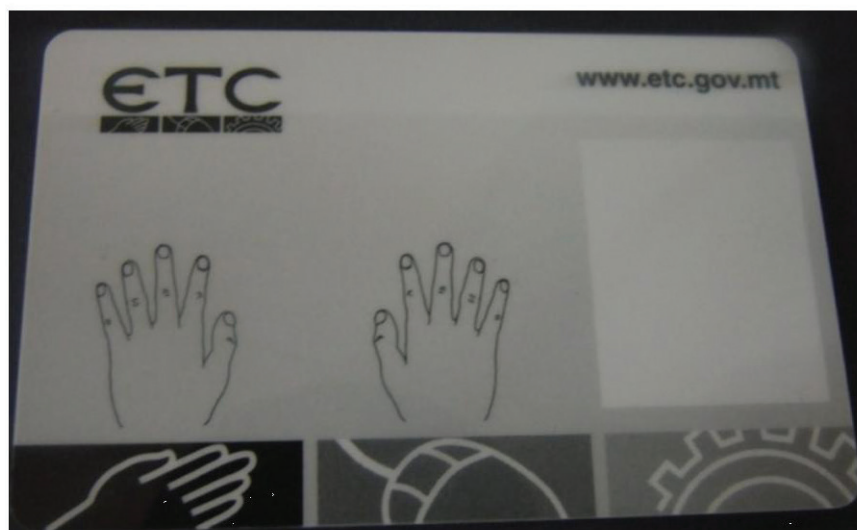


Figure 7: Registration Cards

The NAO noted that the third party supplier has access to the system via a VPN connection in a controlled manner. In this regard, the NAO noted that:

- The system is hosted on a segregated environment. Hence, the supplier has access to this system only;
- The VPN token is held at ETC. Hence to log into the system, the supplier would need to call at ETC and request a token number.

The NAO observed that this system can be accessed using different user levels (View, Add, Edit and/or Delete) that are assigned directly for each module within this application. Furthermore, the NAO noted that this system has an audit trail functionality.

The NAO was informed that a backup of this application and its data is being taken on a regular basis and stored off-site in a fire-resistant safe. The NAO recommends that appropriate backup logs are kept. The NAO also recommends that these backups are periodically tested with such tests recorded on a log book.

During on-site visits at a number of ETC's branches, the NAO officials noted that the mobile kiosks that are part of this system are frequently out of order and take a while until repairs are affected. In these circumstances, the process of registration would be done manually and the ETC officials would then need to input all these manual records into the system.

The NAO also noted that the ETC is currently submitting monthly reports to the Department of Social Services relating to the registrations renewed or lapsed.

The NAO was informed that the ETC intended to replace this system in the past. In fact, a call for tender was issued twice, with the first one not awarded due to all bidders being out of budget and the second call for tender was not awarded since only one bidder was compliant and the ETC management at that time was not confident to award such a tender at the specified budget.

The NAO suggests that the ETC considers carrying out a business process re-engineering exercise to analyse and re-design workflows, with the aim to improve the current functional requirements and achieve a quantum leap in performance measures, such as return of investment, cost reduction and quality of service. With this information in hand, the ETC can then issue a call for tender to replace this system with one that:

- Is integrated with the other ETC software;
- Links with the Department of Social Services to eliminate the need of having to e-mail them reports of registrations renewed/lapsed;
- Is equipped with registration machines that are preferably not proprietary and can be easily maintained or replaced;
- Has an audit trail functionality;
- Has different access rights according to the unit's needs;
- Complies with the Government's password policy;
- Undergoes a formal user acceptance testing prior deployment;
- Has a complete set of user manuals; and
- Has an in-built report generator that satisfies ETC's current business needs.

4.1.6 InfoCentre

This system, as its name suggests, provides a variety of information related to the functions of the Corporation, including Client/Employer Viewing Details (Figure 8), Schemes, Vacancies, Strikeoffs and Training programmes.

The NAO observed that through this application, the ETC officers could generate a report on the number of vacancies available on the market, including the vacancy details in PDF format. The system also offers the capability to export this report to Microsoft Excel. Furthermore, through this system one can print out vacancy details in the layout of an advert that could then be affixed to the vacancy boards at ETC’s Job Centres.

This system was developed using Microsoft .NET Framework 1.1 by the Corporations in-house development team, however, it has lately been upgraded to Microsoft .NET Framework 4. The NAO noted that the ETC had plans to migrate this system’s backend and use the new MS SQL database as opposed to Informix.

During the course of this IT audit, the NAO reviewed this system with an ETC officer who uses the system and the ETC developer who programmed this system. The NAO observed that although the two officers worked in two different teams these teams had a very good working relationship and worked together very well so as to maintain the system, identify system bugs and implement all the system modifications needed. Although the NAO commends such a working relationship, the NAO suggests that system modifications are documented together with a short business case explaining why the modification was done etc. The NAO also recommends that all systems errors are reported in a Call

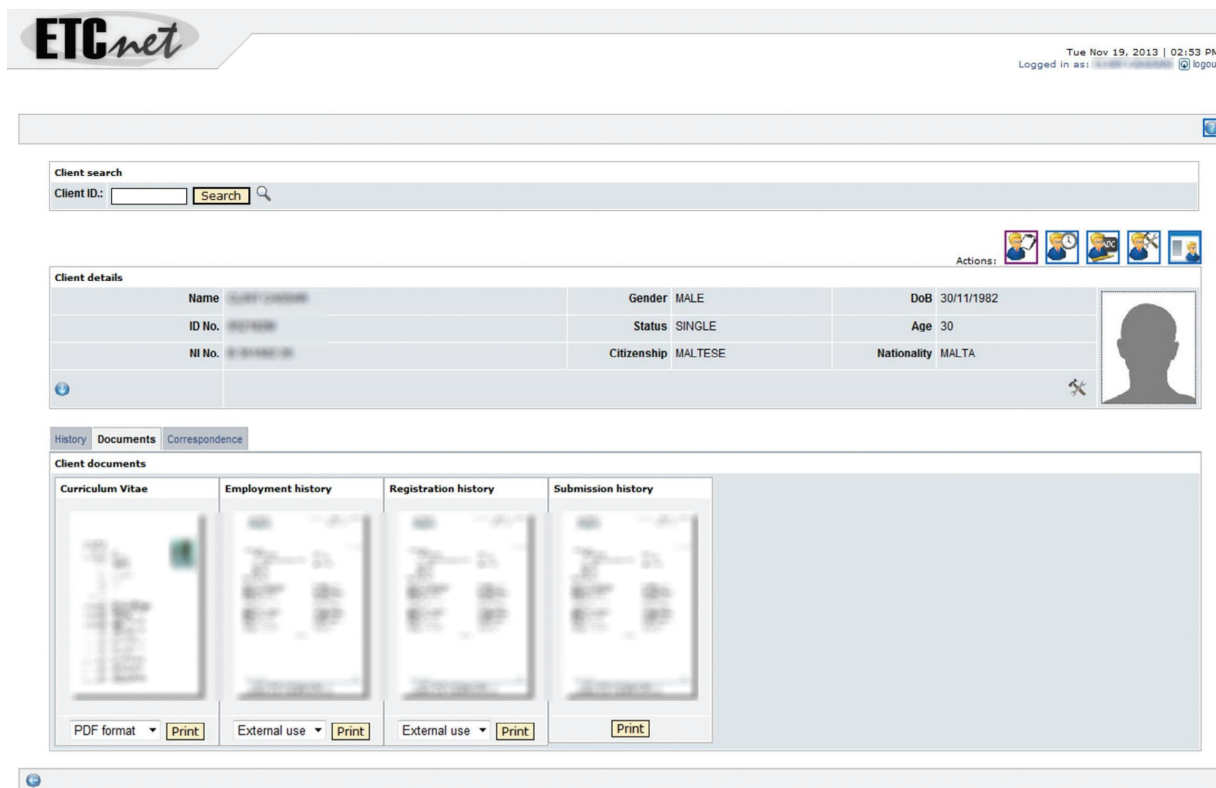


Figure 8: InfoCentre - Client View

Logging System, recording how the error was fixed and when the call was closed off. Furthermore, the NAO recommends that the ETC maintains a documented version log of all versions deployed.

Whilst auditing this application, the NAO noted that when searching for an employer by name the system was not loading the employer's record. The NAO observed that employer records could only be loaded if the employer number is inputted. The NAO recommends that this bug is fixed. Moreover, the NAO recommends that the screen design of this application is reviewed to preferably have all the information fitting into one screen and eliminating the need of scrolling down.

The NAO also noted that a user manual of this system does not exist and recommends that such manual is compiled and distributed amongst all users as soon as possible.

Furthermore, the NAO noted that the system also has different user levels (View, Add, Edit and/or Delete) that are assigned for each module and has an audit trail functionality in place. Moreover, the NAO was informed that backups of this application was being taken on a regular basis and stored off-site in a fire-resistant safe. The NAO recommends that appropriate backup logs are kept. The NAO also noted that although the ETC stated that these backups were periodically tested, a log of these restores is not being kept and thus the last successful restore date could not be determined. The NAO recommends that this procedure is formalised and a log recording all test restores is be kept.

During the course of this IT audit, the NAO noted that all the information available to ETC officials such as Client Data, Employer Data, Vacancies etc. can be viewed from a multitude of applications and not just from the InfoCentre System. The NAO suggests that the ETC's Management and the IT Unit should reconsider the necessity of this system and assess whether it would be more viable to integrate some of the above mentioned systems into one of the other systems, such as the Profiling application.

4.1.7 Data Analyser

The Data analyser is used by all the ETC sections as a data warehouse upon which data queries can be made.

This application was developed internally by the ETC's IT Unit and is maintained by this same unit. The NAO was informed that the ETC's data is uploaded into the data analyser every few days.

During the course of this IT audit, the NAO evaluated the opinion of a number of ETC officials including that of Senior Management. As a result, the NAO concluded that this Data Warehouse tool was not meeting the ETC's current operational needs. The NAO noted that prior to issuing most of the statistical information needed, the ETC's staff were analysing data records individually and cleaning/transforming the data according to the statistics required. The NAO observed how the ETC staff were saving copies of itemised statistics so as to be able to resort to these records if the statistical totals are questioned.

The NAO also noted that since the data in this application is being uploaded/updated every few days, the information elicited from this application is not reliable.

The NAO recommends that since the ETC is migrating the backend of all its applications to MS SQL, the ETC considers replacing this system with an integrated tool that can extract data from all other databases and that has a data mining and business intelligent capabilities. This application should also have data cleaning capabilities to detect and remove errors and inconsistencies from data through record matching, de-duplication, and column segmentation, in order to improve the quality of data.

The ETC officers should also have the option to re-issue backdated reports, thus eliminate the need of having to save all the transactions that made up a particular total on a particular day.

The NAO believes that this tool is indispensable for ETC's business operations and would:

- Eliminate the current process of having the IT Unit generating hundreds of reports per month using automated and ad-hoc scripts. Furthermore, the data would be available straight away at the touch of a button rather than having to submit a request to the IT Unit and allowing them a reasonable time for them to process it;
- Eliminate the current practice of generating reports which are then sent by the IT Unit to the individual's mailbox;
- Enhance the quality of data and have a process whereby one would know how data cleaning was performed (i.e. elimination of duplicates, elimination of particular statuses etc).

4.1.8 Client Application - Courses

The Courses application enables the ETC officers, working at the Skills Centre, to manage the training of ETC's clients and the organisation of such courses. Through this application, the ETC manages the subscriptions for courses, the course pre-requisites, attendances, results and other details related to the client such as the client qualifications etc. This application has three modules as detailed below:

- **Client:** This allows the user to search clients' details by entering the ID card number of the client and accessing relevant information like course bookings, registrations and appointments;
- **Courses:** Allows the user to search courses, add and delete courses. It also serves as a means to allocate clients to courses and to issue chit notifications and exemptions;
- **Appointments:** Allows the user to view clients which have an appointment (with the appropriate rights).

The NAO observed that this application was developed internally using Delphi programming language and thus is considered a legacy system that sets the Corporation a dependency on a single person's skills.

During the course of this IT audit, the NAO observed that although this application did not have a user manual, the Section using this application has developed an operational manual (Figure 9) that includes a detailed explanation on how to use this system. The NAO suggests that this operational manual is kept up to date.

The NAO noted that:

- This application does not have any e-Learning capabilities, and thus should the ETC want to provide online accessibility to its students, this system would need to be enhanced. Furthermore, considering its legacy issues, one may decide to replace this system with an online e-Learning platform.
- Although access to this system is controlled by a username and a password, the Government's password policy² was not being adhered to in terms of password complexity, expiry and re-use. The NAO also noted that users do not have the facility to reset their password and there is no account lockout policy in place to lock a user account after a specified number of unsuccessful attempts to log in. The NAO suggests that the system is modified in this regard.
- Prior booking a client for a course, an ETC official is expected to first input the client on the courses waiting list through the InfoCenter application and then book the client for a particular course through this application. The NAO suggests that the frontend of both systems is amalgamated so that the ETC official concerned would only access one system rather than two different systems.

² Password Policy document - https://www.mita.gov.mt/MediaCenter/PDFs/1_CIMU_P_0015_Password.pdf

- Although the system can issue attendance reports and timetables however, it does not have the facility through which one can issue other reports such as how many courses were held or how many people attended courses during a given timeframe. The NAO observed that the IT Unit issues such statistical data on a monthly basis and send a copy of the raw data to the officer concerned by e-mail. The latter would then use this raw data to issue the statistics/reports needed using Pivot tables in Excel. Although the NAO commends this excellent use of Excel, the NAO suggests that this application should be equipped with an adequate report generator.

The NAO was informed that the system has different user levels (View, Add, Edit and/or Delete) that are assigned for each module and has an audit trail functionality. Moreover, the NAO was informed that backups of this application was being taken on a regular basis and stored off-site in a fire-resistant safe. The NAO recommends that appropriate backup logs are kept. The NAO also noted that although the ETC stated that these backups were periodically tested, a log of these restores was not kept and thus the last successful restore date could not be determined. The NAO recommends that this procedure is formalised and a log recording all test restores should be kept.

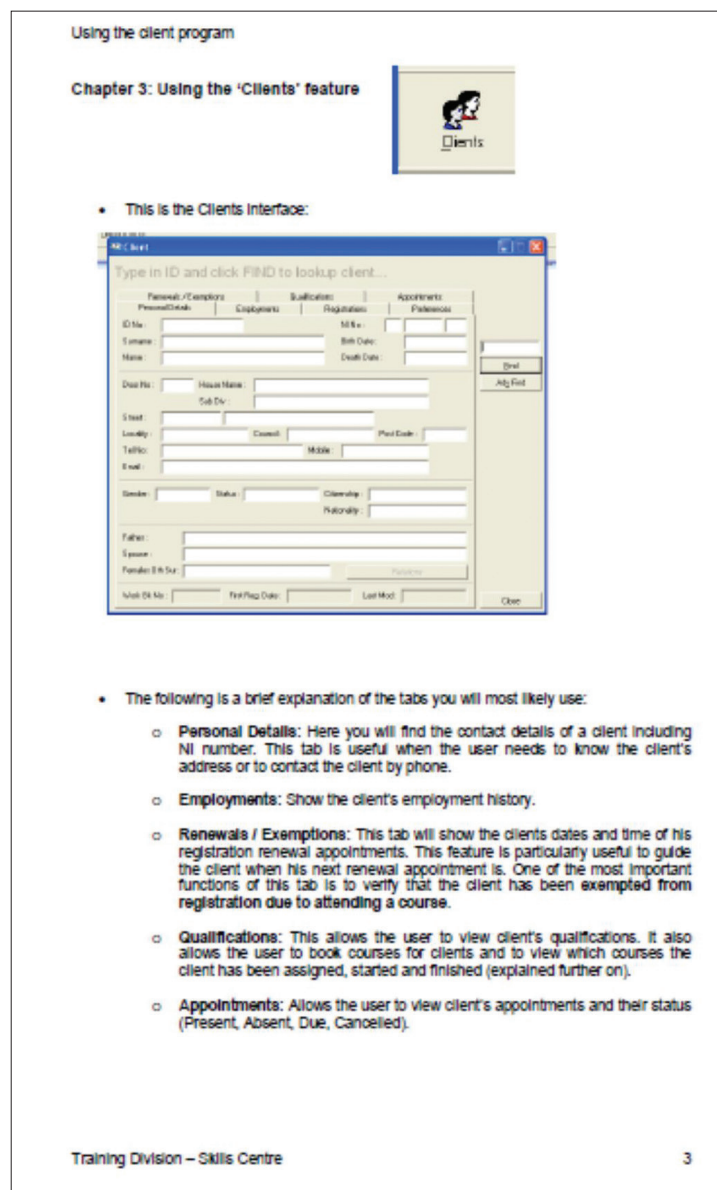


Figure 9: Operating Manual - Client

4.1.9 Advisors Appointments

Upon registration, all individuals are assigned an Employment Advisor who will support and guide them in their search for work and for training opportunities. The Employment Advisors meet the individuals to draw up the PAP highlighting the steps one would need to take in order to enhance his employability and job search activity.

This system is used by the Employment Advisors to set appointments with their clients. This is a minor application that had been developed in Delphi by the Corporation's IT staff. Since development using the Delphi programming language is a limited skill, the NAO suggests that the ETC should consider re-writing with newer programming languages. However, the NAO also believes that there may be a possibility of including a module within the existing HRIU or the Profiling system to cater for the business processes covered by this application.

During the course of this IT audit, the NAO noted that the system does not have a report generator and the only report that can be issued through the system is a print list of appointments on a specific date or data range. The NAO observed that the IT Department has however, created a set of automated scripts to generate the reports listed below on a monthly basis, which are then sent automatically by e-mail to the officer concerned.

- **Missing Appointment Outcome** - this automated script generates a list of appointments corresponding to two months back which were still tagged as pending and which have now been tagged as absent;
- **Cancelled Appointments** - generates a list of appointments which for some reason or another have been cancelled by the Employment Advisors;
- **Employment Advisor Performance** - this script generates an overview of the monthly performance carried out by each Employment Advisor.

Furthermore, the NAO noted that:

- There is a typo error in the heading of the "Appointments list" screen;
- This application is not linked with the Corporate Data Register and thus the Employment Advisor is not in a position to know if a person had deceased, there was a change in address or got married and might have changed surname. The NAO suggests that the ETC considers the possibility of implementing a link with the Corporate Data Register to be able to track individuals presenting a false ID card number;

- This application is not linked with the HRMS system and thus an Employment Advisor who has booked leave on certain days cannot have the calendar within this application updated with such leave records. Furthermore, this application is not linked with one's Microsoft Outlook calendar appointments and thus an Employment Advisor would currently need to check his/her Microsoft Outlook calendar for staff meetings, etc and then use this application's calendar to book appointments. The NAO noted that some Employment Advisors are booking all appointments in this system and then booking them again in their Microsoft Outlook Calendar. The NAO suggests that the ETC considers the possibility of implementing such a link to avoid this duplication of appointment creation;
- This application does not have the facility to issue a live case load. The NAO was informed that presently the case load is generated monthly on Microsoft Excel and is sent to the Employment Advisors by e-mail. This information is generally outdated after a few days. The NAO suggests that this functionality would be made available through the system.

The NAO also observed that the ETC does not have a user manual for this system however, the Jobseekers Advisory Services section has a set of Standard Operating Procedures detailing all the process being carried out in this unit including the use of this system. The NAO also noted that Employment Advisors undergo an extensive training program according to a pre-set and very well organised timetable, during which a training logbook is compiled.

Furthermore, the NAO noted that although this application is accessed through a login name and a password, such login and password are not as indicated in the Government's password policy³ in terms of password complexity, expiry and re-use. The NAO also noted that users do not have the facility to reset the password and there is no account lockout policy in place to lock a user account after a specified number of unsuccessful attempts to log in. The NAO suggests that the system is modified in this regard.

The NAO was informed that the system also has different user levels (View, Add, Edit and/or Delete) that are assigned for each module and offers an audit trail functionality. Moreover, the NAO noted that backups of this application was being taken on a regular basis and stored off-site in a fire-resistant safe. The NAO recommends that appropriate backup logs are kept. The NAO however, observed that although the ETC stated that these backups were periodically tested, a log of these restores was not kept and thus the last successful restore date could not be determined. The NAO recommends that this procedure is formalised and a log recording all test restores should be kept.

³ Password Policy document - https://www.mita.gov.mt/MediaCenter/PDFs/1_CIMU_P_0015_Password.pdf

4.1.10 End of Month reports and Automated Processes

The Corporation provides a lot of National information and statistics in relation to the Employment and Labour Market Intelligence. As explained in Section 4.1.7, these reports are generated directly from the database either by executing SQL statements on the core database, or via the execution of automated scripts.

The NAO visited the Labour Market Intelligence Unit and noted that most of the work carried out by this team involves querying raw data, exporting the data into Microsoft Excel and using PivotTables to process this data as required. The NAO also noted that an IT person is currently dedicating most of his time executing queries. The NAO therefore believes that this approach is proving to be highly time consuming and inefficient apart from being inaccurate and untimely.

The NAO was informed that the IT Unit has developed automated queries for the below list of end of month reports and automatically posts all the reports on a server repository (Figure 10) which can be accessed by authorised staff.

- Persons placed and submitted and persons referred for training every month by age group, Reg and Non Reg and by case (VLTU, LTU; RDP; Mainstream; (Special Cases including number of ex abusers); ex convicts and social cases);
- Inflows for Unemployed monthly;
- Unemployed Raw Data monthly as per below:
 - Part 1 - For the registration of persons that meet the eligibility requirements and who ensure the Corporation that they are available for, capable of and are seeking Full-Time employment;
 - Part 2 - For the registration of persons who are ineligible for Part 1 registration for a period of time;
 - Part 3C1 - For those unemployed persons who are seeking Part-Time employment as their principal employment;
 - Part 3C2 - For persons who are seeking Part-Time employment and who are already in gainful Part-Time or Full-Time employment;
 - Part V - For the registration of persons who are refugees on the same conditions of Part 1 Registrants.
- Graduate Unemployed monthly;

- Gainfully Occupied Reports monthly (Full-Time and Part-Time, Part-Time only and Part-Timers holding a Full-Time job) by Age group and by NACE;
- Inflows and Outflows in Employment;
- Redundancies monthly and weekly;
- Persons on schemes monthly;
- Malta Enterprise Report (all employers with the number of employees).

The NAO suggests that all the above mentioned automated scripts are replaced by a Business Intelligence tool that can be used by the Labour Market Intelligence Unit for all the reports needed.

REPORT TITLE	.pdf	.txt	.prt
F/T and F/T with P/T CLASSIFIED BY LOCALITY & AGE	eomrep01	textfile	prtfile
F/T and F/T with P/T CLASSIFIED BY OCCUPATION	eomrep02	textfile	prtfile
F/T and F/T with P/T CLASSIFIED BY OCCUPATION & AGE - MALTA	eomrep03	textfile	prtfile
F/T and F/T with P/T CLASSIFIED BY OCCUPATION & AGE - GOZO	eomrep04	textfile	prtfile
F/T and F/T with P/T CLASSIFIED BY INDUSTRY & AGE - MALTA	eomrep05	textfile	prtfile
F/T and F/T with P/T CLASSIFIED BY INDUSTRY & AGE - GOZO	eomrep06	textfile	prtfile
F/T and F/T with P/T CLASSIFIED BY INDUSTRY & AGE - MALTA & GOZO	eomrep07	textfile	prtfile
F/T and F/T with P/T CLASSIFIED BY LOCALITY & AGE - MALTA	eomrep08	textfile	prtfile
F/T and F/T with P/T CLASSIFIED BY LOCALITY & AGE - GOZO	eomrep09	textfile	prtfile
F/T and F/T with P/T CLASSIFIED BY INDUSTRY & AREA -	eomrep10	textfile	prtfile
FULLTIME with PARTIME CLASSIFIED BY AGE GROUP	eomrep11	textfile	prtfile
FULLTIME with PARTIME CLASSIFIED BY OCCUPATION	eomrep12	textfile	prtfile
FULLTIME with PARTIME CLASSIFIED BY OCCUPATION & AGE - MALTA	eomrep13	textfile	prtfile
FULLTIME with PARTIME CLASSIFIED BY OCCUPATION & AGE - GOZO	eomrep14	textfile	prtfile
FULLTIME with PARTIME CLASSIFIED BY INDUSTRY & AGE - MALTA	eomrep15	textfile	prtfile
FULLTIME with PARTIME CLASSIFIED BY INDUSTRY & AGE - GOZO	eomrep16	textfile	prtfile
FULLTIME with PARTIME CLASSIFIED BY INDUSTRY & AGE - MALTA & GOZO	eomrep17	textfile	prtfile
FULLTIME with PARTIME CLASSIFIED BY LOCALITY & AGE - MALTA	eomrep18	textfile	prtfile
FULLTIME with PARTIME CLASSIFIED BY LOCALITY & AGE - GOZO	eomrep19	textfile	prtfile
FULLTIME with PARTIME CLASSIFIED BY INDUSTRY & AREA -	eomrep20	textfile	prtfile
P/T with F/T and P/T only CLASSIFIED BY AGE GROUP -	eomrep21	textfile	prtfile
P/T with F/T and P/T only CLASSIFIED BY OCCUPATION -	eomrep22	textfile	prtfile
P/T with F/T and P/T only CLASSIFIED BY OCCUPATION & AGE - MALTA	eomrep23	textfile	prtfile
P/T with F/T and P/T only CLASSIFIED BY OCCUPATION & AGE - GOZO	eomrep24	textfile	prtfile
P/T with F/T and P/T only CLASSIFIED BY INDUSTRY & AREA -	eomrep30	textfile	prtfile
PARTIME ONLY CLASSIFIED BY AGE GROUP -	eomrep31	textfile	prtfile
PARTIME ONLY CLASSIFIED BY OCCUPATION -	eomrep32	textfile	prtfile
PARTIME ONLY CLASSIFIED BY OCCUPATION & AGE - MALTA	eomrep33	textfile	prtfile
PARTIME ONLY CLASSIFIED BY OCCUPATION & AGE - GOZO	eomrep34	textfile	prtfile
PARTIME ONLY CLASSIFIED BY LOCALITY & AGE - MALTA	eomrep38	textfile	prtfile
PARTIME ONLY CLASSIFIED BY LOCALITY & AGE - GOZO	eomrep39	textfile	prtfile
PARTIME ONLY CLASSIFIED BY INDUSTRY & AREA -	eomrep40	textfile	prtfile
PARTIME with FULLTIME CLASSIFIED BY AGE GROUP -	eomrep41	textfile	prtfile

Figure 10: End of Month Reports

4.1.11 Apprenticeship Scheme

This application is used by the staff within the Apprenticeship scheme section to manage the information about employers, apprentices as well as the agreements between them.

This application (Figure 11) was developed internally using Java programming language. The NAO was informed that Java skills are very limited within the Corporation and thus maintenance of this application is limited.

During the course of this IT audit, the NAO observed that all the data being inputted in this system is also being inputted in a Microsoft Excel Sheet. The NAO was informed that this duplication of data inputting is considered necessary by the ETC since the data in this application is not reliable in terms of addresses and telephone numbers since these are loaded from the ETC's database and cannot be edited.

The NAO noted that this application is only being used to:

- View old data such as an apprenticeship of 10 years ago. This is because the data being kept on Microsoft Excel sheets does not keep track of data dating back 10 years;
- Track cases when an apprenticeship is inputted into the system but the Engagement form associated with that apprentice would not have been received;
- Track cases when an apprenticeship is terminated in the system but the Termination form associated with that apprentice would not have been received;
- Track cases when an apprenticeship would surpass its 3rd month and no contract details have been inputted. (A contract is made between an apprentice and his/her employer by the 3rd month of apprenticeship).

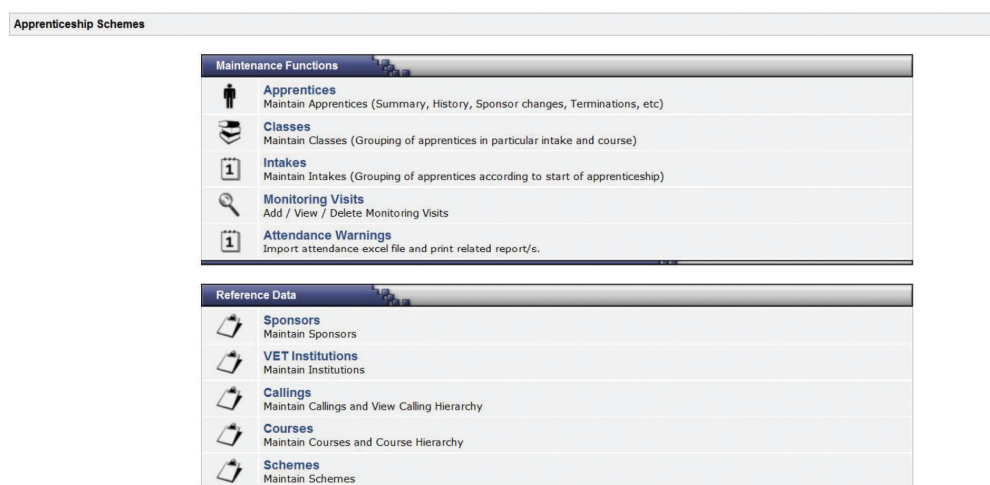


Figure 11: Apprenticeship Scheme

Whilst auditing this system, the NAO observed that:

- All apprenticeships in the system are closed one by one yearly and promoted to the next year. The NAO suggests that a new feature is introduced through which all open apprenticeships are automatically promoted to the following year;
- Upon successful completion of apprenticeships, every apprenticeship is individually closed on the system. The NAO suggests that a new feature is introduced whereby the officer inputting such data can close a batch of apprenticeships at the same time by inputting the ID number or any other unique identifier;
- The current system does not have any uploading facilities and thus Journeyman's Certificates, Monitoring forms and Apprenticeship agreements cannot be uploaded. The NAO noted that these are currently being scanned and kept separately on the server. The NAO suggests that an uploading facility is introduced within this system;
- The current system does not have a facility to input an employer name or an apprentice which is not registered on the HRIU system. The NAO suggests that this facility is introduced by at least allowing these records to be inputted provisionally and flagged to the HRIU for further action from their end;
- Presently some employers/sponsors have more than one sponsor number. The NAO suggests that all the data is filtered and cleaned accordingly;
- Reports are currently being issued by performing queries on the data inputted in Microsoft Excel, since the system has no reporting capabilities. Other monthly and weekly reports (listed hereunder) are currently being generated by the IT Unit and e-mailed to the officer concerned. The NAO suggests that the below listed reports would be available through the system:
 - List of apprentices with no contract (monthly);
 - List of apprentices who exceeded or on the verge of exceeding the 20% grace period of unplaced status (monthly);
 - Automated letters or e-mails to employers who have not yet submitted the apprentice's Engagement form. For those employers who have an e-mail address inputted on the system, an automated e-mail is sent directly to them whilst those employers who do not have an e-mail account, a letter is generated (in .PDF format) and sent to the ETC official concerned for printing and mailing (monthly);
 - Information on apprentices who commenced new employment but do not match with their sponsor. Through this report, the ETC officials are notified if the apprentice changed his/her sponsor without notifying the ETC, if s/he commenced a full-time employment and abandoned the scheme without notifying the ETC or if s/he commenced a part-time employment (weekly).

Furthermore, the NAO noted that this system has an audit trail functionality and can only be accessed through a login and a password. However, the NAO noted that the login and password are not compliant with the Government's Password Standard and Policy. In this regard, the NAO suggests that this policy is implemented.

Moreover, the NAO noted that no user manual of the system was done, however, the NAO is aware that this system is a very simple to use and can be followed through one's intuition. The NAO however, recommends that as per best practice, a simple user manual is compiled.

The NAO observed that although this system was backed up adequately, test restores from such backups was not documented and thus could not be ascertained. The NAO recommends that such restores are done periodically and documented on a log book.

4.1.12 Employment Licenses Database

This application enables the management of employment licenses, including information about applications for employment licenses, the related employers, related citizens and their different license applications as well as statuses.

The Employment Licenses Database (Figure 12) was developed internally using Java programming language. However, the NAO was informed, that Java skills are very limited within the current IT Unit and since this application was modified a number of times it has now become very difficult to maintain.

The NAO noted that although a User Manual for this application does not exist, the section using this application drafted a very comprehensive operating manual that includes a thorough explanation how this IT system should be used. This manual also includes screen shots and a detailed explanation of all the data that needs to be inputted in the respective fields.

The NAO noted that according to Legal Notice 160, issued in May 2014, the Director of Citizenship and Expatriate Affairs is now expected to issue a "Single Permit as regards Residence and Work". In light of this legal notice, the NAO was informed that residence permits will now be issued by the Director of Citizenships. However, there will still be a number of Employment Licenses (estimated to be around 50% circa 3500 yearly), which would not fall under this act and thus it is likely that the ETC would still be the entity issuing such licences. The NAO suggests that a business process re-engineering exercise

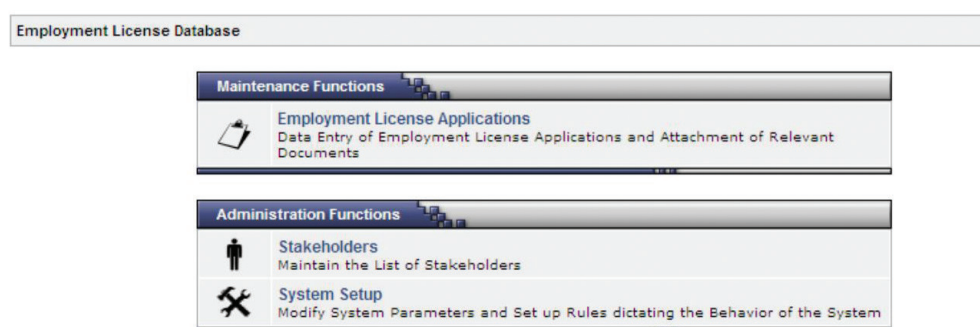


Figure 12: Employment Licenses Database

is carried out, incorporating all stakeholders to evaluate whether the Employment licences that would not fall under the remit of this Legal Notice would be issued by the ETC. If so, all the stakeholders must decide whether the ETC would process these applications using the current software or whether it would be more viable for the ETC to process such applications using the same IT system as the Employment licences issued as part of a Residence permit. The ETC should also consider the above in view of the fact that the current system:

- Is a stand-alone application that does not integrate with any other entity (about 20) involved in issuing an Employment Licence such as the Police, Health authorities etc.;
- Has a very complex, time-consuming business process that requires the processing of large amounts of manual data;
- Does not follow the Government's Password Standard and Policy;
- Has no reporting capabilities. Similar to other systems, reports are currently being issued by the IT Unit using automated scripts and ad-hoc scripts depending on the needs of this Unit.

4.1.13 NEA Appeal System

Registered Unemployed Persons who for some reason or another are struck off Part 1 of the register, thus losing the entitlement to benefits are given the right to appeal to the NEA. The NEA Appeal System provides ETC officials with the ability to manage this information, prepare the required information and present the ETC case to the NEA.

This minor application was developed internally by the IT Unit using Java programming language. The NAO was informed that although Java skills are very limited within the Corporation's current skill set, this application is considered as stable and thus the need to replace this system is not an immediate necessity.

During the course of this IT audit, the NAO interviewed a number of ETC officials using this application and noted that:

- The business process necessitates access to the individual's Termination form which were inputted in the HRIU system. The NAO observed that the NEA appeal system does not have the functionality of importing the Termination forms from the HRIU system and thus the ETC officials need to access both systems to process an appeal. The NAO recommends that the ETC considers adding a feature through which one can import all the Termination forms of an individual from the HRIU system;

- Whenever a Termination form has not been submitted, the NEA Unit is informing the HRIU Unit to take action as necessary. The NAO suggests that if both applications are integrated as highlighted earlier, the NEA Appeal system could automatically generate an e-mail to the HRIU and to the individual concerned to submit the Termination form;
- Presently reports detailing the:
 - The reason for “strike off” cannot be issued and the Unit concerned is currently keeping a monthly spreadsheet detailing all the cases and the reasons for “strike off” such as “did not attend interview”, “change of termination reason”, “registered as a Director” etc.;
 - Follow-up of cases cannot be issued through the system and thus the Unit is currently keeping a monthly spreadsheet in Microsoft Excel and inputting the number of cases upheld by the clients, withdrawn, abandoned etc. The NAO recommends that this system is enhanced to include adequate reporting capability and eliminating the need of duplicating work and keeping separate spreadsheets;
- Although the current system has an audit trail functionality and can only be accessed using a login and a password, the system does not abide with the Government’s Standard and Password Policy;
- The current system is being backed up on a regular basis however this could not be ascertained by the NAO as no backup logs were kept. The NAO therefore recommends that the ETC keeps a log documenting all backups;
- The ETC stated that test restores was done however, the NAO did not find any documentation to sustain this claim and thus recommends that periodic test restores are performed and documented in a log book.

4.2 Web

4.2.1 ETC Website

The ETC has a website with the following Uniform Resource Locator (URL) www.etc.gov.mt. The website front-end is hosted at MITA whilst the back-end is hosted at the ETC.

The ETC website was launched in November 2011 and offers a number of e-Services for both the jobseekers and employers. It also provides information related to employment schemes, apprenticeship schemes, employment aid programmes and training.

During the course of this IT Audit, the NAO reviewed the ETC website and noted that:

- The “e-Government have your say” icon is pointing to a page that does not exist and thus resulting in a broken link;
- The Research and Reports Page under the Resources tab is not updated. The list of reports that can be downloaded from this Page are the reports issued until 2011. The NAO suggests that this list is updated accordingly;
- The Links Page under the Resources tab contains:
 - A link to the “Green Jobs” site, a domain which was disabled and thus inaccessible;
 - Broken links entitled “Ministry for Education and Employment” and “Malta Qualifications Council”;
 - A link entitled “Private Recruitment Agencies (as at October 2012)”. The NAO suggests that this list is updated.
- The Forms Page under the Resources tab does not include a link to any of the ETC’s e-Forms. The NAO suggests that these are included;
- The News Page contains outdated news such as news informing clients that the ETC branches would be closed on a particular day. The NAO suggests that such news items are removed after their due date;
- The secure area of this website can either be accessed through E-ID or using a login/password issued by the ETC. The NAO recommends that the login and password follow the Government’s password policy;
- When logging in as an Employer, employers have access to view all the records of jobseekers who have subscribed with the ETC website and submitted a job preference. The NAO, recommends

that the ETC should evaluate whether it could hide the personal details of jobseekers to avoid situations where an employer finds out that his/her employees are searching for an alternative job;

- Users inputting erroneous data in this website are not being clearly notified accordingly. The NAO therefore suggests that errors such as “Invalid date”, are highlighted to the user in a clear way such as putting a statement in a red font stating “Invalid date. Please re-enter”;
- The website is currently loading a system error whenever a user inputs an employer’s identification number (PE number) that does not match the employer’s name linked to that PE Number. The NAO suggests that the website loads a message informing the user accordingly and allowing him/her to edit the data;
- The website has a facility through which e-ID users can submit a Self-employed Engagement Form. The NAO suggests that such e-Services are extended to allow an e-ID user to submit a self-employed Termination Form;
- This website does not include a help facility. The NAO notes that the Corporation’s website is albeit a very intuitive website and the Help facility need not be an extensive one;
- The website does not include a printer friendly version of pages that are likely to be printed.

The NAO suggests that the ETC rectifies the above-mentioned problems and engages in a study to evaluate the user friendliness of its website amongst its target audience.

The NAO noted that the ETC has one official who is in charge of updating all its web content and supporting the general public using the ETC’s online services amongst other duties. The NAO suggests that the ETC trains another person on website administration/support.

4.2.2 EURES Website

The ETC is also responsible for the European Employment Services (EURES) Malta website that can be accessed using the following URL www.eures.com.mt. This website is hosted at ETC.

The purpose of this website is to provide information, advice and recruitment/placement (job-matching) services for the benefit of workers and employers as well as any citizen wishing to benefit from the principle of the free movement of persons in Europe.

Whilst reviewing this website, the NAO noted that:

- The logo displayed on this website is still portraying the 15th anniversary when this year it is the 20th anniversary;
- The “What is EURES” page is showing outdated information;
- The “Events Diary” page loads an error;
- The “Documents and Resources” page has a number of broken links ex. the “Immigration Regulations” PDF document could not be downloaded;
- The “Documents and Resources” page includes links to EURES Malta newsletters however, the most recent one dates back to May 2010;
- The “Documents and Resources” page includes links to EURES Malta Annual Reports however, the most recent one dates back to 2008-2009;
- This website does not include a help facility. The NAO notes that this website is albeit very intuitive and the Help facility need not be an extensive one;
- The website does not include a printer friendly version of pages that are likely to be printed.

The NAO suggests that the ETC reviews this website and update it as per the above indicated findings.

However, the NAO observed that the European Commission has its own EURES website <https://ec.europa.eu/eures/page/homepage?lang=mt> through which a user can select a European Country and load all the details in his/her own language and access the information pertaining to his/her country . The NAO therefore suggests that the ETC analyses the need of the EURES Malta website and decides whether it is feasible to retain and update this website. The ETC may also decide to keep its EURES domain (www.eures.com.mt) and point it to the European Commission EURES Website.

4.2.3 Content Management System

This system was procured from a third party supplier and is used to manage the content of the ETC website (www.etc.gov.mt). Through this Content Management System (Figure 13) the ETC can upload new content on its website or edit the existing content.

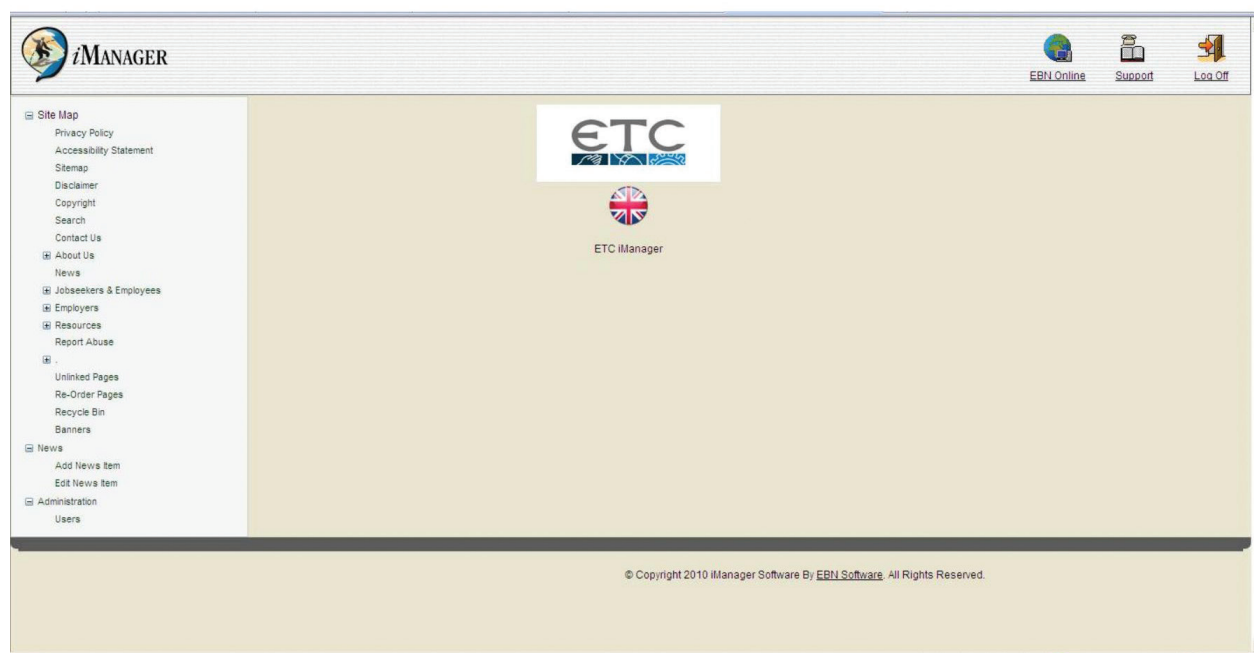


Figure 13: Content Management System

During the course of this IT audit, the NAO reviewed this system and noted that:

- Files uploaded on the ETC website cannot be deleted;
- Files/content cannot be uploaded with a pre-defined date as to when it is made visible. i.e. The Content Management System does not allow the website administrator to upload website content, such as a news item, and make it visible as from a pre-defined future date;
- When inputting a news item, if the user does not input a date the CMS loads a system error and the user would have to start inputting the news item from scratch;
- Although there are several user accounts, only one user account is being used. Furthermore, the NAO observed that this same user account is being used by two ETC officials. The NAO noted that upon becoming aware of this issue, the ETC IT unit tried to rectify this matter by creating a new user account and changing the password of the account in use however, this was not possible as the CMS was loading an error.

The NAO suggest that the ETC liaises with the supplier of this system to address the above-mentioned findings.

4.2.4 Facebook

The NAO notes that nowadays various entities regularly rely on social media to engage with their customers. Social Media has integrated technology, social interaction and content creation to collaboratively connect online information. Through social media, people or groups can create, organize, edit, comment on, combine, and share content.

The NAO recognises that social media may help entities in achieving their mission and if leveraged to its fullest, may create the opportunity for greater collaboration between entities and departments, help management in decision making, engender more experimentation and be a tool through which an entity gets timely responses from the public.

The ETC has recognised the potential of social media as a modern communication channel and set up a Facebook page (Figure 14) to market the ETC. This page was set up on the 24th March, 2014 and has over 650 likes. It is most popular with the 25-34 year old age group.

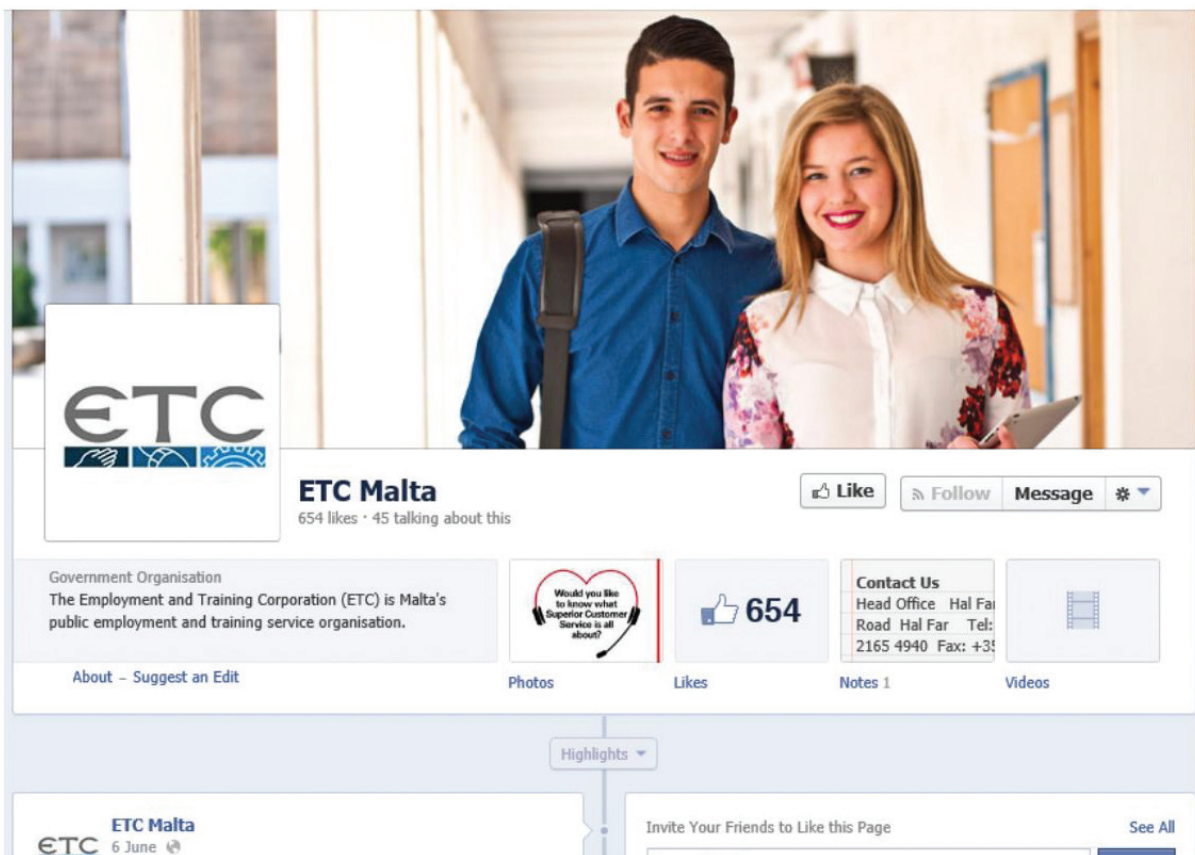


Figure 14: ETC Facebook Page

4.2.5 Intranet

The ETC has an Intranet that is accessed by the Corporation's employees and contains all the information that the employees require, along with access to ETC's software applications. The ETC Intranet (Figure 15) can be used as a desktop organiser through which employees' access the:

- ETC's calendar of events;
- Newspaper articles related to the ETC;
- Resources calendar showing the use of ETC's common resources, such as the fleet of cars etc.;
- Information about all the books that are available at the ETC's library including information indicating who has borrowed a particular book and the expected return date;
- Canteen's Menu; and
- Participate in online internal polls or surveys.

The NAO noted that the CDR query function incorporated in this Intranet is currently not functioning. The NAO suggests that prior to addressing the issues related with the functionality of this query function, the ETC examines the need of such a function and ensures that such data is only made available to its employees on a need to know basis.

The NAO noted that this Intranet system was procured and is currently maintained by a third party supplier and hosted on ETC's servers. Although the ETC informed the NAO that agreement is in place in actual fact this was not made available to the NAO for review.

During the course of this IT audit, the NAO noted that this Intranet offers great potential to the ETC management and staff however, it is currently under utilised. The NAO therefore suggests that the IT unit informs all the users about the features and information included in this Intranet with the aim of making the users aware of this system's full potential.

ETC
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Home

Enhancing employability by recommending policies and implementing initiatives aimed at empowering, assisting and training jobseekers to facilitate their entry or re-entry into the active employment market, promoting workforce development through skills and competency development, and by assisting employers in their recruitment and training needs.

Events Calendar

May 2014

M	T	W	T	F	S	S
28	29	30	1	2	3	4
		08:30 Ba 09:00 Ent		ETC Mtg		
5	6	7	8	9	10	11
		09:00 - 1 Baxter R				
12	13	14	15	16	17	18
		09:00 Ba 09:30 Ca	09:30 - 1 Career V	09:30 - 1 Career V		
19	20	21	22	23	24	25
		09:00 - 1 HSBC Ct				
26	27	28	29	30	31	1
						1

Add

Notice Board

Title Category

There are no items to show in this view of the "Notice Board" list. To add a new item, click "New".

Document Archive

Name Category

Job Seeker Advisory Information
Human Resources

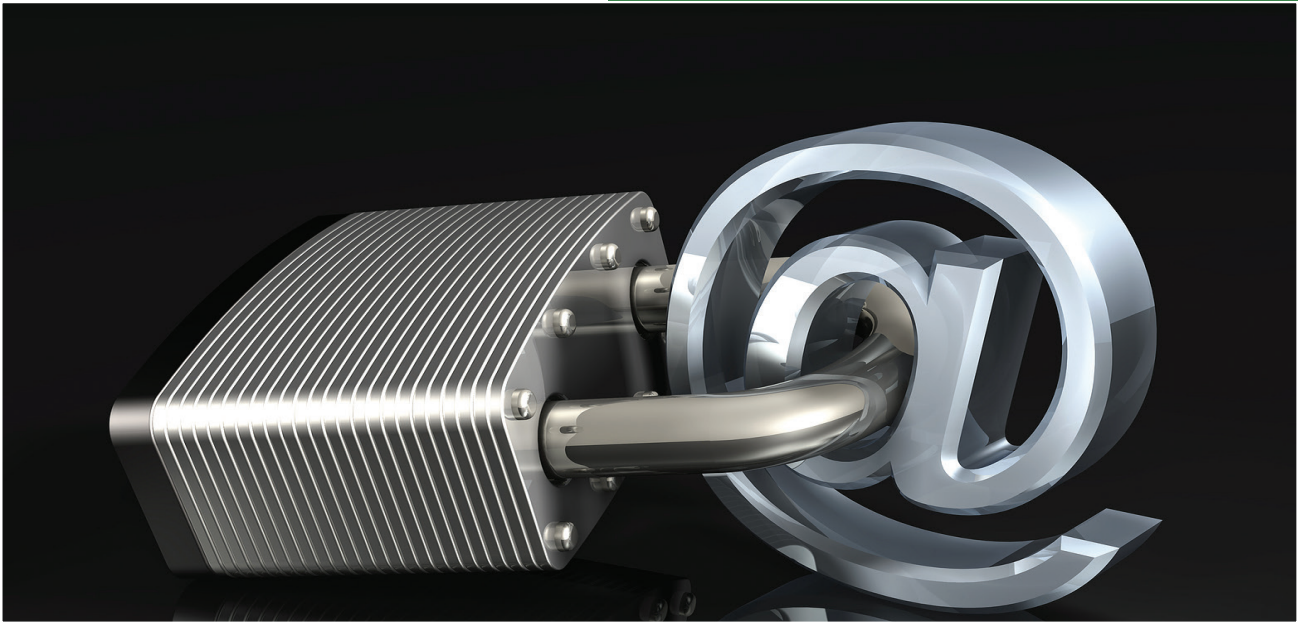
Shared Folders

Applications

- InfoCentre
- HRIU System
- Profiling & Matching System
- Caseloads
- Law Compliance System
- Employment Licence Database
- Apprentice Schemes System
- NEA Appeals System
- Chat / Picture View
- Verification Application
- Data Analyser
- Database Administration
- MITA E-Mail Server
- IT Helpdesk
- Client Program Download
- HRMS
- Manage Internet and Mail Password
- Change UNIX Account Password

Media Gallery

Figure 15: ETC Intranet



Chapter 5

IT Operations

Chapter 5

IT Operations

5.1 Anti-virus software

During the course of this IT audit, the NAO noted that the ETC has Symantec Endpoint Protection (SEP) installed on all workstations and servers.

Besides a managed Anti-Virus Software and Anti-Spyware product, SEP also provides several lines of defence through its managed Intrusion Prevention System and Firewall. Furthermore, it provides Application and Device Control. All these features are instrumental in supporting the governance of ICT policies.

Moreover, SEP prevents any workstation from connecting to more than one network simultaneously, thus eliminating the risk of network bridging.

This software is updated automatically by MITA.

Although MITA is responsible for providing all the necessary support, maintenance and updates with reference to SEP, the NAO recommends that the ETC requests a periodic report (i.e. every six months) from MITA, to verify that all computers within the ETC are being updated with the latest Anti-Virus software definitions. There may be instances whereby either because a computer is disconnected from the network or SEP is not functioning properly, the Anti-Virus software updates are not installed on a particular computer. In this regard, the ETC should be in a position to periodically ensure that this is not occurring.

Furthermore, the NAO recommends that the ETC requests a quarterly report from MITA, that would indicate which computers were infected with malware and if the malware was removed or not. This report would help the IT Unit identify and take any necessary actions needed in the event that the same computers are being affected by malware. In this scenario, the ETC should educate the users and take the necessary measures to prevent similar instances, as this might pose a risk to the network infrastructure within the ETC.

The NAO noted that in view of the fact that MITA will not be renewing the SEP Anti-Virus licence, the ETC is currently liaising with MITA so as to install a managed SCCM system. The NAO however, noted that as to date no decision has been taken regarding the Anti-Virus solution to be installed on ETC's servers.

5.2 Patch Management

With the rise of malicious code targeting known vulnerabilities on unpatched systems and the resultant negative affects incurred by such attacks, patch management has become a pivotal process within an organisation's list of security priorities.

Operating system manufacturers usually provide regular product updates. These are classified as security or critical updates to protect against vulnerabilities to malware and security exploits. Security updates are routinely provided by the manufacturer on a monthly basis or can be provided whenever a new update is urgently required to prevent a newly discovered or prevalent exploit targeting Windows users. There are mainly three different kinds of updates:

- **Hotfixes** are used to make repairs to a system during normal operation, even though they might require a reboot. This allows the system to continue normal operation until a permanent repair can be made. Microsoft refers to a bug fix as a hotfix. It involves the replacement of files with an updated version;
- **A service pack** is a comprehensive set of fixes consolidated into a single product. It may be used to address a large number of bugs or to introduce new capabilities in an Operating System. When installed, a service pack usually contains a number of file replacements;
- **A patch** is a temporary or quick fix to a program. Patches may be used to temporarily bypass a set of instructions that have malfunctioned. Unfortunately, a patch may add the potential for new problems. Most manufactures would rather release a new program than patch an existing program.

To mitigate risks related to malware and security exploits, the NAO observed that the ETC adopts two different approaches when applying patch management on servers and workstations. Whilst all workstations have been configured to automatically download and install product updates through the Microsoft Windows update tool, the IT Unit deploys product updates manually on the servers maintained by them.

The NAO recommends that as best practice, a hotfix or a service pack is initially deployed on a testing server and then deployed on the other servers if no abnormal behaviour was observed. The IT Unit should ensure that the server is backed up successfully, prior to installing any security or critical update.

5.3 Back-ups and Off-site Storage

The NAO observed that the ETC is currently using a SAN to backup its servers. Furthermore, the NAO was informed that the ETC intends to use an existing tape library to backup the data residing on this SAN on a number of tapes and then store these tapes in its disaster recovery site. The NAO commends this proposed solution and recommends that the ETC adopts a sound backup and restore plan such as the “Grandfather-father-son” back-up methodology. This latter method uses a rotational system of three sets of back-ups as detailed below:

- The daily back-up - done on the “son tapes”;
- The weekly back-up - done on the “father tapes”; and
- The monthly back-up - done on the “grandfather tapes”.

The NAO observed that no back-up logs are being kept to record whether a back-up has failed or completed successfully. Furthermore, the NAO could not ascertain that backups of all physical and virtual servers were actually being taken on the SAN. The NAO suggests the ETC does a full detailed review of its backup processes and ensures that a full backup of all physical and virtual servers is being taken. Moreover, the NAO suggests that backup logs are kept and seen to regularly.

The NAO recommends that the ETC considers having an off-site storage facility in one of its branches so as to have a backup stored in a safe place that is away from Hal Far.

5.4 Electronic mail and Internet Services

The NAO considers e-mail and Internet Services as mission critical services and principal vehicles for electronic communications both within the ETC and with external entities.

The ETC’s e-mail and Internet services are being provided by MITA through the Government’s communications backbone, MAGNET. In this regard, the NAO observed that the ETC has implemented the e-mail and Internet services directive that was issued by the former Central Information Management Unit (CIMU) in 2003.

The NAO observed that all ETC employees were provided with a Government e-mail. The NAO noted that ETC had an acceptable usage policy that discouraged the personal use of e-mail, which is only allowed in exceptional cases, provided that this does not interfere with performance and does not compromise the Corporation’s integrity or image.

Similarly, all ETC employees were provided with an Internet account. The NAO noted that the ETC holds all its employees responsible and accountable for their Internet activities. Even though an adequate filtering technology is being used by MITA, to prevent access to illegal material, every employee should ensure that his/her account remains secure. Employees are thus responsible for safeguarding their passwords and must not use someone else’s password.

MITA maintains the right to monitor the volume of Internet and network traffic, together with the Internet sites visited by a particular user within the ETC. The specific content of any transaction is not monitored unless there is a suspicion of improper use. In addition, an e-mail sent through the MAGNET that utilises or contains invalid or forged headers, invalid or non-existent domain names or other means of deceptive addressing will be deemed to be counterfeit. To this effect, any attempt to send or cause such counterfeit e-mails to be sent to or through the MAGNET is unauthorised.

The NAO suggests that the ETC should periodically remind its employees about the salient points highlighted in the e-mail and Internet services directive especially the restrictions on use of e-mail and Internet services as reproduced in **Annex E**.

5.5 Multi-Function Printers

The NAO noted that the ETC has a number of multi-function printers both at its main premises in Hal Far and at the ETC's branches around Malta and Gozo.

The NAO noted that these machines are made up of a combination of printer, scanner, photocopier and have the capability of printing double sided, scan documents and e-mail them automatically etc.

During the course of this IT audit, the NAO noted that the location of some of these multi-function printers may not be ideal in terms of data security. The NAO recommends that these printers are removed from corridors and relocated to enclosed areas which could not be frequented by members of the general public.

The NAO observed that the ETC was phasing out stand-alone printers and shifting to the sole use of multi-function printers. The NAO encourages such an initiative as this lessens future maintenance costs in servicing, supporting and purchasing consumables for such a large number of stand-alone printers. Furthermore, the ETC senior management would be able to control and manage printing as it would know what is being printed and which users are engaging in heavy printing. Such a move also reduces energy consumption and in the long run reduces purchasing costs of stand-alone printing and scanning equipment.

The NAO recommends that the ETC configures all these multi-function printers enabling all features of such machines including scan to e-mail and secure printing, where applicable. The NAO also recommends that the ETC configures the management protocols of these printers enabling management to audit the files being printed. Such software would offer real-time activity logs ensuring that there is no misuse of the equipment and controlling the personal data being printed by members of staff.

Furthermore, the NAO suggests that the ETC assigns a predefined range of IP addresses for printers and print servers and reserve an IP address for every device in the Dynamic Host Configuration Protocol (DHCP) pool, to prevent running into IP conflicts, therefore avoiding unnecessary waste of time on ETC IT Unit searching the physical location for any conflicting IP addresses.

5.6 Physical Security

The NAO deems physical security to be the foundation of any overall security strategy. Physical security measures are aimed to prevent a direct attack on the entity's assets or reduce the potential damage or injuries that can be inflicted should an incident occur.

5.6.1 Stored Documents

The NAO noted that the ETC has two archives however, these are full and documents are currently being kept in various filing cabinets housed in offices and other rooms around the buildings. The NAO suggests that the ETC goes through its archives with the aim of getting rid of obsolete documents or documents which are no longer needed.

Furthermore, the NAO recommends that as a best practice, employees should be asked to:

- Keep filing cabinets locked at all times;
- Label all the documents and files in such a way that these can easily be found; and
- Shred any unwanted or extra documents which are no longer needed.

5.6.2 Server Room

An organisation's server room is the heart of an entity's physical network. Anyone with malicious intent that gains unauthorised access to the servers, switches, routers, cables and other devices found in that room can do enormous damage.

As detailed in Section 2.6, the ETC has migrated all its servers into a purposely refurbished server room that is equipped with adequate security.

The NAO however recommends that physical security is improved in the disaster recovery server room. The NAO suggests that the ETC ensures that access to this room is restricted and a log is kept recording who accessed the room with the date and time. The NAO also recommends that this room is kept clean and free from clutter. In this regard, the NAO suggests that the current document repository being kept in this room is relocated elsewhere.

5.6.3 Buildings

The NAO noted that the ETC has implemented a number of physical security measures throughout its buildings namely:

- A CCTV system which monitors entry and exit at the Training Centre;
- 24 x 7 Security personnel;
- A visitor's policy is in place (at the ETC Main building) whereby the security personnel must log visitor details, which will include name, company, reason for visiting and the date and time of entry and departure. Furthermore, every visitor is provided with a visitor's tag, which must be returned before leaving the premises;
- Smoke detectors are installed throughout the building. These are inspected and tested regularly by the supplier;
- Fire extinguishers are available at various points throughout the building. Fire extinguishers are also inspected on a regular basis by a local supplier;
- Two back-up generators are available. These generators are regularly serviced and tested by ETC officials.

Whilst commending all the above measures, the NAO noted that the visitor's policy is not applied at all times and visitors are sometimes allowed access to the building without registering. The NAO therefore suggests that the security personnel are made aware of the importance of the visitors register and ensure that all visitor entries are logged.

The NAO also observed that the ETC has converted a conference hall into a make-shift open place office for temporary staff. The NAO noted that since this conference hall was not equipped with an adequate number of network points to cater for all the temporary staff, the network cabling was laid out around this hall to provide the necessary connectivity. The NAO recommends that this network cabling is enclosed in proper trunking.

During the course of this IT audit, the NAO also held a number of site visits in ETC's branches and observed that overall these lack in a number of physical access controls. In this regard, the NAO noted that:

- The panic button in a number of these offices was not working. This electronic device was designed to assist in alerting the nearest police station in an emergency situation where a threat to safety of clients and staff exists. The NAO recommends that these devices are seen to as soon as possible;

- Most of ETC's branches are at street level with windows and doors easily accessible. Furthermore, the NAO noted that most main doors are made from a simple wooden frame and glass panels. The NAO suggests that the ETC considers installing a security alarm in all its branches. Furthermore, the NAO suggests that the ETC considers installing metal bars in such windows and adding a metal shutter to such doors;
- Power sockets in some branches was being overloaded with power extensions, which are a threat as these might cause a short circuit or fire. The NAO therefore suggests that the ETC educates its staff in this regard and provides an adequate number of power points;
- An ATM machine is housed in one of the ETC's offices. The NAO was informed that since the ATM machine would need to be un/loaded with cash, keys to this ETC branch were also given to the third-party security firm in charge of maintaining this machine. The NAO suggests that this office is divided with a gypsum partition that would enable a separate access to the ATM machine;
- A number of these branches are being manned solely by one officer. The NAO recommends that the ETC considers installing CCTV cameras in such branches to be able to enhance security. These cameras should however be installed in such a way that maintains the officer's privacy.

5.6.4 Closed-Circuit Television

The NAO observed that the ETC has installed a CCTV system in its training centre and in its new server room. The NAO noted that these CCTV cameras record any movements on a hard disk. Recordings of approximately one month are generally available and are accessible to senior management only.

During site visits at the ETC Training centre, the NAO noted that the CCTV installed in this building was not functioning. The NAO therefore suggests that management liaises with the security officer so as to determine the actual fault affecting this system and rectify this accordingly.



Chapter 6

Information Security

Chapter 6

Information Security

The NAO observed that the ETC has no formal documented Risk Assessments and Business Continuity and Disaster Recovery plans.

The NAO has however, noted that although the ETC has no formal documented plans, the IT Manager has discussed Business Continuity with both the IT Unit and Management. Moreover, the NAO noted that the ETC implemented a system through which its servers are currently being mirrored on a SAN. Furthermore, the NAO observed that the ETC was setting up a Disaster Recovery site which although is situated within the same premises it is however, housed in a different block from the existing server room.

The NAO suggests that a Business Impact Analysis and a Risk Assessment exercise are carried out from which a Business Continuity plan that includes a Disaster Recovery plan is drafted.

6.1 Business Impact Analysis

Business Impact Analysis is an analytic process that aims to reveal business and operational impacts stemming from incidents or events. A Business Impact Analysis should lead to a report detailing likely incidents and their related business impact in terms of time, resources and money. This report should basically give an understanding of the impact of non-availability of the systems on the business (in various dimensions such as loss of revenue, loss of profits, inability to comply with statutory norms, damage to reputation and image, etc.).

The business impact analysis is to be based upon information that is collected from the employment advisors, Heads of Departments and other key persons within the ETC. The information could be collected using different approaches. One of the popular approaches is the questionnaire approach whereby a detailed questionnaire could be circulated to key users in IT and to the end-users. Another alternative is to interview groups of key users. The information gathered during these interviews or from the questionnaire response is to be tabulated and analysed so as to develop a detailed business impact analysis plan and strategy.

The NAO recommends that the ETC lists and reviews its critical and non critical functions. For each critical function, the ETC should then determine the:

- **Recovery Point Objective** - the acceptable latency of data that will be recovered ensuring that the Maximum Tolerable Data Loss is not exceeded; and
- **Recovery Time Objective** - the acceptable amount of time to restore the function ensure that the Maximum Tolerable Period of Disruption for each activity is not exceeded.

After going through this process, the ETC should then determine its recovery requirements, which will consist of the following information:

- The business requirements for recovery of the critical function; and/or
- The technical requirements for recovery of the critical function.

6.2 Risk Assessment Exercise

The NAO is of the opinion that a cost-effective Business Continuity and Disaster Recovery plan need to be part of a disciplined risk management approach, which should include an analysis of business processes and the risks that these processes are exposed to. An entity, that fails to identify its risks or processes, can neither manage the risks nor realistically plan for their consequences. A realistic risk assessment is therefore vital for the cost-effective management of the ETC' risks.

The NAO recommends that the ETC identifies and documents its risks, taking into account all types of threats that can impact the ETC' business. Fires, floods, acts of terrorism/sabotage, hardware/software failures, virus attacks, Denial of Service (DoS) attacks, cyber crimes and internal exploits are all examples of the types of threats that are to be analysed assigning a probability assessment value to each.

The ETC should then document the probability assessments and devise alternative solutions that may be deployed to mitigate the risk to the business and the potential costs associated with each solution.

6.3 Business Continuity and Disaster Recovery Plans

The ETC should also have a formal and documented business continuity and disaster recovery plan designed to reduce the impact that disruptions might inflict on the entity's operations.

The Business Continuity Plan defines the roles and responsibilities and identifies the critical IT application programs, operations systems, networks, personnel, facilities, data files, hardware and time-frames required to assure high availability and system reliability based on the inputs received from the Business Impact Analysis and Risk Assessment exercise.

In this regard, the ETC should draw up a formal Business Continuity Plan that should:

- Include a list of essential hardware, software and information;
- Identify an alternate site from which to resume operations;
- Preferably include details of manual processes that could temporarily maintain operational functionality for each business process in the event of a total IT system collapse;
- Include a complete Disaster Recovery Plan that amongst others lists the access rights granted following a restore;
- Include a plan that details how to restore operations to normality;
- Identify which resources would be available in a contingency stage and the order in which these will be recovered;
- Identify the key persons responsible for each function in the plan;
- Identify the methods of communication amongst the key persons, support staff and employees to be adopted during recovery of services;
- Be documented and written in simple language and understandable to all;
- Be periodically tested and updated so as to ensure it is kept current;
- Be stored in hard-copy and soft-copy format both on-site and off-site; and
- Be distributed to members of staff, Head of Sections etc. (any confidential information should only be given to key persons on a need to know basis).

As part of the above-mentioned Business Continuity plan, an entity should develop a series of Disaster Recovery plans dealing with the process of rebuilding the operations or infrastructure and recovering the entities' business applications following a disaster.

The Disaster Recovery plan should stipulate the procedures that are to be taken into account in the event that the IT facilities become inoperative due to extreme incidents. It should also document the recovery approach, the recovery time objectives and the sequence of events including the pre-requisites, the dependencies and the responsibilities assigned to every individual involved in the plan.

Apart from having a Disaster Recovery Plan, the ETC should ensure that the SLAs it has with its suppliers cater for an adequate and timely maintenance, support and Business Continuity.

6.4 Security Awareness Training

One of the greatest threats to Information Security could actually come from within the company or organisation. Inside 'attacks' have been noted to be some of the most dangerous since these employees are already quite familiar with the infrastructure. It is not always disgruntled workers who are a threat but quite often it is the non-malicious, uninformed employees.

The NAO acknowledges that one of the best ways for an entity to improve information security is by raising awareness, training and educating everyone who interacts with its computer network, systems and information about the basics of information security.

The NAO recommends that such training initiatives can be offered as part of the induction session given to new employees and should also be part of an ongoing programme that seeks to ensure that all users are familiar with the Information Security policies and best practices that govern the use of IT assets. Awareness on security policies and best practices is normally communicated through the use of e-mails, publication of leaflets and handbooks or communicated verbally, to ensure that information is conveyed to the appropriate users in a timely manner.

Furthermore, the NAO suggests that the ETC issues a set of computer security awareness guidelines for staff, trainers and trainees. The aim of such guidelines should be to:

- Guide users how to protect their computers and their personal information;
- Inform the users about the security risks of the Internet and highlight the appropriate actions that should be taken to reduce those risks;
- Explain how the network is set up whereby all the websites are being filtered and those deemed as unsuitable or undesirable are blocked;
- Give some useful information on the proper use of e-mail, on how to avoid phishing, not to open any executable files and suspicious attachments and not to subscribe to unnecessary or unverified mailing lists;
- Provide hints on how to safeguard passwords, user accounts, etc. and prohibit the sharing of logins and passwords.



Chapter 7

Management Comments

Chapter 7

Management Comments

The following comments were submitted by the ETC by way of Management Comments.

The Management of the Employment and Training Corporation thanks the National Audit Office for the undertaking of such an extensive audit of its Information Technology functions. The NAO findings and recommendations will surely be examined in detail so that ETC reaps maximum benefit from them in improving its business processes and IT support to such processes.

Our initial reactions are mentioned below.

The main findings and corresponding recommendations of the NAO are that:

- a. ETC does not have a formally documented ICT strategy and NAO suggested that ETC draws up such a strategy;
- b. The majority of staff save their data on their local workstation rather than saving it on personalised folders on the server. NAO suggested that ETC informs all employees of the assigned personal folders on the server and the importance of using such folders when saving their data;
- c. The NAO noted that the ETC has no system manuals and no user manuals for most of its IT applications and recommended their drawing up;
- d. The NAO observed that the ETC IT Unit does not keep track of all its IT hardware maintenance calls and software updates. NAO recommends that such details are captured;
- e. The ETC has procured a number of multi-function printers, which were not being used to their full potential. NAO recommended that the staff is informed of all the functions of these multi-function printers.

The IT audit reviewed 13 software applications used within the ETC, 11 e-Government forms, the ETC website and the ETC facebook page, in terms of ease-of-use, the security controls in place, account management, hosting services and backups. The main findings and corresponding recommendations are:

- a. The NAO noted that the vetting and approval processes of some e-Forms is directed to the same e-mail addresses implying that the two processes are handled by the same officer;
- b. The e-Forms are not being used and their functionality needs to be reviewed;
- c. The e-Forms can only be accessed from the Governmental portal and are not available through the ETC website;
- d. The ETC software applications do not adhere to password management best practises;
- e. The NAO noted that certain software applications:
 - i. do not match the internal business process;
 - ii. are not being utilised to its full potential;
 - iii. are causing duplication of work;
 - iv. do not meet the needs of the end user.
- f. The EURES Malta website was not kept up to date;
- g. The Content Management System is being accessed by two users sharing the same password.
- h. The ETC does not have the facility to delete the files uploaded on its website since the Content Management System does not cater for this functionality.

The report also includes a review of the entity's IT operations and NAO recommended that ETC:

- a. reviews all the features of the multi-function printers currently in use to ensure that they are fully utilised;
- b. keeps backup logs;
- c. improves physical security at its branches.

In regard to Information Security, the NAO suggests that a Business Impact Analysis and a Risk Assessment exercise is carried out so that a Business Continuity plan can be drafted.

ETC comments

The Corporation acknowledges that it does not have a formal ICT strategy. A yearly plan with planned projects based on ETC business processes priorities and other tasks is drawn up by the IT responsible and discussed with his Head of Division. ETC is in the course of procuring a Business Intelligence Tool that will empower users to produce data and conduct analysis without constant dependence on the limited IT personnel. It also plans to create a virtual labour market with a view to improving the jobseeker-vacancy matching process, revamp its website, reduce paper-based back-office processes through automation, have network redundancy and install monitoring systems. ETC agrees that an ICT strategy should be drawn up to support the corporate business plan. Once the latter is finalised, work will start on the establishment of a formal ICT strategy.

The IT Unit informs ETC users regarding personal folders on which to back up their data. However due to heavy staff turnover, new employees may not yet be aware of these facilities. Hence, ETC will inform all staff of this function regularly and of data security procedures. Moreover, staff will be trained how to use the multi-function printers so that full utilization is made of such printers.

The lack of system and users manuals is mainly due to the limited IT staff available which has also been identified by the IT Audit. Nonetheless, ETC will from now on enforce that the information gathered during the initial phase of the PLC together with the design details of the system are documented in a systems manual document. As for user manuals, training is always given to end users by IT personnel; it is felt that it would be more appropriate if such user manuals are developed by the departments/units operating the systems.

ETC is enforcing the use of the help desk function available to employees to log all their IT requests. An e-mail was again sent to remind all ETC users to use the Helpdesk application for all IT requests. The Helpdesk application was transferred onto a new server for better reliability. In this way, track can be retained of all requests and monitoring can be exercised while addressing these requests. Whenever employees request software updates, they will have to indicate:

- whether the request is ad hoc or part of a larger project, and details are to be given;
- whether the request is being done due to external factors or whether it is internally generated, giving details;
- whether the request is for the use of one division/department/section or for the use of all of ETC;
- the improvement to customer service that will be derived from the execution of the request;
- the impact on operations ex. elimination of manual procedures, consequent reduction of overheads, consequent reduction of personnel, etc;
- any other benefits to be derived.

Regarding update of anti-virus software, at MITA there is a dedicated section that monitors the antivirus status update. Whenever a PC is found not updated, MITA are drawing our attention to such a problem. ETC will in turn take action to upgrade the particular PC's anti-virus software.

A number of deficiencies were identified with the eleven eGovernment forms. The Corporation was requested to draw up these forms by MITA. Unfortunately, the process was very rushed with ETC operational personnel practically being given only a few weeks to design these forms, for ETC's IT function to liaise with MITA re these forms and to present them formally to MITA. Although this was a MITA project, IT and operational personnel at ETC were asked to liaise directly with the software provider identified by MITA in the process of developing these eforms. ETC users have highlighted various issues/problems to the software provider which unfortunately remained unaddressed. The consequence of all this are the findings being reported by the NAO re broken linkages, lack of user-friendliness in using them, non-proper error reporting, unintentional logging out, non-functional buttons, etc. The Corporation will be liaising with MITA to determine whether this initiative is being taken forward as originally planned and to seek MITA's assistance in addressing the identified shortcomings.

The NAO observed that most applications do not adhere to password management best practice. This is not fully correct. Login details on the new developed applications are the same login details users use to log in to the Windows domain with same security practice. Security practices such as password rules or password complexity, old passwords reuse, and reset password are already enabled. ETC feels that blocking access after a predetermined amount of unsuccessful tries will not be manageable considering ETC's circumstances. As for the old systems, the above mentioned password practices are not available (though access to these systems is still secure). Considering the fact that these systems are being phased out and access to these systems is still secure, ETC feels that no time should be wasted on upgrading the password practice on these old systems.

All procurement processes at ETC follow a standard process as outlined in the Public Procurement Regulations and in the internal procurement policy. Purchase requisition forms are in place and are always adhered to in respect of all purchases including IT purchases. With regard to purchases relating to IT related items, there is a special process since the IT budget forms part of the Capital budget which is managed by the Finance Division although authorised by the IT Manager.

Whenever ETC needs to dispose of unserviceable ICT equipment, the IT Unit issues a memo with the details of the equipment to be disposed off. This in turn is passed to management and a Board for the Disposal of Assets is set up. This Board examines the assets and makes a recommendation to the ETC Board of Directors for approval by the latter. Upon approval by the Board of Directors, the equipment is disposed off and removed from the inventory.

The NAO noted that the registration system software does not match the internal business process. The registration machines that are part of the system are frequently out of order and take a while until repairs are affected. In these circumstances, the process of registration is done manually and the ETC officials then need to input all these manual records into the system. ETC's position is that the software is actually addressing the business process; however, the system is more than twelve years old and the hardware needs constant repair or replacement. The Corporation is aware of this

issue and is considering the value added of replacing this system which is highly expensive. As for the manual data input this is enforced by ETC for control purposes.

The NAO observed that not all networking equipment is connected to an Uninterrupted Power Supply (UPS). ETC is planning to connect all its network components to UPSs. It is also considering investing in a network monitoring tool. It also noted that although the disaster recovery room is being kept under lock and key, access to this room is not being recorded. ETC is already working to acquire a biometric sensor and electric strike.

NAO's recommendations to have separate officers to vet and approve applications is agreed to as it ensures a continuity to the service as applications are not kept pending in the absence of a designated officer. The system will be changed not to allow the same person to vet and approve the application.

Comparing the new HRIU system with the old HRIU system, the new system is slightly slower than the old system. The new system makes use of web services to connect to the database while the old system connects directly to the database. Moreover, the new system has to load the whole graphics screen (user friendliness to user) whereas the old system does not load such graphics. The network connection to the Gozo Branch has been improved.

Frequent mention is made that agreements signed with third party providers were not seen by the NAO auditors. Agreements exist with all third party providers of software and are kept at the Finance Division. Service Level Agreements with maintenance and software providers are to be updated as recommended.

The NAO suggestions re the EURES website will be evaluated. A CMS application has been provided by the IT Unit to the responsible department for website updating.

The NAO observed that no back-up logs are being kept to record whether a back-up has failed or been completed successfully. Furthermore, the NAO could not ascertain that backups of all physical and virtual servers were actually being taken on the SAN. Very recently backup of application and data from live SAN server to backup SAN server started to be done from Veam software which is keeping log of the backup process. This process will be extended to backup on tapes as well.

Regarding security at regional job centres, a standard operating procedure explaining how emergencies can be reported via telephone has been issued. This should override the panic button procedure. ETC is considering the installation of a metal barrier that will be installed in front of the Mosta Job Centre. The number of power points will be increased where necessary.

As suggested by NAO, ETC is currently undertaking a business process re-engineering exercise to analyse and re-design workflows, with the aim to improve the current functional requirements and achieve a quantum leap in performance measures, such as return of investment, cost reduction and quality of service.

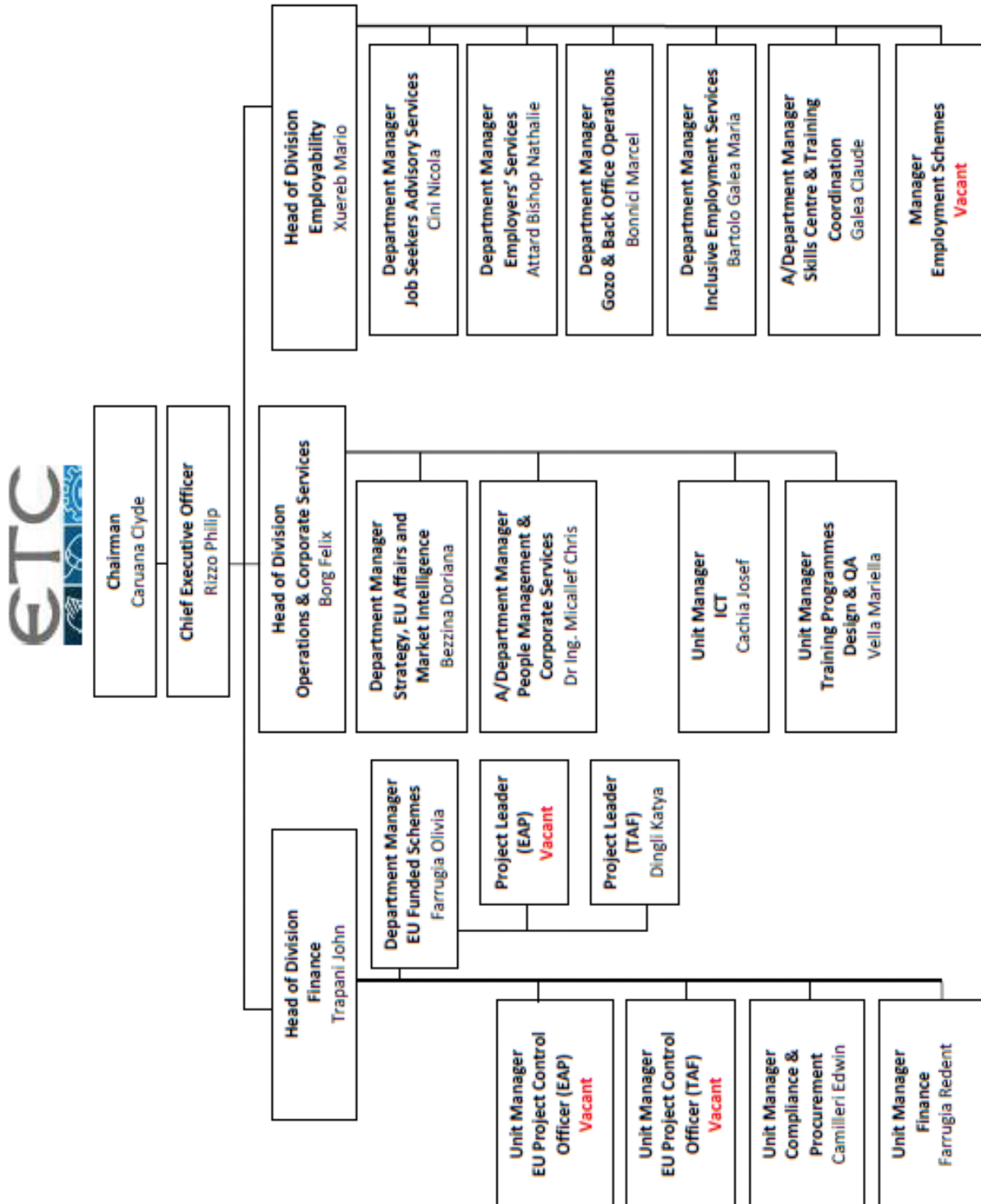
A Business Impact Analysis and a Risk Assessment exercise will be carried out from which a Business Continuity plan that includes a Disaster Recovery plan is drafted.



Annexes

Annex A

Organisation Chart



Annex B

Forms to be attached with the Employment Licence Application Form

EU - New Permit

- A certified passport photo;
- A certified copy of the passport;
- A covering letter from employer;
- A signed C.V.;
- Copies of qualifications and testimonials. Receipt of MQRIC is to be attached to identify the qualification level of the employee, or else reference letters to portray the employee's experience in a similar position.

EU - Extension of Permit

- A certified copy of the passport.

TCN - New Permit

- A certified passport photo;
- A certified copy of the passport;
- A covering letter from employer;
- A signed C.V.;
- Copies of qualifications and testimonials. Receipt of MQRIC is to be attached to identify the qualification level of the employee, or else reference letters to portray the employee's experience in a similar position;
- In the case the employee is already in Malta, a copy of the VISA is to be attached to the application.

TCN - Extension of Permit

- A certified copy of the passport;
- A covering letter from employer;
- A certified copy of a valid VISA, or a certified copy of residence document;
- A copy of the tax declaration form.

AS - New Permit/Extension of Permit

- A copy of the Police Immigration Certificate, or if expired a copy of appointment.

LTR - New Permit/Extension of Permit

- A certified copy of the passport;
- A certified copy of long term residency permit.

Annex C

CoBit Controls

CoBit defines IT activities in a generic process model within four domains⁴. These domains are Plan and Organise, Acquire and Implement, Deliver and Support, and Monitor and Evaluate as depicted in Figure 17. The domains map to IT's traditional responsibility areas of plan, build, run and monitor.

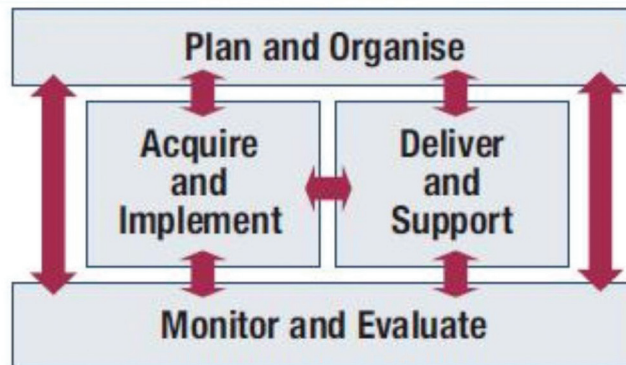


Figure 17: The four integrated domains of CoBit

Plan and Organize - This domain covers strategy and tactics, and concerns the identification of the way IT can best contribute to the achievement of the business objectives.

Define a Strategic IT Plan

IT strategic planning is required to manage and direct all IT resources in line with the business strategy and priorities. The IT function and business stakeholders are responsible for ensuring that optimal value is realised from project and service portfolios. The strategic plan improves key stakeholders' understanding of IT opportunities and limitations, assesses current performance, identifies capacity and HR requirements, and clarifies the level of investment required. The business strategy and priorities are to be reflected in portfolios and executed by the IT tactical plan(s), which specifies concise objectives, action plans and tasks that are understood and accepted by both business and IT.

Assess and Manage IT Risks

A risk management framework is created and maintained. The framework documents a common and agreed-upon level of IT risks, mitigation strategies and residual risks. Any potential impact on the goals of the organisation caused by an unplanned event is identified, analysed and assessed. Risk mitigation strategies are adopted to minimise residual risk to an accepted level. The result of the assessment is understandable to the stakeholders and expressed in financial terms, to enable stakeholders to align risk to an acceptable level of tolerance.

⁴ CoBit 4.1 Framework - <http://www.isaca.org/Knowledge-Center/cobit/Documents/CoBit4.pdf>

Acquire and Implement - To realise the IT strategy, IT solutions need to be identified, developed or acquired, as well as implemented and integrated into the business process.

Manage Changes

All changes, including emergency maintenance and patches, relating to infrastructure and applications within the production environment are formally managed in a controlled manner. Changes (including those to procedures, processes, system and service parameters) are logged, assessed and authorised prior to implementation and reviewed against planned outcomes following implementation. This assures mitigation of the risks of negatively impacting the stability or integrity of the production environment.

Install and Accredite Solutions and Changes

New systems need to be made operational once development is complete. This requires proper testing in a dedicated environment with relevant test data, definition of rollout and migration instructions, release planning and actual promotion to production, and a post-implementation review. This assures that operational systems are in line with the agreed-upon expectations and outcomes

Deliver and Support - This domain is concerned with the actual delivery of required services, which includes service delivery, management of security and continuity, service support for users, and management of data and operational facilities.

Define and Manage Service Levels

Effective communication between IT management and business customers regarding services required is enabled by a documented definition of, and agreement on, IT services and service levels. This process also includes monitoring and timely reporting to stakeholders on the accomplishment of service levels. This process enables alignment between IT services and the related business requirements.

Manage Third-party Services

The need to assure that services provided by third parties, (suppliers, vendors and partners) meet business requirements requires an effective third-party management process. This process is accomplished by clearly defining the roles, responsibilities and expectations in third-party agreements as well as reviewing and monitoring such agreements for effectiveness and compliance. Effective management of third-party services minimises the business risk associated with non-performing suppliers.

Ensure Continuous Service

The need for providing continuous IT services requires developing, maintaining and testing IT continuity plans, utilising offsite back-up storage and providing periodic continuity plan training. An effective continuous service process minimises the probability and impact of a major IT service interruption on key business functions and processes.

Ensure Systems Security

The need to maintain the integrity of information and protect IT assets requires a security management process. This process includes establishing and maintaining IT security roles and responsibilities, policies, standards, and procedures. Security management also includes performing security monitoring and periodic testing and implementing corrective actions for identified security weaknesses or incidents. Effective security management protects all IT assets to minimise the business impact of security vulnerabilities and incidents.

Manage the Physical Environment

Protection for computer equipment and personnel requires well-designed and well-managed physical facilities. The process of managing the physical environment includes defining the physical site requirements, selecting appropriate facilities, and designing effective processes for monitoring environmental factors and managing physical access. Effective management of the physical environment reduces business interruptions from damage to computer equipment and personnel.

Manage Operations

Complete and accurate processing of data requires effective management of data processing procedures and diligent maintenance of hardware. This process includes defining operating policies and procedures for effective management of scheduled processing, protecting sensitive output, monitoring infrastructure performance and ensuring preventive maintenance of hardware. An effective operation management helps maintain data integrity and reduces business delays and IT operating costs.

Monitor and Evaluate - All IT processes need to be regularly assessed over time for their quality and compliance with control requirements.

Provide IT Governance

Establishing an effective governance framework includes defining organisational structures, processes, leadership, roles and responsibilities to ensure that enterprise IT investments are aligned and delivered in accordance with enterprise strategies and objectives.

Annex D

Software Project Life Cycle

The NAO suggests that a typical Software Project Lifecycle should seek to address the below questions:

Feasibility / Requirements Study Phase

- What is the main objective to be achieved with the implementation of the software application?
- What is the cost/benefit analysis of the project?
- What data is required to meet the application's goals?
- What are the business processes that the software application would have to cater for?
- Will the software application be required to integrate with any existing systems and infrastructure?
- Who are the intended users?
 - What is their level of IT Literacy?
 - What is their level of expertise with the subject area?
 - Under what circumstances will they use the software application?

Design Phase

- How will the required input data be obtained (ex. From a database, form or through drop-down lists)?
- How will the input data processed to achieve the desired output from the system? During this phase, the business process must be incorporated into the design.
- What form will the output take (ex. A report, exported to a file, saved as an image)?

Development Phase

This stage would generally involve managing the supplier or developer chosen. Furthermore, during this phase, one would need to answer the questions below:

- What additional hardware/software would this software application require?
- What are the hosting requirements of this software application?
- How will this software application be implemented?

Testing Phase

- Does the application function as expected?
- Does the application meet the requirements set forth in the requirements study phase?
- Does the application meet the user acceptance testing criteria?

Implementation Phase

This phase would generally involve the implementation of the system, user training and support. One would need to determine the following:

- Is there a plan for the implementation of the system?
- Who will train the users? Have the related resources been booked?
- Who will be providing the necessary support?
- Has an SLA been signed?

Maintenance Phase

- What are the issues identified post-implementation?
- How can the above issues be resolved?
- Are there any foreseen enhancements to the system? *

* Enhancements are to be considered as extensions to the software and thus one should follow the lifecycle from the beginning.

Annex E

Restrictions on the use of Electronic Mail and Internet Services⁵

Restrictions on the use of E-mail services

Every user should abide by the restrictions on the use of E-mail and should not:

- Impersonate or forge the signature of any other person when using e-mail;
- Amend messages received in a fraudulent manner;
- Gain access to, examine, copy or delete another person's e-mail without the necessary authorisation from the person concerned;
- Disclose their password or other means of access;
- Use someone else's password or other means of access to a computer;
- Use e-mail to harass or defame any person or group of persons;
- Use e-mail to conduct any personal business or for commercial or promotional purposes;
- Send as messages or attachments items that may be considered offensive, pornography, illegal material, chain letters or junk mail;
- Send e-mail in bulk unless it is formally solicited;
- Place Government-assigned e-mail address on non-official business cards;
- Send trivial messages or copy messages to people who do not need to see them;
- Send unsolicited mass e-mailing to more than 25 e-mail users, if such unsolicited e-mailing provokes complaints from the recipients; and
- Use the service of another provider, but channelling activities through a MAGNET account as a re-mailer, or use a MAGNET account as a mail drop for responses.

⁵ OPM Circular No. 10/2003 - Electronic Mail and Internet Services Directive

Restrictions on the use of Internet services

Similarly, every user should abide by the restrictions on the use of Internet and should not:

- Download files from the Internet without adhering to existing policies on virus control;
- Download material (including software) that is not work-related;
- Enter into any contract over the Internet without approval from the appropriate Head of Department or his/her delegate;
- Use the Internet to conduct any personal business or for personal commercial purposes;
- Post a single article or advertisement to more than 10 Usenet or other newsgroups, forums, e-mail mailing lists or other similar groups or lists; and
- Post to any Usenet or other newsgroup, forum, e-mail mailing list or other similar group or list articles, which are off-topic according to the charter or other owner-published FAQ or description of the group list.

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NAO Work and Activities Report

January 2014	Work and Activities of the National Audit Office 2013
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