Expenditure Review
on the Operation and Management
of the IT Systems in the State Laboratory

February 2005

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EXECUTIVE SUMMARY

Introduction and Methodology - Section 1
This report presents the results of an expenditure review carried out by the State Laboratory on the operation and management of its IT function during late 2004. The work was carried out on behalf of the State Laboratory by Petrus Consulting and independently assessed by PKF Ryan Glennon. A steering group comprising senior staff of the State Laboratory oversaw the production of the report in accordance with the defined terms of reference.

The methodology included a review of existing documentation, a questionnaire to all staff supplemented by interviews with selected staff and data gathering from external comparable national organisations along with examination of comparative data from other international organisations.

Context - Section 2
The State Laboratory, as the central laboratory, provides a comprehensive analytical and advisory service to government departments and offices, thereby enabling them to implement their regulatory programmes and attain their strategic objectives. The State Laboratory is INAB accredited and is the EU National Reference Laboratory for residues in food of animal origin. The Laboratory employs c.100 staff working in areas such as Human and Veterinary Toxicology, Animal Feedingstuffs, Residues/Contaminants and Molecular Biology.

The report considers the key issues and change drivers facing the State Laboratory and concludes that IT will be critically important to the achievement by the State Laboratory of its future mandate. For example; the scale and scope of testing is likely to increase, investment will be required in IT to support automation and connectivity and customer expectations are likely to require access to sample tracking and on line reporting.

Objectives – Section 3
The high level objective for the IT Department is to support the core business of the State Laboratory. More detailed objectives for the IT department are identified in this report based the Statement of Strategy 2003 – 2005 and the IT Strategy. The IT strategy was last reviewed in 1997 and was based on implementing a number of key applications including in particular a Laboratory Information Management System (LIMS) and a financial accounts package. Progress has been made on all the areas included within the IT strategy albeit at a slower pace than originally envisaged.

Arising from this expenditure review and the changed circumstances and outlook for the State Laboratory it is recommended that the IT strategy should be reviewed. In particular the further implementation and development of the LIMS system should be accelerated so that the fullest benefits are realised.

Cost and Staffing Resources – Section 4
The total annual cost for the IT function inclusive of pension and overhead uplifts has been estimated at €625,446 for 2004 on an all-in basis. Excluding the pension and overhead uplifts, the cost of IT is estimated to amount to €500,000. This is equivalent to 10.84% of total salary costs and represents expenditure of approximately €4,804
per staff member. The average spend on IT as a percentage of total salaries over the period 1999 to 2004 is estimated to be 10%.

### Total IT Costs 1999 to 2004

<table>
<thead>
<tr>
<th>Grade</th>
<th>IT Vote Actual</th>
<th>Total Staff Cost</th>
<th>Total IT Cost</th>
<th>Total Staff Number</th>
<th>Total Staff Salaries, Wages and Allowances €000’s</th>
<th>IT Cost per Head of Staff</th>
<th>IT Cost as a % of Total Staff Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>66,000</td>
<td>139,048</td>
<td>205,048</td>
<td>74</td>
<td>2,011</td>
<td>1,989</td>
<td>7.32%</td>
</tr>
<tr>
<td>2000</td>
<td>162,000</td>
<td>150,157</td>
<td>302,157</td>
<td>74</td>
<td>2,681</td>
<td>3,374</td>
<td>9.31%</td>
</tr>
<tr>
<td>2001</td>
<td>279,000</td>
<td>169,419</td>
<td>448,419</td>
<td>86</td>
<td>3,000</td>
<td>4,395</td>
<td>12.60%</td>
</tr>
<tr>
<td>2002</td>
<td>216,000</td>
<td>207,358</td>
<td>423,358</td>
<td>92</td>
<td>3,827</td>
<td>3,664</td>
<td>8.81%</td>
</tr>
<tr>
<td>2003</td>
<td>287,000</td>
<td>255,903</td>
<td>542,903</td>
<td>95</td>
<td>4,218</td>
<td>4,594</td>
<td>10.35%</td>
</tr>
<tr>
<td>2004 Planned</td>
<td>323,000</td>
<td>302,466</td>
<td>625,466</td>
<td>104</td>
<td>4,610</td>
<td>4,804</td>
<td>10.84%</td>
</tr>
</tbody>
</table>

Note: Figures for 2004 exclude €300,000 estimated to relate to Backweston move

IT expenditure in other organisations was examined and compared to the State Laboratory. The expenditure level in the State Laboratory is in line with the average for all organisations.

The number of staff devoted to the IT function represents 3.35 full time equivalents (FTEs) and has risen from 2.4 FTEs in 1999 to 3.35 FTEs in 2004.

Output and outcome measures have not been incorporated into the overall performance management framework of the State Laboratory to date and it was therefore difficult to assess the relative or absolute efficiency or effectiveness of the spend on IT. Detailed measures are proposed in section 6 which will ensure that measures for outcomes and outputs can be monitored and reported in the future. In the absence of such measures a staff survey was carried out to gauge the satisfaction level with the service provided and to obtain other user responses.

90% of staff surveyed were “Very” or “Mostly” satisfied with the service provided to resolve IT problems. While this is a positive response the target should be to raise this figure to 95% across the organisation.

Many suggestions to improve the economy, efficiency and effectiveness of the IT service were made including the following:

- More training on LIMS and support on LIMS
- Further progress on instrument connectivity to achieve cost saving benefits by facilitating more efficient use of staff resources.
- More devolution of expertise and privileges on LIMS to allow users to access information and reports more readily
- A dedicated IT unit
- Eliminate the duplication of entering data into LIMS and also maintaining paper based records.

65% of respondents believe that they have appropriate IT resources in place but 35% disagree. The target should be to achieve a satisfaction level closer to 100%.

Time savings that would result from improved systems ranged from zero to over 8 hours per week with an average of c.1.7 hours per individual per week. Extrapolated
across the State Laboratory, the average of 1.7 hours per staff member would amount to approximately 170 hours per week or the equivalent of over 4 FTE.
68% of the overall response believed that LIMS had improved service delivery with only 8% stating that it had not. Staff were also requested to identify what further enhancements are required to the LIMS system. Many respondents identified further implementation of the LIMS system as desirable particularly the programme to develop connectivity between analytical instrumentation and the LIMS system.

Management and Resources – Section 5
The current hardware and software environment in the Laboratory is in a transition phase brought about by the move to Backweston. However, the organisation and management of IT needs to be more formally reflected in the organisation structure of the Laboratory. A proposed structure is provided which is aimed at increasing the clarity, responsibility and accountability of the IT function.

Outsourcing the IT function or parts of it is not a feasible option at this time. Once the move to Backweston has taken place, a clear IT strategy has been developed and resources put in place to manage any such outsourced service the option can be re-examined.

The possibility of using some shared services on the Backweston campus should be investigated once the move has been completed and the specific services identified, costed and service levels specified.

Performance Indicators – Section 6
Performance Indicators for IT need to be developed on the basis of inputs, activities, outputs and outcomes. They need to be aligned with the overall strategy of the Laboratory and incorporated into the performance management framework for individuals so that there is clear responsibility and accountability.

Specific objectives and indicators such as reliability and security, help desk performance metrics and business operations support are identified in the report. Overall metrics such as the total cost of IT per employee and IT cost as a percentage of salaries, wages and allowances will also help to establish the relative economy of the services provided.

Key Recommendations
The administration and management structure for the IT function has served the Laboratory well over the years but now needs to be established on a more formal basis. This includes the need to clearly establish responsibilities and accountabilities for policy, strategy and operations.

The IT strategy should be updated to reflect the current and future operating environment. As part of this process, specific objectives for the IT function should be defined consistent with the overall Laboratory strategy. Consideration of developing and enhancing the LIMS system on an accelerated basis should be a key part of the IT strategy.

Performance measurement should be incorporated into the management framework for IT and detailed measures should be defined, agreed and reported on a regular basis. These performance measures should become part of the performance measurement system for individual staff members in the IT department.
1. **INTRODUCTION**

1.1 The State Laboratory commissioned Petrus Consulting to carry out an expenditure review on the operation and management of its IT function. The work was carried out during September and October 2004.

**BACKGROUND TO THE EXPENDITURE REVIEW INITIATIVE**

1.2 In 1994 the Strategic Management Initiative (SMI) was introduced to enhance the strategic capabilities of managers in the civil service. Arising from the SMI, the Government introduced *Delivering Better Government* in 1996. It identified the “need for a systematic analysis of what is actually being achieved by the Government resources being spent annually”.

1.3 The Expenditure Review Initiative (ERI) was introduced by the government in 1997 and has as its two main aims:

- to provide systematic analysis of what is actually being achieved by expenditure in each programme; and

- to provide a basis on which more informed decisions can be made on priorities within and between expenditure programmes (Department of Finance, 1997).

**STRUCTURE OF THE REVIEW PROGRAMME**

1.4 The Expenditure Review Central Steering Committee (ERCSC) manages the overall ERI process and is chaired by the Secretary General of the Department of Finance. It also includes among its members Secretaries General of other departments and a senior academic economist. In each Department the Management Advisory Committee (MAC) or a Departmental Steering Committee oversees the process. A working group or an individual conducts each review under the stewardship of a Steering Group with members drawn from both the spending department and the Department of Finance.

1.5 Before submission to the ERCSC review reports must be subjected to a quality assessment exercise performed by an independent external evaluation expert. This is intended to improve the standard of reports and ensure that the
evaluative process and methodologies employed are robust. This review was independently assessed by PKF Ryan Glennon.

1.6 The Management and Operation of the IT function was selected for evaluation in 2004 and the terms of reference for the review were approved by the ERCSC in mid 2004.

**EXPENDITURE REVIEW STEERING GROUP**

1.7 The review was carried out by Michael Griffin of Petrus Consulting Limited on behalf of the State Laboratory and was overseen by a Steering Group (SG) with the following membership:

**State Laboratory:**
Alison McCulloch, Assistant Principal
Aoife McWeeney, Higher Executive officer
Michael Nangle, Principal Chemist

**TERMS OF REFERENCE AND REPORT STRUCTURE**

1.8 The Terms of Reference for the review were based on a standard template for all reviews carried out under the ERI with appropriate modifications specific to the IT review in the State Laboratory and were approved by the ERCSC as follows:

To examine and report on the operation and management of the IT systems in the State Laboratory with a view to:

1. Identifying the objectives
2. Considering to what extent these objectives remain valid and compatible with the current strategy statement of the State Laboratory.
3. Evaluate the extent to which these objectives are being or have been met.
4. Establish the trend with regard to a) the costs and b) the staffing resources associated with the provision of this service.
5. Define the number of computer systems in operation and the future requirements and level and trend of outputs.
6. Comment on how efficiently and effectively the objectives of this expenditure are being met, and examine scope for alternative delivery mechanisms in the context of the existing resources allocated to I.T. Systems.
7. Specify potential for future performance indicators that might be used to better monitor the expenditure and performance.

**REPORT STRUCTURE**

1.9 The following table cross-references the Terms of Reference with the relevant sections of the report.

<table>
<thead>
<tr>
<th>Number</th>
<th>Relevant parts of the Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identifying the objectives</td>
</tr>
<tr>
<td>2</td>
<td>Considering to what extent these objectives remain valid and compatible with the current strategy statement of the State Laboratory.</td>
</tr>
<tr>
<td>3</td>
<td>Evaluate the extent to which these objectives are being or have been met.</td>
</tr>
<tr>
<td>4</td>
<td>Establish the trend with regard to a) the costs and b) the staffing resources associated with the provision of this service.</td>
</tr>
<tr>
<td>5</td>
<td>Define the number of computer systems in operation and the future requirements and level and trend of outputs</td>
</tr>
<tr>
<td>6</td>
<td>Comment on how efficiently and effectively the objectives of this expenditure are being met, and examine scope for alternative delivery mechanisms in the context of the existing resources allocated to I.T. Systems</td>
</tr>
<tr>
<td>7</td>
<td>Specify potential for future performance indicators that might be used to better monitor the expenditure and performance</td>
</tr>
</tbody>
</table>
METHODOLOGY AND CONSULTATION PROCESS

1.10 A review of existing documentation was undertaken as part of the process. Key documentation included:

- Information Systems Strategy 1997
- Specification of New IT Systems 2003
- Strategy Statement 2003 – 2005

1.11 All staff were circulated with a questionnaire to gather information on their level of reliance on IT systems, training received and required, support and maintenance requirements and systems used. Appendix I is a summary of the views expressed and reference is also made to the results throughout the report.

1.12 A number of external organisations were contacted and interviewed on their approach to the management and organisation of IT in their organisation. The approaches are summarised in the text. The organisations contacted were:

- The Commission for Communications Regulation
- The Civil Service and Local Appointments Commission
- The Valuation Office
- Progressive Genetics
- Bord na Mona Laboratory

FORMAT OF REPORT

1.13 Section 2 sets out the context within which the IT function operates. Section 3 examines the objectives for the IT system. Section 4 examines the cost of the IT function and resources associated with the provision of the IT service. Section 5 looks at alternative organisation structures and recommends the structure appropriate for the future development of the IT function. Section 6 sets out future performance indicators.
2. **BACKGROUND**

**INTRODUCTION**

2.1 This Section looks at the environment and context of the IT systems in the State Laboratory. The importance of IT as a core element of the overall service delivery function of the State Laboratory is considered based on an examination of the key issues and drivers and the likely future development of IT is examined.

**CONTEXT**

2.2 The State Laboratory is shortly to move to premises in Backweston which comprises a custom built facility and which will have a new IT infrastructure. This move has been anticipated for several years and will provide the Laboratory with additional space.

2.3 The Backweston move has resulted in some aspects of the existing IT strategy being reviewed such as the infrastructure requirements and a specification of new IT systems was produced in 2003.

2.4 The current IT Strategy was developed in 1997. A specific target in the State Laboratory strategic plan was that the ICT strategy and implementation plan was to be reviewed by 03/03. In the event this has not taken place and the de facto strategy remains the continuation of the 1997 strategy.

2.5 Although this review does not constitute a revision of the IT strategy, aspects of the background and drivers, objectives, organisation and performance indicators could usefully be incorporated into such a revision.

**THE STATE LABORATORY - SUMMARY DESCRIPTION**

2.6 The State Laboratory, as the central laboratory, provides a comprehensive analytical and advisory service to government departments and offices, thereby enabling them to implement their regulatory programmes and attain their strategic objectives. The State Chemist has enforcement and referee status under various acts of the Oireachtas and their implementing regulations. The State Laboratory is INAB accredited and is the EU National Reference Laboratory for residues in food of animal origin. The Laboratory employs c.100 staff working in areas such as Human and Veterinary Toxicology,
Animal Feedingstuffs, Residues/Contaminants, Excise, Customs, Environment and Molecular Biology.

2.7 The demand for the services provided by the State Laboratory (SL) has grown consistently in recent years and staff numbers have increased from 74 in 1999 to the current level of just over 100.


<table>
<thead>
<tr>
<th>Area</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>5,630</td>
<td>6,491</td>
<td>6,126</td>
</tr>
<tr>
<td>Excise</td>
<td>7,148</td>
<td>8,120</td>
<td>10,194</td>
</tr>
<tr>
<td>Microbiology</td>
<td>5,291</td>
<td>3,621</td>
<td>3,628</td>
</tr>
<tr>
<td>Environment/Heritage</td>
<td>3,857</td>
<td>3,573</td>
<td>3,499</td>
</tr>
<tr>
<td>Residues</td>
<td>237</td>
<td>942</td>
<td>1,016</td>
</tr>
<tr>
<td>Customs/CAP</td>
<td>7,156</td>
<td>7,708</td>
<td>7,745</td>
</tr>
<tr>
<td>Toxicology</td>
<td>5,060</td>
<td>5,731</td>
<td>6,657</td>
</tr>
<tr>
<td>Veterinary Toxicology</td>
<td>339</td>
<td>250</td>
<td>515</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>34,718</td>
<td>36,436</td>
<td>39,380</td>
</tr>
</tbody>
</table>

Source: Extracted from LIMS

2.8 The table above shows the number of tests performed for each of the years 2001 to 2003. In total, the number of tests performed annually by the Laboratory has increased from a level of 34,718 in 2001 to over 39,000 in 2003. This represents an increase of 13.1% in total. The increase in 2003 was over 8%.

**CHANGE DRIVERS AND KEY ISSUES**

2.9 This section sets out a short summary of some of the key issues facing the State Laboratory. While these issues apply to the State Laboratory generally, they also impact on the future role that IT will have to play in the Laboratory.
| Change Drivers | The drivers of change are;  
| | • Government policy  
| | • New or modified laws governing requirements  
| | • Availability of finance and infrastructure  
| | • Availability of trained staff  
| | • Advances in automation and technology  
| | • Testing requirements; volume, scope and lower concentrations  
| International Trends, EU | • Food safety and animal health continue to be significant drivers of government policy  
| | • Compliance with EU requirements  
| | • Participation in international fora.  
| Customer Satisfaction | • Ensuring that the Laboratory meets and exceeds customer expectations  
| | • Changing expectations with regard to scale and scope of testing activities.  
| Structure | • Increased emphasis on performance and accountability  
| Accreditation and Quality Control | • Appropriate sample traceability, QC, accreditation systems and proficiency testing to international standards are essential to convince customers of the laboratories that the information provided is valuable and valid.  
| | • Defending findings of the Laboratory in a court of law  
| Training | • There will be an ongoing need to ensure that staff are fully trained in both their technical discipline and in the tools that will be used to manage and report on their analytical activities.  
| Financial Management, Costing | • Budgetary control systems at the appropriate level of control are essential  
| | • Detailed costing systems to enable the full costs of testing to be monitored and controlled.  
| Expenditure Review | • Other areas in the Laboratory will be scrutinised in later years and the information requirements for such reviews will need to be readily available.  
| Productivity, Automation and Technology | • Productivity improvements are the way to maximise staff utilisation in order to improve the efficiency and effectiveness of the organisation.  
| | • This can be facilitated through the use of a Laboratory Information Management System (LIMS)\(^1\), interfacing equipment with appropriate IT systems which embraces sample receipt (including bar code tracking) through to final reporting, while at the same time having data  

\(^1\) For a detailed description of a LIMS please see Appendix III
available for wider analysis of laboratory performance both in terms of QC, turnaround times and trends in findings etc.

- Data processing will form an essential and ever increasing dimension of the laboratory.

**Key Linkages and Data Flows**

- There must be effective communication within and across the Laboratory.
- These linkages must also embrace communications with customers.
- The system must permit overall analysis within the laboratory and incorporation of QC data, and Standard Operating Procedures etc for both internal and independent external auditing.

**Economies of Scale**

- Opportunities for economies of scale will need to be identified. This may not necessarily be in direct cash savings but through better utilisation and enhancement of the laboratory’s capabilities through the release of cash resources elsewhere. These economies can come through sharing of expensive sophisticated instrumentation and reagents, sharing of expertise and utilisation of central administrative support functions.
- Economies of scale also apply to purchasing, stores management and library facilities etc.
- The Backweston facility may provide a significant opportunity to achieve economies of scale provided the right structures and administrative systems are put in place.

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**Future Demands on IT**

2.10 As can be seen from the above it is clear that there are very significant challenges and opportunities ahead for the Laboratory. IT has a key role to play in helping to address many of these key drivers and will be critically important to the achievement by the State Laboratory of its future mandate. For example;

- The scale and scope of testing is likely to increase with onerous requirements for QC and accreditation.
- Achieving productivity increases will require investment in technology and training and associated IT support in terms of automation and connectivity.
- Meeting customer expectations is likely to require enabling access to sample tracking and on line reporting.
• Financial management will require detailed costing systems to identify the costs of individual samples, batches, sections, customers etc. This will entail IT and accounting support for analysis and reporting purposes.

• Achieving scale economies applies equally to support services as to line activities and means that IT must be able to prove its cost efficiency and effectiveness.

In conclusion it is clear that IT will become more and more critical to all aspects of the State Laboratory mandate. The current operation and management of IT are examined in the following sections and recommendations made on changes necessary to address the issues above.
OBJECTIVES

INTRODUCTION

3.1 This section examines the objectives of the IT systems both explicit and implicit. The current objectives are examined with regard to their continued validity and relevance and their compatibility with the overall strategy of the Laboratory is examined. It addresses items 1, 2 and 3 of the Terms of Reference.

IDENTIFICATION OF CURRENT OBJECTIVES

3.2 The objectives for IT have been set at a high level. The overall mission for IT in the State Laboratory is stated as being “To support the core business of the State Laboratory”. As part of the Information Systems Strategy developed in 1997 the benefits envisaged to arise from the implementation of the strategy were set out. From these benefits the associated objectives can be derived and are shown in the following table:

<table>
<thead>
<tr>
<th>Benefits Identified in Information Systems Strategy 1997</th>
<th>Objective for IT implicit in the Benefits Identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved customer service by way of a quality product delivered with an appropriate turnaround time. Support to the laboratory to extend the scope of its accreditation</td>
<td>Assist in improving quality and speed of customer Service. Acquire and implement LIMS</td>
</tr>
<tr>
<td>Financial management and savings through improved control of the costs of information management</td>
<td>Support financial management. Acquire and implement Accounting package and associated systems</td>
</tr>
<tr>
<td>The enhancement of management performance and decisions with faster access to information both internal and external.</td>
<td>Support information management. Acquire and implement Notes with email and Internet access to enhance communication. Implement document management on Notes</td>
</tr>
<tr>
<td>The enhancement of organisational effectiveness through the redesign of business structures and the facilitation of change</td>
<td>Upgrade and enhance IT infrastructure to provide a suitable platform to do this.</td>
</tr>
</tbody>
</table>

Source: Derived from The State Laboratory – Information Systems Strategy 1997

3.3 The work programme for the strategy contemplated a period of 2-3 years during which significant progress on each of the items above was planned.
Progress has been made in relation to each of the above objectives albeit at a slower pace than envisaged in the IS strategy document. The extent of the achievement is summarised here and detailed later in this section.

- A LIMS has been acquired and implemented although work still remains to be done to gain the fuller benefits of laboratory wide processes and procedures. 25,000 samples per annum are now handled by the LIMS system with over 75,000 samples handled since installation. Over 600,000 results are held on the system.

- A financial management system, Dynamics, has been selected and implemented.

- Lotus Notes has been implemented.

- The IT infrastructure was upgraded and enhanced. Latterly, the development of the new laboratory facilities as part of the move to Backweston has brought about a further comprehensive upgrading of the IT facilities and operating environment which was not contemplated in the original strategy document.

**Compatibility with Strategy Statement**

3.4 While the IS strategy was developed in 1997, the Strategy Statement for the State Laboratory covers the period 2003 – 2005. The table below compares the objectives from the IS strategy to the goals of the Strategy Statement and evaluates whether the objective is still valid and compatible. In each case the objectives and the goals have been summarised for ease of reference.

3.5 It is clear from reading the compatibility grid vertically that the original objectives are highly compatible with the overall strategy statement. For example the LIMS is supportive of meeting client requirements, ensuring that appropriate resources are in place and supporting a seamless transition to Backweston. Upgrading and enhancing the IT infrastructure is highly supportive and compatible with the goals of ensuring appropriate resources are in place, achieving designation of the laboratory and ensuring a seamless transition to Backweston.

3.6 Reading the grid horizontally, the goals in the strategy statement are generally supported by the objectives of the IT strategy. However, one area that is not supported is the goal of being recognised as the principal advisor to the Department of Finance. A possible manner in which this could be achieved in
the future would be to develop external access to sample results and sample tracking.

Table 3.2 Compatibility between IS Strategy Objectives and Overall State Laboratory Strategy and Goals

<table>
<thead>
<tr>
<th>Information Systems Strategy 1997</th>
<th>Vision – “To support the core business of the State Laboratory”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquire and implement LIMS</td>
<td>Acquire and implement Accounting package</td>
</tr>
<tr>
<td>Acquire and implement Notes, email Internet</td>
<td>Upgrade and enhance IT infrastructure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statement of Strategy 2003 - 2005</th>
<th>Quality Analytical and Advisory Services to Government Offices and Bodies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Meet Client requirements in a timely cost effective manner</td>
<td>High</td>
</tr>
<tr>
<td>2. Be recognised as the principal advisor to the Dept. of Finance</td>
<td>Not Applicable (N/A)</td>
</tr>
<tr>
<td>3. Ensure that appropriate (IT) personnel and resources are in place</td>
<td>High</td>
</tr>
<tr>
<td>4. Seamless transition to Backweston</td>
<td>Medium</td>
</tr>
<tr>
<td>5. Achieve designation as National Laboratory for metrology in chemistry</td>
<td>Low</td>
</tr>
</tbody>
</table>

3.7 In overall terms therefore the objectives established for IT remain valid and are compatible with the overall strategy for the State Laboratory. The IT objectives now need to be updated in order to reflect the progress made to date and the future development of the services provided. For example, the LIMS has been acquired and implemented throughout the Laboratory but more work now needs to be done in order to gain the fuller benefits that such a LIMS can provide. This is considered in more detail below.
EXTENT OF ACHIEVEMENT OF OBJECTIVES

3.8 The broad objectives for IT as set out in 1997 remain valid and compatible with the overall Laboratory strategy statement. This section considers the extent to which those objectives are being or have been met.

3.9 Table 3.3 below summarises the extent to which the objectives have been achieved. Overall, it can be seen that there has been significant progress in all areas. The degree of implementation is high in all cases although additional work is required, particularly to LIMS to achieve more complete implementation. It should be noted that the implementation of a LIMS is a continuing issue and there will be an ongoing requirement to extend and expand the functionality of the system.
### Table 3.3 Project Summary and Status

<table>
<thead>
<tr>
<th>Information Systems Strategy 1997</th>
<th><strong>Vision</strong>—“To support the core business of the State Laboratory”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Progress to Date</strong></td>
<td><strong>Acquire and implement LIMS</strong></td>
</tr>
<tr>
<td></td>
<td>LIMS has been acquired and implemented in the whole lab. The initial phase was defined as allowing samples to be logged in, tests to be allocated, results to be entered and reports to be produced. This is in place, including availability of reports giving turnaround times for samples within sections by any desired time interval.</td>
</tr>
<tr>
<td></td>
<td><strong>Acquire and implement Dynamics</strong></td>
</tr>
<tr>
<td></td>
<td>After a poor initial implementation, there has now been a fairly successful re-implementation.</td>
</tr>
<tr>
<td></td>
<td><strong>Acquire and implement Notes</strong></td>
</tr>
<tr>
<td></td>
<td>Lotus Notes was implemented mostly as an email system and development was then parked to allow the LIMS to be tackled. An attempt was made with the initial suppliers to implement an Intranet but this was unsuccessful and was abandoned. A more tightly defined project is planned. Some work was commissioned in 2004 to allow logging of queries from internal and external clients and this will be completed and extended in 2005.</td>
</tr>
<tr>
<td></td>
<td><strong>Upgrade and enhance IT infrastructure</strong></td>
</tr>
<tr>
<td></td>
<td>This was completed quickly.</td>
</tr>
<tr>
<td><strong>2. Problems Encountered</strong></td>
<td><strong>Change management issues to do with acceptability and persuading staff to change from paper procedures.</strong></td>
</tr>
<tr>
<td><strong>3. Status</strong></td>
<td><strong>Lack of experience internally and poor work on the part of the outside contractor. Changes occurred in Government financial procedures which would in any case have required a re-implementation.</strong></td>
</tr>
<tr>
<td><strong>4. Further Work Remaining</strong></td>
<td><strong>Only with the Intranet project.</strong></td>
</tr>
<tr>
<td><strong>Change management issues to do with acceptability and persuading staff to change from paper procedures.</strong></td>
<td><strong>No particular problems were encountered.</strong></td>
</tr>
<tr>
<td><strong>LIMS is now about 75% implemented in terms of impact and benefit (Per IT Coordinator).</strong></td>
<td><strong>The implementation of the original, limited scope is complete.</strong></td>
</tr>
<tr>
<td><strong>About 80% complete in terms of impact and benefit.</strong></td>
<td><strong>Implementatio n reached 100% quickly from the start of the project.</strong></td>
</tr>
<tr>
<td><strong>Identifying further areas where it can add efficiency, such as direct transfer of data from instruments and more complex calculations and adding these.</strong></td>
<td><strong>Further refinement of the electronic requisition system and the fixed asset module required. There is non-IT work to be done in fine-tuning the purchase order module.</strong></td>
</tr>
<tr>
<td><strong>Further refinement of the electronic requisition system and the fixed asset module required. There is non-IT work to be done in fine-tuning the purchase order module.</strong></td>
<td><strong>A Notes-based Intranet and the query databases mentioned above are the main remaining work.</strong></td>
</tr>
<tr>
<td><strong>The system is continuously updated as required and will be further updated as a result of the move to the new lab.</strong></td>
<td></td>
</tr>
</tbody>
</table>
3.10 As part of the survey carried out as part of this review, staff were asked whether they considered that they had appropriate IT systems and resources in place to meet their needs and, where appropriate, client needs. (This question refers to the Strategy Goal 3 of the Statement of Strategy.)

<table>
<thead>
<tr>
<th>Response</th>
<th>Number responding</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>24</td>
<td>65%</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td>30%</td>
</tr>
<tr>
<td>Not answered (N/a)</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>37</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

3.11 65% of respondents believe that they have appropriate IT resources in place but 35% disagree. This suggests that the degree of implementation is not uniform across the Laboratory and further work remains to be done to ensure that all staff can use the system to the fullest extent. The target should be to achieve a satisfaction level closer to 100%.

3.12 When asked to estimate the hours that would be saved by improved systems the time savings ranged from zero to over 8 hours per week with an average of c.1.7 hours per individual per week. Extrapolated across the State Laboratory, the average of 1.7 hours per staff member would amount to approximately 170 hours per week or the equivalent of over 4 FTE.

3.13 The development of LIMS as summarised above is of particular importance to the future development of the Laboratory. Staff were also asked whether the development of the LIMS system had improved service delivery. 68% of the overall response believed that LIMS had improved service with only 8% stating that it had not. Staff were also requested to identify what further enhancements are required to the LIMS system. Many respondents identified further implementation of the LIMS system as desirable particularly the programme to develop connectivity between analytical instrumentation and the LIMS system. Other responses dealt with the need to provide users with more direct control to define, for example, user defined reports and greater flexibility in the system. Several users commented on the need for further training on LIMS.

3.14 The diagram below is a subjective assessment of the development of LIMS in the State Laboratory. While the particular level of functionality/benefit currently attained through LIMS is open to interpretation it is clear that there are further significant benefits that remain to be achieved.
3.15 Following the decision to invest in a LIMS system and the acquisition of the software the actual implementation only began in 2000/2001. Since then the system has been implemented throughout the Laboratory with some sections adopting it to their work practices more fully than others. The recent focus of attention has been to develop connectivity to analytical instruments and this is expected to show significant benefit to the work in the sections concerned.

3.16 Progress in this area is limited by the resources available within the IT section and it can be expected that the rollout of connectivity across the Laboratory will be constrained because of this. The learning curve effect should ensure that progress will proceed at a faster pace but the most likely outcome is that the achievement of the fullest organisation wide benefits will be delayed for some years.

3.17 As an alternative to the current approach to rolling out the system the Laboratory should consider recruiting temporary staff on a contract basis to assist in accelerating the development of the system.
SUMMARY AND RECOMMENDATIONS

3.18 The objectives for the IT function have been identified based on the existing IT strategy. This strategy needs to be updated but the implicit objectives set out at the time remain consistent and compatible with the current overall strategy statement of the State Laboratory.

3.19 The objectives were formulated in the context of specific projects/programmes such as the implementation of a LIMS and Lotus Notes. Progress has been made in relation to all the projects identified at that time. Further work remains in order to ensure that the specific benefits and outcomes expected to be realised are achieved.

3.20 These benefits could be achieved in a shorter timeframe by an accelerated rollout programme for LIMS.
4. Cost and Staffing Resources

Introduction

4.1 This section examines the costs of IT and the staffing resources used. It is based on the annual vote returns to the Department of Finance and estimates of the time allocation of individuals to the IT function. The time period covered is from 1999 to 2004. It addresses Item 4 of the Terms of Reference.

4.2 Up until 2003 the State Laboratory did not maintain its own accounting records. Costs related to IT were not separately identifiable and a separate cost centre for IT was not maintained. With the introduction of the Dynamics accounting package and the move to self sufficiency in accounting a separate cost centre has been established for IT.

4.3 The costs included below for IT represent estimates and approximations based on the annual return of IT related expenditure to CMOD in the Department of Finance. The figures included for the proportion of staff time spent on IT functions are also estimates as the staff involved carry out other functions and a formal time recording system is not in use.

Cost of IT and Staffing Resources

4.4 The data sources used for this section are primarily derived from information held by the State Laboratory. Further reference is made to data derived for comparator organisations in Ireland and also for a selection of UK based organisations.

4.5 The table below set out the personnel cost related to IT support for 2004. Salary cost is based on the salary at the beginning of 2004. The proportion of time devoted to IT matters is based on estimates. In order to reflect the full cost of the staff to the organisation, uplifts in respect of pension entitlements and to reflect other overhead costs are applied in accordance with Department of Finance guidelines.
Table 4.1: Costings for State Laboratory Staff working in the IT Function 2004, €

<table>
<thead>
<tr>
<th>Grade</th>
<th>Salary Cost (A)</th>
<th>% of Time</th>
<th>Basic Salary Cost (C = A x B)</th>
<th>Total Salary Cost (D = C + 16.5% for Pension)</th>
<th>Total Staff Cost (E = D + 47% for Overheads)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Coordinator</td>
<td>61,482</td>
<td>0.9</td>
<td>55,333</td>
<td>64,463</td>
<td>94,761</td>
</tr>
<tr>
<td>LIMS Support</td>
<td>49,959</td>
<td>0.9</td>
<td>44,963</td>
<td>52,381</td>
<td>77,001</td>
</tr>
<tr>
<td>Instrument Support</td>
<td>53,443</td>
<td>0.7</td>
<td>37,410</td>
<td>43,582</td>
<td>64,067</td>
</tr>
<tr>
<td>Notes Support</td>
<td>46,428</td>
<td>0.7</td>
<td>32,499</td>
<td>37,861</td>
<td>55,656</td>
</tr>
<tr>
<td>Administration</td>
<td>42,738</td>
<td>0.15</td>
<td>6,410</td>
<td>7,467</td>
<td>10,971</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>302,466</td>
</tr>
</tbody>
</table>

Note: Department of Finance Circular 12/2003: Revision of pay of Civil Servants

Source: State Laboratory figures

4.6 Table 4.1 above shows that the total staff cost for IT in the State Laboratory in 2004 is estimated to amount to €302,466. Table 4.2 below identifies the proportion of time spent on IT by IT staff in each of the years 1999 to 2004.

Table 4.2: Time Allocation for Staff working in the IT Function, 1999 - 2004

<table>
<thead>
<tr>
<th>Grade</th>
<th>% of time on IT 1999</th>
<th>% of time on IT 2000</th>
<th>% of time on IT 2001</th>
<th>% of time on IT 2002</th>
<th>% of time on IT 2003</th>
<th>% of time on IT 2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Coordinator</td>
<td>80%</td>
<td>80%</td>
<td>80%</td>
<td>80%</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>LIMS Support</td>
<td>60%</td>
<td>60%</td>
<td>60%</td>
<td>70%</td>
<td>80%</td>
<td>90%</td>
</tr>
<tr>
<td>Instrument Support</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
<td>60%</td>
<td>70%</td>
<td>70%</td>
</tr>
<tr>
<td>Notes Support</td>
<td>50%</td>
<td>50%</td>
<td>60%</td>
<td>60%</td>
<td>70%</td>
<td>70%</td>
</tr>
<tr>
<td>Administration</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>15%</td>
</tr>
<tr>
<td>Total FTE</td>
<td>2.4</td>
<td>2.4</td>
<td>2.5</td>
<td>2.7</td>
<td>3.1</td>
<td>3.35</td>
</tr>
</tbody>
</table>

Source: State Laboratory Estimates

4.7 The table below shows the results of repeating the costing estimation for each of the years 1999 to 2004.

Table 4.3: IT Total Staff Cost 1999 to 2004

<table>
<thead>
<tr>
<th>Grade</th>
<th>Total IT Staff Cost 1999</th>
<th>Total IT Staff Cost 2000</th>
<th>Total IT Staff Cost 2001</th>
<th>Total IT Staff Cost 2002</th>
<th>Total IT Staff Cost 2003</th>
<th>Total IT Staff Cost 2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Coordinator</td>
<td>50,811</td>
<td>56,283</td>
<td>58,024</td>
<td>71,545</td>
<td>86,234</td>
<td>94,762</td>
</tr>
<tr>
<td>LIMS Support</td>
<td>33,249</td>
<td>36,243</td>
<td>40,540</td>
<td>51,278</td>
<td>60,748</td>
<td>77,002</td>
</tr>
<tr>
<td>Instrument Support</td>
<td>29,172</td>
<td>30,203</td>
<td>33,783</td>
<td>43,625</td>
<td>59,284</td>
<td>64,067</td>
</tr>
<tr>
<td>Notes Support</td>
<td>25,816</td>
<td>27,429</td>
<td>37,071</td>
<td>40,910</td>
<td>49,638</td>
<td>55,657</td>
</tr>
<tr>
<td>Administration</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10,979</td>
</tr>
<tr>
<td>Total</td>
<td>139,048</td>
<td>150,157</td>
<td>169,419</td>
<td>207,358</td>
<td>255,903</td>
<td>302,466</td>
</tr>
</tbody>
</table>

Source: State Laboratory salary costs and derived.
4.8 The table below combines the direct staff costs excluding pension and overhead uplifts with the non staff costs returned to the Department of Finance. These costs represent project specific costs such as software acquisition, data communications, licences etc. The total estimated IT costs for each year are shown. Because of the move to Backweston, additional costs have been incurred in 2004. These costs have been estimated at €300,000 and are not included in the 2004 IT Vote figures shown below.

<table>
<thead>
<tr>
<th>Grade</th>
<th>IT Vote Actual</th>
<th>Total Direct IT Staff Cost</th>
<th>Total IT Cost</th>
<th>Total Staff Number</th>
<th>Total Staff Salaries, Wages and Allowances €000’s</th>
<th>IT Cost per Head of Staff</th>
<th>IT Cost as a % of Total Staff Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>66,000</td>
<td>81,193</td>
<td>147,193</td>
<td>74</td>
<td>2,011</td>
<td>1,989</td>
<td>7.32%</td>
</tr>
<tr>
<td>2000</td>
<td>162,000</td>
<td>87,681</td>
<td>249,681</td>
<td>74</td>
<td>2,681</td>
<td>3,374</td>
<td>9.31%</td>
</tr>
<tr>
<td>2001</td>
<td>279,000</td>
<td>98,928</td>
<td>377,928</td>
<td>86</td>
<td>3,000</td>
<td>4,395</td>
<td>12.60%</td>
</tr>
<tr>
<td>2002</td>
<td>216,000</td>
<td>121,081</td>
<td>337,081</td>
<td>92</td>
<td>3,827</td>
<td>3,664</td>
<td>8.81%</td>
</tr>
<tr>
<td>2003</td>
<td>287,000</td>
<td>149,428</td>
<td>436,428</td>
<td>95</td>
<td>4,218</td>
<td>4,594</td>
<td>10.35%</td>
</tr>
<tr>
<td>2004 Planned</td>
<td>323,000</td>
<td>176,617</td>
<td>499,617</td>
<td>100</td>
<td>4,010</td>
<td>4,804</td>
<td>10.84%</td>
</tr>
</tbody>
</table>

Source: State Laboratory Annual Reports and derived.

4.9 The table above shows that there has been a consistent increase in IT related expenditure over the period 1999 to 2004. IT Staff costs have more than doubled in the period. Non staff costs have increased by a factor of five.

4.10 Some of this increase can be explained by the larger number of staff employed in the organisation and some by the general increase in base salary levels which has taken place during that time. The implementation of the IT strategy also drove significant amounts of this expenditure and introduced new technology to the laboratory which is essential for its future development.

4.11 The graph below shows the cost of IT per member of staff for the period 1999 to 2004. It shows that there is a steadily rising cost per head of staff rising from €1,989 to €4,804 over the period. The IT cost per staff member has more than doubled in the period.

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\(^2\) IT Costs includes IT Vote and direct salary costs but excluding the Pension and Overhead uplifts.
4.12 The second graph below shows the trend in the cost of IT as a percentage of total salaries, wages and allowances. This shows that the cost of IT rose from 7.3% of total salaries, wages and allowances in 1999 to an estimated 10.8% in 2004. The percentage reached a high of nearly 12.6% in 2001. As referred to above 2001 was a year in which additional expenditure took place related to the introduction of LIMS and Lotus Notes. The six year average of IT cost to total salaries, wages and allowances amounts to just over 10%.

![IT Costs as a percentage of Total Salaries, Wages and Allowances](chart)

**Comparative Organisations**

4.13 It is difficult to obtain meaningful comparative data on the cost of IT. Reasons for this include differences in accounting systems, differences in definitions, different organisational structures and salary scales and also, differences in the span encompassed within IT. For example, one organisation may only include data lines within IT costs whereas another may include all communications costs including phone system costs and charges. Another organisation may subcontract some IT costs and record and report these under, for example, bought in services. As part of this review a number of organisations were contacted and the operation and management of their IT functions were considered by means of questionnaire and direct interviews.

**The Valuation Office**

The Valuation Office is the state property valuation service. It provides a property valuation consultancy service to government departments and offices. It employs 135 staff.

- Annual IT expenditure is approximately €870,000 and there are 6.5 FTE’s in the IT function. This equates to approximately €6,444 IT spend per member of staff.
• The key objective for the IT department is “To deliver IT systems to meet business requirements”

• Some programming and network support is outsourced but this is relatively small

• The management structure in place comprises the following:

![Diagram of management structure]

• The IT Manager is at Assistant Principal acting level.

• Systems used include standard desktop applications, file scanning, HRM, Cedar Financials, Workflow, Peoplesoft, Corepay, online T+S and PC based clocking in.

• The Head of IT is part of the senior management team. Fortnightly team meetings are held and management is on the basis of detailed review of progress and issues arising.

• The IT function developed from a situation in the early 90’s where there were no dedicated IT skills. Developments were contracted out with high reliance on external support. The situation today is that the office is self sufficient and carries out major developments internally or sometimes with the assistance of a project specific resource on a short term contract. The office has found that it is far more cost effective to go to tender for a programmer rather than for a project.
**Bord Na Mona**

Bord na Mona is currently in the process of implementing a LIMS system which is also supplied by Labware.

- The system was purchased in early 2004 and is planned to go live on the 13th December 2004.
- The system is being implemented directly by the laboratory with external consulting assistance.
- The project manager for the system is the Quality Manager for the Lab.
- Central MIS support for the system will be confined to network management and data backup. A LIMS administrator will support users and maintain the system.
- Cost and operational information is not available for comparison purposes as the system is not live yet.

**Progressive Genetics**

PG provides a breeding service to the farming community. It operates from four locations in Ireland and has a further location in Northern Ireland. Direct staff number 93.

- Applications used are standard Microsoft desktop, customer call logging, and management with automatic text based notification for staff working out of the offices and Great Plains Dynamics.
- The Board reviews all items of IT expenditure.
- Responsibility for IT rests with the Financial controller and day to day management is looked after by an IT supervisor
- Direct staff number 93 and annual IT expenditure is approximately €182,000.

**COMREG – The Commission for Communications Regulation**

COMREG regulates the telecommunications and postal sectors in Ireland. It operates from one location in central Dublin and employs 110 staff with a range of technical, commercial and administrative backgrounds.

- Applications used are standard MS Office desktop and a customised frequency management and spectrum planning software programme. There are 11 servers and approximately 140 laptops and desktops.
The vision for IT is to provide an efficient, reliable, secure and value added MIS service for staff and the public. The Mission is “to act as a seamless business enablement resource, ensuring that ComReg functions are enhanced and supported through the use of MIS. This is achieved by supporting ComReg’s business at an operational level, providing tactical mobilisation of MIS applications and information systems, while enabling strategic initiatives as required.”

Detailed objectives for IT have been developed and performance measures specified which also form the basis for the Key Result Areas (KRA’s) for the IT Manager.

Initially the IT function was outsourced almost in its entirety apart from the strategic planning aspects. Management and control is now carried out in-house although web development, security setup and database development is outsourced with an objective to reduce this external reliance over time.

Latterly a dedicated IT Manager was recruited and functions such as desktop support which was previously outsourced have been brought in-house.

The management structure is that the IT manager reports to the Head of HR who is a member of the Management Policy Committee (MPC) The MPC comprises the Commissioners and the heads of Departments.

Annual spend on IT varies but is approximately €650,000 compared to staff costs of €6.2 million.

Civil Service and Local Appointments Commissioners
The role of the Civil Service Commission and the Local Appointments Commission is to provide recruitment and selection services for client organisations within the Civil Service, Local Authority and Health Services sectors. It employs c.160 staff and provides a comprehensive interactive website service.

- IT is now a critical element of the overall organisation and the development and maintenance of the Website – www.publicjobs.ie - has involved expenditure of several million euros.
- IT is the responsibility of the Head of Corporate services who is at PO level. An IT Manager with three HEO’s and a team of c. 6/7 staff provide support and development for bespoke and standard applications.
- Bespoke applications have been developed for Recruitment Management, Board Member Management and Candidate Management.
- IT costs vary considerably from year to year but a recurring support level of €900k is considered reasonable. Overall staff costs amount to €5,500 per annum.

### Irish Comparator Organisations

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Staff Number</th>
<th>IT Costs</th>
<th>Total Salaries, Costs 000’s</th>
<th>IT as a % of Salaries Cost</th>
<th>IT Cost per staff member</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMREG</td>
<td>110</td>
<td>650,000</td>
<td>6,200</td>
<td>10.48%</td>
<td>5,909</td>
</tr>
<tr>
<td>Valuation Office</td>
<td>135</td>
<td>870,000</td>
<td>7,570</td>
<td>11.50%</td>
<td>6,444</td>
</tr>
<tr>
<td>Civil Service Commission</td>
<td>160</td>
<td>900,000</td>
<td>5,500</td>
<td>16.36%</td>
<td>5,625</td>
</tr>
<tr>
<td>State Lab</td>
<td>104</td>
<td>500,000</td>
<td>4,610</td>
<td>10.84%</td>
<td>4,804</td>
</tr>
</tbody>
</table>

Note: The IT costs for the State Laboratory above exclude the pension and overhead uplifts Costs for COMREG and the Civil Service Commission do not include Website development and maintenance.

### OTHER COMPARATIVE DATA

4.14 In a study completed in 2001, W S Atkins carried out an efficiency review of sectoral regulators in the UK and including other government bodies in the UK and elsewhere. One area examined was the cost of IT and the table below shows a summary of the data presented. This table shows a wide variation in IT spend per staff member and as a percentage of salaries and wages. While these figures are somewhat dated other research from the Association of Information Technology Professionals suggests that the average IT spend per employee across all industries is $6,918 or €5,765.

### UK Regulatory Agencies

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Staff</th>
<th>IT Costs</th>
<th>Total Salaries, Costs 000’s</th>
<th>IT as a %</th>
<th>IT Cost</th>
</tr>
</thead>
</table>

25
26

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Staff</th>
<th>IT as a % of Salaries and Wages</th>
<th>IT Cost per staff member</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFTEL</td>
<td>211</td>
<td>3.90%</td>
<td>1,723</td>
</tr>
<tr>
<td>P Genetics</td>
<td>93</td>
<td>6.27%</td>
<td>1,956</td>
</tr>
<tr>
<td>Comreg</td>
<td>110</td>
<td>10.48%</td>
<td>5,909</td>
</tr>
<tr>
<td>OFWAT</td>
<td>220</td>
<td>10.50%</td>
<td>3,857</td>
</tr>
<tr>
<td>OFGEM</td>
<td>338</td>
<td>10.50%</td>
<td>6,013</td>
</tr>
<tr>
<td>State Lab</td>
<td>100</td>
<td>10.84%</td>
<td>4,804</td>
</tr>
<tr>
<td>VAL OFF</td>
<td>135</td>
<td>11.50%</td>
<td>6,444</td>
</tr>
<tr>
<td>ORR</td>
<td>176</td>
<td>12.60%</td>
<td>6,122</td>
</tr>
<tr>
<td>Civil Service Commissioners</td>
<td>160</td>
<td>16.36%</td>
<td>5,625</td>
</tr>
</tbody>
</table>

Source: External Efficiency Review of Utility Regulators, WS Atkins. Data refers to 1999/00. IT Cost per staff member converted to euro at 1.25:1

4.15 The graph below shows the comparison of IT costs per member of staff and the IT costs as a percentage of staff costs for the Irish and UK organisations referred to above. This shows that the IT expenditure level in the State Laboratory is similar in many respects to other state organisations.

Efficiency and Effectiveness

4.16 The efficiency of IT refers to the outputs achieved for the given inputs and effectiveness refers to the achievement of the intended results. This requires output and outcome measures to be in place so that the performance can be
assessed. In the case of the State Laboratory such measures have not been incorporated into the overall performance management framework to date and it is therefore difficult to assess the relative or absolute efficiency or effectiveness of the spend on IT. Detailed measures are proposed in section 6 which will ensure that measures for outcomes and outputs can be monitored and reported in the future.

4.17 Within the staff survey, various questions were asked regarding the efficiency and effectiveness of the IT function. When questioned regarding the satisfaction level with the service provided to resolve IT problems, 90% of respondents said that they were “Very” or “Mostly” satisfied with the service provided. While this is a satisfactory response the target should be to increase this to 95% across the organisation. Qualitative responses were also sought on ways in which the Laboratory could improve the economy, efficiency and effectiveness of its use of IT. Many suggestions were made which included the following

- More training on LIMS and support on LIMS
- Further progress on instrument connectivity to achieve cost saving benefits by facilitating more efficient use of staff resources.
- More devolution of expertise and privileges on LIMS to allow users to access information and reports more readily
- Need for a dedicated IT unit
- Eliminate the duplication of entering data into LIMS and also maintaining paper based records.

4.18 Several practical suggestions were also made such as:

- allocating a regular time slot e.g. one hour per month with the nominated IT person in each section for training application.
- Training Plan and Key user group to meet monthly
- Encourage greater participation by training, more bar coding and scanning to increase sample handling.

4.19 The responses summarised above and included in Appendix I show that there are several areas in which IT can improve its efficiency and effectiveness. IT should be seen as enabling and assisting in the achievement of overall Laboratory objectives. Such a view would raise IT from the operational and
transaction processing level to the strategic and performance development level.

**SUMMARY AND RECOMMENDATIONS**

4.20 The total annual cost for the IT function has been estimated at €625,446 on an all in basis. This is equivalent to 13.57% of total salary costs and represents expenditure of approximately €6,000 per staff member. The average spend on IT as a percentage of total salaries over the period 1999 to 2004 is estimated to be 12.5%.

4.21 IT expenditure in other organisations was examined and compared to the State Laboratory. This shows that the expenditure level in the State Laboratory is at the high end of the scale for organisations examined but in line with the average for all organisations.

4.22 The number of staff devoted to the IT function represents 3.35 full time equivalents (FTEs) and has risen from 2.4 FTEs in 1999 to 3.35 FTEs in 2004.

4.23 A performance management framework to allow the efficiency and effectiveness of IT to be assessed has not been implemented. Responses to the staff questionnaire identified several areas where performance could be improved.

4.24 A more strategic role for IT is needed so that it can support the overall Laboratory wide performance.
5. MANAGEMENT AND RESOURCES

Introduction

5.1 The current hardware and software environment is described in this section and the new environment in Backweston is briefly described. The current management structure and issues related to outsourcing part or all of the IT function are discussed.

Current Hardware, Software and Applications Environment

5.2 The State Laboratory IT systems run with a single NT4 domain, using a DMZ for the proxy server, firewall, mailsweeper and router. The network consists of a central switch with distributed subsidiary switches placed around the building.

5.3 There are three client/server systems in use:
   • Lotus Notes
   • Great Plains Dynamics on SQL Server 2000
   • LabWare LIMS, (Laboratory Information Management System) on SQL Server 7.0

   There is centralised backup storage for data files with DLT tape backup. There are two NAS (Network attached Storage) devices attached to the network. The State Laboratory is attached to the Internet via a 256K leased line. This connection is used for email and Web browsing and is protected by a firewall, proxy server, mailsweeper and content management systems.

5.4 There are approximately 150 desktops and laptops in use although some of these are embedded within analytical instruments or is old equipment which is kept for maintenance purposes.

5.5 The move to Backweston will mean that much of the existing IT infrastructure will be upgraded or replaced. Appendix IV sets out an extract from the specification of the new systems which are being installed.
5.6 Figure 5.1 above summarises the high level requirements in terms of the applications and management tasks for the IT function. Some of these requirements are well in hand whereas others such as document management and e-applications and an intranet are still to be undertaken. The accounting system and a HRMIS will require little support from IT. The document management project is judged to be a relatively small application. Once the Backweston move is achieved the sore activities of the IT section will be the continuation of the LIMS project, support and maintenance for users and the network and the development of E applications and an intranet.

Organisation and Management of IT

5.7 Figure 5.2 below sets out the current organisation and management of IT. While this structure has merit and is understood to have developed as a result of the IT strategy completed in 1997 it does not have sufficient clarity, responsibility and accountability.

- There is confusion and overlap evident between the policy development level and the management level
- The role of the Steering Group is unclear
- Accountability and responsibility are hampered by the lack of a formal IT Manager role
• Performance management is hampered because the IT Team report to line managers in laboratory sections with no clear IT performance objectives.

**Figure 5.2 Current IT Organisation Structure**

5.8 Proposed Structure

**Figure 5.3 Proposed Organisation Structure**

5.9 Figure 5.3 above sets out the recommended structure for the IT function.
• The line of authority is clearly developed from the MAC where one member of the MAC would assume responsibility for IT matters.
• The role of IT Co-ordinator is formally established as IT Manager
• An IT Strategy Group should be formed with senior representatives from all sections and incorporating the existing Steering Group. Its role should be to
ensure that the IT needs of each section are addressed. The IT Strategy Group should have a role in approving the IT strategy and regular review thereof.

- The IT Team are formally established as a dedicated unit with specific roles and responsibilities.
- Within the IT team the separate functions of Desktop support, network management and systems development are separately identified but the team are expected to work flexibly providing cover across the Laboratory

5.10 At Management Advisory Committee (MAC) level, there will be a need for:-

- Management with leadership; vision and commitment to IT as the future backbone of laboratory management.
- IT policy development including the determination of an appropriate IT risk appetite and the risk management strategy
- An understanding of the use and potential of IT
- A commitment to develop the internal and external IT reach of the organisation.
- Leadership to manage and co-ordinate the cross sectional issues that are likely to arise
- Commitment to provide the resources required.

5.11 At IT Management and Team level, there will be a need for:-

- A clear focus on IT as a key support to the overall State Laboratory strategy.
- An approach which sees IT as assisting sections and departments to improve their service levels, customer support and productivity
- Technically competent and trained staff who can create and maintain an effective working relationship between IT and departments.

5.12 At Section/Departmental level, there will be a need for:-

- Cross trained managers who understand the business needs of their services and how technology can help.
- Strategies and resources for IT provision; training; and development.
- An ability to influence the standards of IT and the support received.
5.13 At present the IT function does not have a clear locus within the organisation structure of the State Laboratory. Adopting the structure outlined above whereby one member of the MAC would take senior level responsibility for IT would effectively establish the IT function as a standalone unit reporting to the MAC. An outline report format which could be used to monitor IT is attached as Appendix II.

**Alternative Delivery Mechanisms**

5.14 As part of this review consideration of alternative service delivery mechanisms was undertaken. In this context alternative delivery mechanisms means outsourcing the IT function either in whole or in part to an external provider. The circumstances in which an organisation might consider such an approach would include where the organisation does not have the required skills internally, where the costs of providing the service internally are in excess of what the service can be provided for externally, where a relatively steady state organisation is in place with well defined service requirements and, where IT is no longer considered to be a part of the core business of the organisation. Consideration therefore comes down to examining issues such as comparative costings, comparative productivity and service levels and the future development and importance of IT in the organisation.

5.15 Another aspect to be considered is the scope of the service(s) to be outsourced. This can range from the entire service to subsets of the overall service such as help desk support, network management or specific projects. In a relatively small organisation there can be difficulties in separating parts of the overall service because of functional overlapping and shared responsibilities. The following sections consider the options associated with the provision of the service in-house or externally.

5.16 The State Laboratory is a relatively small organisation and the effective size of the IT function with c.4 staff members is also small by comparison with the range of requirements that it must deal with. The high level options and issues associated with the provision of the service are outlined in the following table. The option of ceasing the function is included for completeness only as it is a non feasible option.
<table>
<thead>
<tr>
<th>Service Delivery Option</th>
<th>How the option would apply to the IT Function</th>
<th>Key advantages/disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cease to provide the service in whole or part</td>
<td>Not feasible – IT is an essential element of service delivery</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
| In-house provision – Revised | The State Laboratory would need to formally structure the IT service as a dedicated function. | **Advantages:**  
- Greater focus on the IT needs of the State Laboratory  
- Clearer management control structure.  
**Disadvantages:**  
- Need to clearly set the performance criteria for IT. |
| Transfer all the service with no in-house provision | This option would still require the SL to retain a small in-house team to:  
- carry out the specification/tendering process  
- Manage the contract.  
- advise on policy/strategy  
All other services would be provided by external provider. | **Advantages:**  
- Releases staff to work on operational areas.  
**Disadvantages:**  
- Operational difficulties in supporting LIMS  
- Possibly much more expensive depending on level specified  
- Lack of knowledge of the baseline service provided currently  
- Future development may be constrained if tied into a contract with one supplier. |
| Transfer some elements externally with partial in house provision | This would involve:  
- specifying the service  
- preparing an in-house bid  
- a tendering process. | **Advantages:**  
- Releases some staff for core operations work.  
- Current staff get opportunity to compete  
**Disadvantages:**  
- Current cost information and service information is inadequate to allow comparative analysis.  
- Overlaps between in-house and external provision. |
| Joint commissioning for delivery of the service. | Once the move to Backweston has taken place the State Laboratory could investigate the options available for shared services with others on the site. This could be for part or all of the IT service | **Advantages:**  
- Possibly better value for money because of advantages of scale.  
**Disadvantages:**  
- Setting clear priorities for dealing with issues on an impartial basis  
- Specialist knowledge relating to LIMS difficult to buy in  
- Likely to be a more lengthy process. |

5.17 The approach which is considered suitable for the State Laboratory at this time is to formally establish the IT function with a clear management structure. The existing cost associated with providing the service and the sub elements within
the service will need to clearly identified and the operational requirements of
the service and the service levels achieved will also need to be recorded.

5.18 The option of buying in a service from others in the Backweston campus
should be considered and should be examined for those more readily
outsourced activities such as desktop support and network management which
are easier to specify; do not require special knowledge of the State
Laboratory’s business; and may be more cost-effectively provided by another
supplier. This however should only be considered once the existing service has
been bedded in, clearly costed and the operational parameters established.

5.19 In any event the State Laboratory will need to retain sufficient in-house
expertise to develop and monitor its IT strategy. In this context the existing IT
strategy should be updated as soon as possible.

5.20 In general terms the decision to outsource or retain in-house should take the
following into consideration:

**To Be Provided by External Supplier/s:** Services which can be more
precisely specified or quantified; do not require detailed knowledge of the
State Laboratory and its business; are more related to operations or the
maintenance of existing systems; and require specialist skills which are more
likely to be provided by a supplier with a range of clients. Examples of
appropriate services may be:

- Data networks
- Servers – application servers and email
- Desktop Services
- Operations and Helpdesk
- Hardware maintenance

**To be Provided In-House:** Services relating to the development and
implementation of the State Laboratory’s IT vision and strategy and which
depend on a close understanding of the needs of the State Laboratory.
Examples of appropriate services may be:
• Development and project management of IT Strategy
• Driving the development of LIMS with possible external support
• Leadership of the State Laboratory’s e-government and IT related modernising agenda
• Supporting departments in business analysis; procurement and project management of new systems; arranging or providing future support for new applications (possibly by the external supplier).
• Management of external contract.

SUMMARY AND RECOMMENDATIONS

5.21 The current hardware and software environment in the Laboratory is in a transition phase brought about by the move to Backweston. This move will result in upgraded systems and network

5.22 The organisation and management of IT needs to be more formally reflected in the organisation structure of the Laboratory. This will mean formalising the role of an IT manager and the IT team.

5.23 Outsourcing the IT function or parts of it is not a feasible option at this time. Once the move to Backweston has taken place, a clear IT strategy has been developed and resources put in place to manage any such outsourced service the option can be re-examined.

5.24 The possibility of using some shared services on the Backweston campus should be investigated once the move has been completed and the specific services identified, costed and service levels specified.
6. PERFORMANCE INDICATORS

INTRODUCTION

6.1 An essential requirement for the IT function in the State Laboratory in the future will be clear performance indicators with associated time and budget targets. This section sets out an overall framework for the development of performance indicators and specifies suitable indicators that can be used directly or with minor modification at different levels within the IT function. This section addresses part 7 of the terms of reference.

PERFORMANCE FRAMEWORK

6.2 Performance Indicators for an IT department can be defined on several bases including those indicators related to the inputs used, the activities, the outputs delivered and the outcomes achieved. Performance indicators used in the State Laboratory currently are predominantly related to input measures and these need to be balanced with indicators and measures related to outputs and outcomes. While input measures tend to be readily identifiable and measurable, output and outcome measures can be more difficult to gather and may also be qualitative in nature.

6.3 The overall mission of the IT department is “To support the core business of the State Laboratory”. At present the objectives supporting this overall mission are broadly defined in terms of achieving a small number of key projects. These are the LIMS project, the Lotus Notes project and the Dynamics project.

6.4 The figure below sets out the framework for developing performance indicators. It is based on identifying the key elements of the overall service i.e. the inputs, activities, outputs and outcomes associated with the function. Indicators for each element are identified and in turn measures are specified. The nature of the indicator such as cost control, management control, operational control and strategic management is specified. These correlate with the value for money attributes of Economy, Efficiency and Effectiveness.

6.5 Target levels for each indicator and measure can be specified such that there is a specific performance level to be achieved and which can be used to drive improved performance.
6.6 The Input indicators are based on the resources consumed by the function which are broadly human and capital resources. The Activity indicators identify what the IT function does with the resources input and are generally measured in units of time. The Output indicators are operational aspects of the function and highlight what a user of the function would see. The final indicators – Outcome indicators - link back to the overall State Laboratory strategic goals and highlight the ultimate objective for the IT function which is, for example, to improve customer service and staff productivity.

Figure 6.1: Logic Model for IT Performance Indicators

6.7 For each of the indicators identified above detailed measures are specified. It should be noted that the measures for Inputs are quantitative in nature whereas the measures for Outcomes are more generally qualitative. This introduces greater difficulty in gathering reliable measure data for output measures but the value and importance of the outcome measures are considerably higher. The development of the measures from the input side to the outcome side can be broadly thought of as moving from measures to performance indicators to key performance indicators to critical success factors. Critical success factors can be thought of as “What must IT do well in order to succeed in the primary objective which is to support the core business of the State Laboratory.”
6.8 The framework set out above identifies the high level indicators and measures that should be considered. The following objectives are suggested as appropriate as part of a general review of the IT strategy:

- To establish and maintain a reliable and secure network of PC’s and servers in which
  - All business critical data is protected, backed up and restorable
  - Users are able to work and communicate flexibly using modern technology
  - Key customers needs are facilitated by enabling external access to sample tracking and results.

- A user friendly, prompt and effective help desk is available for all staff

- Departments and sections are assisted to develop their IT capability and achieve their business needs

- There is a high level of staff satisfaction with the quality and cost of the IT service

- IT operates in accordance with the budget established

- Time allocation to key activities is managed and controlled

- IT initiatives support
  - Improved productivity
  - Service Delivery
  - Staff Satisfaction
  - Customer satisfaction

- To provide electronic access to information and services

6.9 Examples of the types of performance objectives and measures that might be used are set out below. The specific measures to be used will depend on the overall revisions to the IT structure and the extent, if any, of services to be provided by third parties.
## PERFORMANCE OBJECTIVES AND INDICATORS

**Objective 1:** To establish and maintain a reliable and secure network of PCs and servers in which:
- All business-critical data is protected, backed up and restorable.
- Users are able to work and communicate flexibly using modern technology.
- Key customers needs are facilitated by enabling external access to sample tracking and results without risk to State Laboratory operations.

**Measures:**
- % of PCs with data on servers backed up by IT service
- % of PCs with full virus protection
- % of availability of network in working hours
- Disaster Recovery Plan in place
- Disaster Recovery Plan – arrangements tested

**Objective 2:** To operate a prompt, customer friendly and effective Help Desk service meeting all customer IT needs

**Actions Required:**
- Introduce Call Tracking
- Establish formal Helpdesk operations; procedures; and standards.
- Establish performance indicators and methods of collection
- Customer care training and guidelines for IT staff
- Survey to establish satisfaction levels six months after implementation of new system and every 6 months

**Measures:**
- % of Helpdesk calls resolved within agreed time limits
- Average time taken to respond to (a) Priority calls (b) Other calls
- Average time taken to resolve (a) Priority calls (b) Other calls
- Customer satisfaction with Helpdesk

**Objective 3:** To work effectively in partnership with departments to understand and enable them to achieve their business needs.

**Actions Required:**
- All departments to establish their IT needs, in consultation with the IT service, to include a training needs assessment.
- IT to produce a plan including priorities, scheduling and resources for approval by the MAC IT representative in conjunction IT Strategy Group.
- All departments to identify a member of staff with responsibility for liaison with IT service.
- IT to develop a project appraisal methodology; project management framework; and post project appraisal system for IT projects.

**Measures:**
- % of IT projects with an initial project appraisal
- % of IT projects completed in accordance with project plan
- % of IT projects completed within budget
**Objective 4:** To achieve high levels of customer satisfaction with the quality and cost of the service.

**Actions Required:**
(a) Consider establishing a price list of costs for IT provision (hardware, software and support costs)
(b) Other actions as per Objective 2

**Measures:**
(a) Cost of ownership of a PC
(b) Support costs per workstation
(c) Workstations supported per IT specialist
(d) Staff satisfaction survey %

**Objective 5:** To ensure that IT operates within defined budgetary parameters

**Actions Required:**
(a) Develop detailed staff and operational budgets for IT services
(b) Develop detailed capital budgets for IT services
(c) IT Manager to be responsible for IT budget and budget to be reviewed and approved by MAC IT representative and MAC

**Measures:**
(a) Staff Costs Budget v’s Actual
(b) Operational Costs and Capital Costs Budget v’s Actual
(c) Total IT Cost as a % of Total Salaries wages and Allowances
(d) IT Cost per FTE

**Objective 6:** To ensure that IT services are delivered according to plan

**Actions Required:**
(a) Schedule and roster all IT staff according to business needs

**Measures:**
(a) Hours delivered v’s planned for Support, Maintenance and Projects

**Objective 7:** To ensure that IT operations and development is focused on the Critical Success Factors for the State Laboratory.

**Actions Required:**
(a) All time allocations, budgets and resource allocations to be assessed for conformity and support to the CSF’s.
(b) Measurement system implemented to measure and report productivity and satisfaction levels
(c) Measurable benefits identified and resources redeployed to new areas.
(d) Training in the effective use of technology in Laboratory operations provided

**Measures:**
(a) % of staff who have had training provided appropriate to their job.
(b) Quarterly reporting on productivity and 6 monthly on satisfaction levels.
(c) Customer satisfaction surveys performed.
**Objective 8: To provide electronic access to information and services**

<table>
<thead>
<tr>
<th><strong>Actions Required:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Web-site development -</td>
</tr>
<tr>
<td>(b) Intranet Development</td>
</tr>
<tr>
<td>(c) Develop strategy on electronic delivery</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Measures:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Updated Website available</td>
</tr>
<tr>
<td>(b) Intranet developed.</td>
</tr>
<tr>
<td>(c) % of transactions capable of electronic delivery actually delivered electronically</td>
</tr>
<tr>
<td>(d) Sample tracking and reporting enabled for key customers</td>
</tr>
</tbody>
</table>

**SUMMARY AND RECOMMENDATIONS**

6.10 Performance Indicators for IT need to be developed on the basis of inputs, activities, outputs and outcomes. They need to be aligned with the overall strategy of the Laboratory and incorporated into the performance management framework for individuals so that there is clear responsibility and accountability.

6.11 Specific objectives and indicators such as reliability and security, help desk performance metrics and business operations support are identified. Overall metrics such as the total cost of IT per employee and IT cost as a percentage of salaries, wages and allowances will also help to establish the relative economy of the services provided.