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Expert meeting on Management of Large Public Sector IT Projects

Paris, 26-27 October 2000

HAND OUT

UNITED KINGDOM

Reference: Orange and Green Books
See: www.hm-treasury.gov.uk/guid.html

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1. GENERAL INSTITUTIONAL CONTEXT

1.1. Policy

Is there a national policy for management of large IT projects; and what are its characteristics?

The recent review of major IT projects in government (*Successful IT: Modernising Government in Action*, published May 2000) has made extensive recommendations for improved management of large IT projects. These are based on evidence from extensive research undertaken in the UK public and private sectors and abroad, which shows that there are many reasons why failures occur. The aim of the study was to make prescriptive recommendations that will raise the standards of all projects to the level of the best, and provide mechanisms to underpin the process of improvement.

The Review Team was based in the Central IT Unit (CITU), Cabinet Office. This Unit has now merged with the Office of the e-Envoy (OeE), Cabinet Office, and any reference to CITU in the *Successful IT: Modernising Government in Action* report now refers to OeE.

The recommendations from this review are currently being developed as policy for the management of all large IT projects in government. In summary, the recommendations for improved performance are:

- improving the focus on business change across government. Recommendations include methods for achieving and maintaining this and structures to support their use.
- encouraging good leadership and clear responsibility for IT-enabled change programmes and projects. Recommendations include the requirement of a Senior Responsible Owner, and give a description of that person's role.
- improving project management across government. Recommendations include the establishment of systems for matching project managers to projects, and increasing skills and awareness.
- improving the management of risk. Recommendations include measures to ensure the skills and mechanisms needed are in place.
- addressing modular and incremental approaches to implementing IT-enabled change. Recommendations include introducing a presumption in favour of such approaches and supporting guidance.
- improving the measurement and realisation of benefits. Recommendations include reinforcing systems for monitoring benefits, and greater sharing of experience.
- establishing improved interactions between government and its suppliers. Recommendations include a more strategic approach to suppliers, addressing problems with current guidance and setting out actions suppliers need to take.
- ensuring that all of the report's recommendations are applied appropriately to cross-cutting initiatives.
- providing the skills needed to deliver improvements in the handling of IT-enabled change. Recommendations include developing, implementing and monitoring a framework for the skills needed and making links to other work on Civil Service reform.
- establishing means of learning from lessons and sharing experience. Recommendations include a system of peer review and requirements and mechanisms for obtaining and sharing good practice.

Ownership of the report is vested in the e-Envoy who will hold overall responsibility for its implementation. He will report to the e-Government minister on progress.

The full list of recommendations is provided in Annex A.

Is there a national IT policy and does this policy include prescriptions for the use of IT in government?

The ability for public sector organisations to work together and share information is an essential factor for the successful achievement of 'joined-up' government. The **e-Government strategy** fulfils the commitment in the *Modernising Government* White Paper to publish a strategy for Information-Age Government. It sets out a commitment to using IT to deliver services in new ways focusing on the needs of the citizen rather than those of government departments.

The **e-Government strategy** has ten framework policies that must be adopted by all government departments and agencies:

Websites

The framework policy focuses largely on electronic publishing and the creation of a sound organisational basis within departments for managing their on-line presence, on good content and on technical standards that provide for consistency and the widest possible access to public sector sites.

Call centres

The call-centre guidelines set out an approach to implementing call centres in the public sector, ensuring they are viewed as part of an overall business change process. The guidelines provide a set of standards for ensuring public sector call centres are accessible, efficient and helpful and provide a consistent and accurate interface with government services.

Smart cards

The smart card framework policy provides a set of standards and guidelines to facilitate interoperability. It also provides advice on acquisition issues for public authorities, to ensure that accessibility is an integral part of any card scheme and to provide guidance on data protection issues.

Authentication

Effective government services will require a widely accepted means for citizens and businesses to authenticate themselves for the purposes of those transactions. The authentication framework policy and guidelines establish a common approach to authentication for government departments, agencies and the wider public sector.

Digital TV

Although digital TV is still very new and will continue to develop over the next few years, this early guidance is considered essential to ensure that public sector organisations are suitably informed about the strategic opportunities and practical implications of deploying digital TV-based services.

Security

Information-Age government services, from simple information-giving websites to large, complex transactional services, are reliant upon the application of appropriate IT security measures. The security policy represents a call for a general alignment with best e-Commerce practice. This applies across the public sector, and extends to all service delivery channels and all bodies which deliver public services. Supplementary guidance on specific security topics will also be published including Trust Services, Confidentiality and Privacy, Business Services Security and Network Defence Security Requirements.

Privacy

The Modernising Government White Paper committed government to "address concerns about privacy" and to "provide a proper and lawful basis for data sharing where this is desirable, for example in the interest of improved service or fraud reduction". This paper outlines the key topics of privacy relating to Information-Age government. Data sharing is at the heart of the Modernising Government agenda. The Performance and Innovation Unit (PIU) in the Cabinet Office has begun a study on the issues surrounding Privacy and Data Sharing. It will be based on analysis of consumer attitudes, of existing government efforts in data sharing, of current benefits of data sharing and projected benefits from further data sharing, of existing institutional barriers, of the domestic and EU legal boundaries, and of developments in IT to safeguard information. The project team will also evaluate efforts in other countries, both within the EU and overseas.

Electronic records management

The framework on electronic records management provides guidelines to support greater commonality and inter-departmental working in electronic document and records management, and in the sharing and exchange of electronic records across the GSI.

Metadata

This paper sets out a work programme to deliver a metadata policy for Information-Age government.

Interoperability

The interoperability framework policy sets out the policy and standards for achieving interoperability across all government departments and the wider public sector.

These framework polices are underpinned by implementation guidelines on developing e-Business strategies and ensuring that the required skills for Information-Age government are in place. This is supported by a centrepiece of the e-Government drive: the new Performance and Innovation Unit report, *e.gov: Electronic Government Services for the 21st Century*. This report recommends putting in place new financial incentives, levers and structures to make sure the transformation of services takes place across the public sector. It also recommends opening up the electronic delivery of government services to the private and voluntary sectors to encourage the improvement in service quality.

1.2. Funding

What are the processes for funding large public IT projects* - e.g. *net budgeting, possibilities for using credits to fund investments, mechanisms in the budget process, etc.?

The UK Government spends large sums on IT each year. Overall expenditure in the public sector in 1998-99 on IT hardware and software, maintenance and other services was in the region of £7 billion. *(Source: the UK Parliament's Public Accounts Committee First Report.)*

The role of HM Treasury

HM Treasury's Expenditure Divisions control public expenditure.

The UK Government carries out an annual Spending Review of central government expenditure. This now includes a cross-cutting review on the knowledge economy, which will consider funding for electronic government. Departments and agencies carry out annual Spending Reviews internally and produce high-level plans, budget allocations and performance measures. These are used as the basis of formal agreements with HM Treasury, which are Public Service Agreements (PSAs) for a rolling period of three years. The PSAs contain performance targets and a budget allocated for an agreed portfolio of projects; they are published via the HM Treasury website.

The **Invest to Save Budget** makes capital funding available (in addition to the PSA allocation) where major opportunities for improvement have been identified. The **Modernisation Fund** is part of this budget, with funding specifically for IT projects; it is managed under the direction of the **e-Envoy**, who owns the e-Government strategy on behalf of ministers.

Sourcing options

Most IT in government is outsourced. The main approaches are as follows:

- **PFI:** From 1992 the Private Finance Initiative has promoted the procurement of major projects as packages in which the private sector designs, builds, finances and operates the project, possibly for many years. This is in contrast to traditional procurement in which the public sector provides all the finance and, typically, takes much of the development risk. A number of deals have involved the implementation of IT provision, including the new National Insurance Recording System.
- **PPP:** An organisation is likely to seek business partners and/or a Public/Private Partnership (PPP) consortium for services where the business aspects are the primary concern, with IS/IT as a supporting component. Typically, there would be an advertisement in the supplement to the Official Journal of the European Community (OJEC) inviting expressions of interest from a wider range of major players such as financial institutions rather than a framework catalogue's narrower, specialised range of IS/IT providers.
- **Framework catalogues:** A recent development has been the development of framework deals, in which departments work closely with suppliers. Contracts are phased and let out on a modular basis so that competition can apply at subsequent stages, and other suppliers can be brought in as appropriate. The Department of Social Security's ACCORD programme, announced in 1998, is an example where the Department have established a close, long-running relationship with a single preferred service provider to design, develop, implement and operate their IT strategy. At the same time, they announced that they intend to work with three service providers for the provision of a wide range of IT services in the future.
- **Channel services:** These are intended to provide citizens with the best possible range of access paths or "channels" to government through electronic service delivery, which could be provided by a number of public and private sector organisations working in collaboration. In some cases service

delivery will be paid for entirely by the private sector where the incentive exists. This approach is new and experience so far is limited. An example of a channel service project underway is the Department for Education and Employment (DfEE) Connexions Card project. A number of private sector providers will contribute to service delivery, which will use smart card technology to play an important part in ensuring that every young person stays on in learning post 16 and achieves a worthwhile qualification by the age of 19.

Internal approvals mechanisms: the business case

Where a business need for IT-enabled change has been identified and agreed in PSAs, the organisation produces a business case for management approval. The business case is also a management tool for planning and managing the progress of a project. A key recommendation in *Successful IT: Modernising Government in Action* is that the public sector produces business cases that address the whole business change, not just the IT component. Currently most departments and agencies develop their business cases in two stages: an Outline Business Case setting out initial assumptions about potential options, costs, benefits and risks; and a Full Business Case that validates and updates these assumptions through the procurement process. In future they will start the business case development with a Strategic Outline Case, which will identify a preferred procedure at a high level. Experience in the NHS and to some extent in central government has shown that the main advantages of adding this preliminary stage are:

- senior management and key stakeholder commitment from the early stages of the project;
- concentration on the strategic aspects of the project early on, before committing to detailed options appraisal;
- more rapid and focused development of the business case.

1.3. Decisions and assessment

Who makes the procurement decisions in relation to large public IT projects?

Departments' programme/project boards make procurement decisions on the advice of their procurement teams, reporting ultimately to their Principal Finance Officer.

In the past, some change programmes and projects have suffered from a lack of active ownership at senior management level. *Successful IT: Modernising Government in Action* makes the recommendation that overall responsibility for delivering the business objectives and benefits of any programme or project must be vested in a single, responsible and visible individual, the **Senior Responsible Owner (SRO)**. The seniority of the SRO will be dependent on the size, complexity and associated risk of the project/programme.

Successful IT: Modernising Government in Action emphasises that effective business change programmes and projects require clear, active and visible leadership from the top. Top management needs to send out a clear signal that effective delivery of projects is crucial to meeting the organisation's overall objectives.

It is vital to raise awareness among ministers and senior officials of the way that their leadership and decision making affect the environment for project delivery, and the roles they play in individual projects and programmes. This includes their part in encouraging a culture of openness so that potential difficulties are highlighted early and lessons learnt.

The UK Government recommends that professional development events for ministers and senior civil servants should be organised by the Centre for Management and Policy Studies (CMPS) informing them of their role in, and responsibility for, major IT projects and programmes. These events include joint seminars. CMPS will also explore the scope for running joint events with the IT industry.

On what information basis is the decision taken?

The key deciding factors are:

- value for money;
- affordability;
- achievability (can the organisation realistically cope with the proposed level of change?).

The decision is based on a thorough investigation of the available options to meet the business requirements, which includes cost/benefit, risk and sensitivity analysis as well as appraisals of the provider's capabilities and the likelihood of cultural fit between customer organisation and provider. (The analysis is based on HM Treasury guidelines for investment appraisal, the *Green Book.)* The findings are documented in the **business case** (described earlier under *Funding*).

Successful IT: Modernising Government in Action recommends that the programme/project board's decisions are informed by independent review. **Peer reviews** provide independent assurance to the Senior Responsible Owner (SRO) that decisions taken at key points in the project are based on sound information. Peer reviews take place at four key points in the life cycle of IT-enabled projects:

- at project initiation after the initial business case has been prepared, to confirm business need;
- after the procurement strategy has been defined but before issuing an advertisement in the Official Journal of the European Community (OJEC), to confirm the procurement method and sources of supply;
- before contract award, to confirm the investment decision;
- before implementation of an operational service, to confirm "readiness for service" of both customer organisation and provider.

Peer reviews give the project team the benefit of advice and guidance from fellow project practitioners and provide assurance that the project can progress safely to the next stage of development or implementation. They seek assurance that:

- the project can demonstrate that **quality** is addressed from the perspectives of delivering to the business case, delivering to the customers' and users' requirements, and delivering to appropriate technical, technology or specialist standards;
- **changes** that are required to any aspect of the project (including the business case, the deliverables, budgets) have been properly planned and controlled so that the project's continuing ability to deliver the required outcome can be managed;
- appropriate **training** is being given to staff taking on project management roles so that the required responsibilities are matched to the available skills and competencies;
- the **processes, products, decision points**, stages and overall approach taken to manage the project are based on best practice and adapted to suit the context and the environment in which the project will operate;

- the project demonstrates that **the business case** is driving the project activities and that it continues to be viable;
- major decision points are built into the project plans to ensure that the continued **viability** of the project can be reviewed and confirmed by the Project Executive and the Senior Responsible Owner.

In addition, **gate reviews** will be required for major projects identified as high risk (see the next section on risk for selection criteria). Gate reviews will be conducted by peers from other departments or by HM Treasury's Office of Government Commerce (OGC - described below). Work is underway on developing policy on gate reviews for IT-enabled projects; they have proved to be a successful mechanism for controlling risk in construction projects.

How are risks evaluated* ex ante*?

Currently the quality of risk management varies widely across government. New ways of working will require much more robust approaches to risk management. The Modernising Government agenda requires government to be innovative in seeking better ways to deliver services to the public. It calls for a new approach to the management of risk, moving away from a risk averse attitude to one which embraces and actively identifies, assesses, monitors, manages and communicates risk in the interests of securing major improvements.

Successful IT: Modernising Government in Action sets out the key recommendations that public sector organisations must adopt to avoid failure with IT-related business change. It recommends that more effective risk management will enable departments and agencies to undertake the increasingly complex and cross-cutting projects that are demanded by the Modernising Government agenda. All management activity is conducted in an environment of risk and uncertainty, and therefore management of risk must be supported at the highest level by awareness of its importance.

The National Audit Office's study *Managing Business Risk in Government* aims to encourage "innovation through well thought through risk taking". Business risk management should be "an attitude of mind whereby all staff are fully aware that events or circumstances which can affect the achievement of their outcomes need careful management". Departments and agencies must have in place the right skills, management structures, procedures, processes and organisation.

HM Treasury's draft guidance *Management of Risk - A Strategic Overview* (the *Orange Book*) addresses critical factors for successful management of risk. These include:

- processes in place to monitor risks;
- access to reliable, up-to-date information on risks;
- control mechanisms in place to deal with those risks;
- decision-making processes supported by a framework of risk analysis and evaluation.

There must be a "risk owner" at senior level, such as the SRO, supported by risk managers. There must also be effective processes for upward referral of major problems.

Risk management frameworks. From September 2000 all departments will be required to establish a risk management framework. The minimum requirements are:

- the organisation's risk policy;
- main stakeholders;
- approaches for identifying, assessing and reporting risks, and action to deal with them;
- responsibilities for managing risk and reporting to senior management, especially risks which cut across core business activities and organisational boundaries;
- quality assurance (QA) arrangements to ensure that risk management reflects current good practice.

All projects must use a **Risk Register** (also referred to as a Risk Log) as part of the risk management activities on the project (as described in CCTA's Programme Management and PRINCE 2 methodologies below). The Risk Register must be reviewed and updated regularly. Project level risk management must be integrated with the programme level activities where the project is part of a programme.

The two main questions for any public sector project which must be addressed are:

- Can the public sector organisation meet business objectives and achieve value for money?
- What are the risks of not achieving the desired outcomes?

Value for money is addressed through the business case process, as described earlier, using well-established techniques for investment appraisal such as those in HM Treasury's *Green Book.*

Formal approaches to risk assessment are being developed to help departments gauge the level of risk for their projects at specific points in the project life cycle. A Project Profile Model (used as a guide) provides a standard set of high-level criteria against which SRO can assess the intrinsic characteristics and degree of difficulty of a proposed project, in order to establish the appropriate:

- control structures (including peer review);
- risk profile and corresponding risk strategy;
- design approach (for example, modular or incremental approaches rather than "big bang" - described in a later section).

These criteria are used to assess business impact, technical impact and client/supplier arrangements. A detailed table of the criteria is provided in Annex B.

Other factors that need to be taken into account for evaluating risk include:

- ratio of business benefit to cost (high ratio may merit more risk than low);
- client-side skills in business process modelling, project management, etc.;
- capacity of organisation to embrace/implement the change;
- degree of technical complexity.

Additional factors for consideration during the assessment of risk include:

- the effect of government priorities on the allocation of resources to the project;
- externally imposed time delays, such as waiting for requirements from other departments;
- capability of the supplier in terms of technology, expertise, skills, etc.;
- inexperience of government departments in projects of particular size or complexity;
- inadequate reliable estimates, feasibility studies, user-trial programmes, or other similar data upon which to base a risk assessment.

Is there a special agency, institution or authority responsible for assessing projects* ex ante *and/or* ex post*? If so, what are the characteristics of this entity in regard to staff, legal basis, rights and responsibilities and institutional affiliation?

The **Office of Government Commerce (OGC)** is an office of HM Treasury, set up on 1 April 2000. It has been created to enable and facilitate reform of commercial activities across government; administratively and legally it remains part of HM Treasury. OGC brings together Treasury procurement policy, the practice development units and the Private Finance Policy team with three former Cabinet Office executive agencies:

- Central Computer and Telecommunications Agency (CCTA);
- Property Advisors to the Civil Estate (PACE);
- The Buying Agency (TBA).

OGC's interests span the whole process of acquisition from third parties, including goods, services and construction projects, from the initial concept right through to the end of a services contract or the useful life of an asset.

Its activities are guided by a Supervisory Board, chaired by the Chief Secretary to the Treasury. Membership of this Board is made up of Permanent Secretaries, the Head of the National Audit Office (NAO) and two senior external representatives. This provides OGC with continuing top-level support and strategic direction, as well as helping to ensure a coherent cross-departmental approach.

OGC will monitor progress on peer reviews where it is involved in providing resource or expertise, and take the lead in building a knowledge network to support the peer review process.

OGC will own the processes and criteria described to:

- assess the effectiveness of knowledge transfer between projects;
- amend and update the scoring mechanism for categorising projects;
- identify resource constraints and future requirements;
- ensure that processes are effective and of benefit to projects, individuals and departments involved;
- confirm that lessons learnt are applied across government so that better performance is achieved overall.

Individual departments are responsible for ensuring that reviews, such as peer reviews, are carried out.

The role of the NAO is to report to Parliament on the spending of central government money. They conduct financial audits of all government departments and agencies and many other public bodies, and report to Parliament on the value for money spent. They therefore have a role *ex post*.

What is the content or nature of these assessments?

Best practice recommends that quality, performance and risk are monitored throughout a project, and services, supplier/customer relationships and contracts are continually managed to an agreed standard in order for the benefits of a project to be realised.

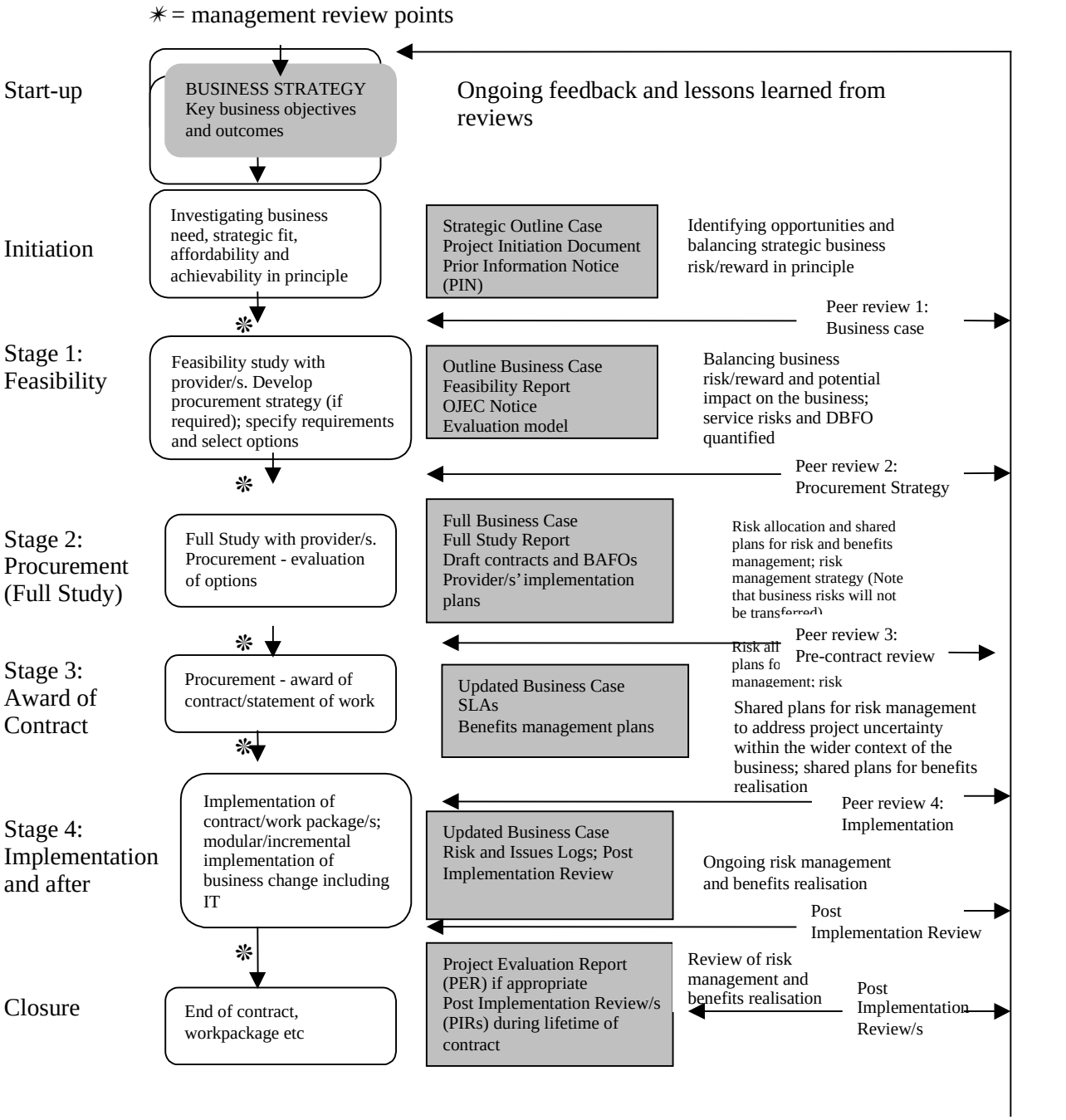
Project board, peer and gate reviews are outlined in the previous section on decisions and assessment.

How is progress monitoring and reporting undertaken? How often, to whom, and reporting on what?

Figure 1. **Acquisition life cycle**

The key stages below assume a procurement project. However, the principles can be adapted to any type of project where a full business case process is required, including cross- cutting projects.

Stage in Products/ lifecycle	Risk and benefits information content	Peer review aspects



The SRO is responsible for monitoring the impact of the project on the organisation and, conversely, identifying external impacts on the project.

Recent experience has shown that there is often a missing link between effective risk analysis and management and raising the awareness of business risks to the organisation - mechanisms for appropriate reporting and escalation of problems. Such mechanisms could ensure that action is taken when necessary without inundating senior management with detail. It is vital that difficulties with a project are raised to the appropriate level as soon as possible. Existing approaches described in PRINCE 2 (project management methodology http://www.ccta.gov.uk/prince) address this problem:

- they suggest the use of a project assurance function responsible for monitoring all aspects of a project's performance and products independent of the project manager;
- they set tolerance levels for cost, time and functionality at the start of the project outside of which the project manager must seek approval before proceeding. There are also software tools available.

A recommended simple mechanism to increase visibility of risks is a graphical summary risk profile. The Project Manager or Risk Manager would update this graph in line with the risk register on a regular basis and provide this to the SRO.

How is the attainment of promised (particularly less tangible) benefits measured* ex post*? Benefits realisation is a central component of the government's formal approach to programme management which is widely adopted, with a Business Change Manager appointed specifically to take responsibility for benefits realisation. The benefits achieved are measured against the expected benefits set out in the business case that justified the investment.

Post-Implementation Reviews, sometimes known as Post Project Reviews, are used widely as the mechanism to report formally on outcomes against the business objectives and business case.

Contractually, performance targets are set and agreed in contracts with service providers; service managers monitor progress against those targets. Some contractual arrangements, especially PFI, feature payment mechanisms that are tied to benefit realisation - if the provider achieves the benefit they receive the agreed payment; if they exceed the targets they may be entitled to a share of the additional benefits. Treasury Taskforce guidance provides advice on benefits realisation and payment mechanisms.

However, the *Successful IT: Modernising Government in Action* review has identified that too few projects or programmes have been subject to the necessary review or reporting of the actual benefits. Even if they are delivered on time and to budget, it has not been clear that they have delivered the expected returns. The report recommends that mechanisms for benefits measurement and realisation should be improved; the recommendations include reinforcing systems for monitoring benefits and greater sharing of experience.

Currently no central reporting or recording is undertaken. In future benefits realised from specific projects and programmes will be collected and the information maintained in order to share it across government. Without this information, the government as a whole would be unable to ensure that future projects and programmes learn from such cases and take account of these when embarking on new initiatives.

How are projects audited financially* ex post*?

It is the responsibility of individual departments and agencies to audit their projects. Internal auditors must report their findings to their Management Board or Finance Officer. External financial audits carried out by the NAO take place annually. External project audits have to be specifically requested or referred for audit.

1.4. Management Models

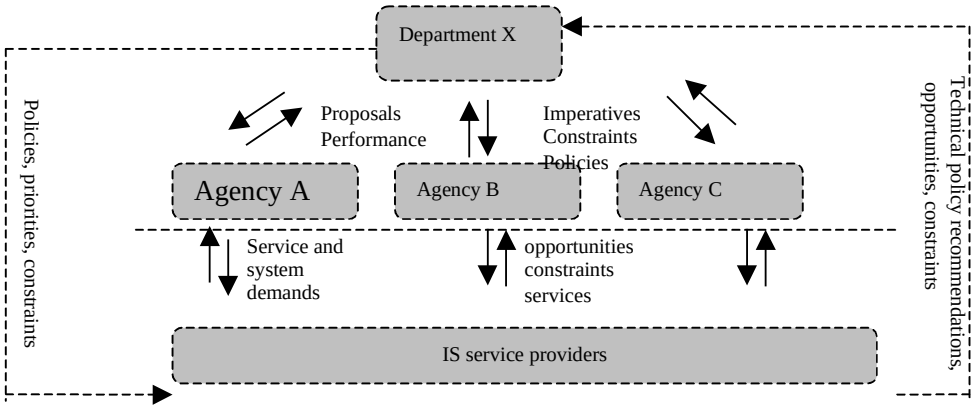
How can relationships between agencies and ministries/departments be characterised, and what consequences does this have for the management of large public IT projects in these agencies?

Department-Agency relationship

Departments are policy-making bodies and their executive agencies work closely with them to implement policy on their behalf. Their size and structure varies widely. Some departments are very large, with a number of executive agencies working autonomously; others are small single units.

Figure 2 shows typical relationships between a parent department, its executive agencies and its IT service providers.

Figure 2.



Cross-cutting initiatives

Departments and agencies may work together in cross-cutting initiatives:

- a cross-cutting project or programme is one with objectives that require contributions from more than one department or agency;
- increasingly, public sector organisations are contributing to the delivery of cross-cutting projects with partners in both the public and private sectors;
- to be successful, cross-cutting projects and programmes need to apply the same disciplines as those being developed within one organisation.

An example of a cross-cutting initiative is SureStart, which aims to ensure that all children under five years old have the best possible start in life. Departments collaborating on this initiative include the Department of Health, Department for Education and Employment and local government's social services divisions.

There are some examples of departments approaching other departments on an *ad hoc* basis to learn from their IT procurement experience, thus developing a pool of experience and knowledge across government.

The Performance and Innovation Unit report *e.gov: Electronic Government Services in the 21st Century* recommends that the Office of the e-Envoy should have dual key responsibility for the release of electronic service delivery funding. It will be responsible for approving e-Business plans, and for recommending that the Chief Secretary release funding to support them. Release of funding should be conditional on satisfaction that plans put forward support the government's wider objectives for e-Government and that departments have robust plans for realising efficiency gains. This includes the programme design being fit for purpose, compatible with the single portal and with cross-cutting delivery.

Can management models for large IT-projects be described? The description could include the use of steering groups, political involvement, the use of modularisation of projects, allocation of responsibility for outcome and the use of in-house development versus development contracted out.

Most government departments and agencies follow the PRINCE 2 methodology for managing large IT-enabled projects. The SRO role recommended in *Successful IT: Modernising Government in Action* is consistent with this approach, as shown in Figure 3. Figures 3 and 4 show the role of steering groups, SROs and how contractors are involved.

Although some departments and agencies still retain significant in-house technical capabilities, responsibility for much of government's technology has been transferred to the private sector. Most IT projects and requirements for IT service provision are outsourced. CCTA's guidance on the "Intelligent Customer" outlines the core capabilities that need to be retained to ensure effective control of third party services. More recently, CCTA has produced guidance on the Informed Partner, which focuses more on management of the relationship with the service provider. The Office of the e-Envoy/e-Government skills framework outlines the customer and service provider capabilities required. This is currently being used to assess the extent to which departments have access to the necessary skills for e-Government and for managing successful IT projects.

Political involvement

Professional development events for ministers and senior civil servants have been organised by the Centre for Management and Policy Studies (CMPS) to inform them of their role in, and responsibility for, major IT projects and programmes. These events include joint seminars. CMPS will also explore the scope for running joint events with the IT industry.

Figure 3. **The Role of the SRO in the PRINCE 2 Project Management Structure**

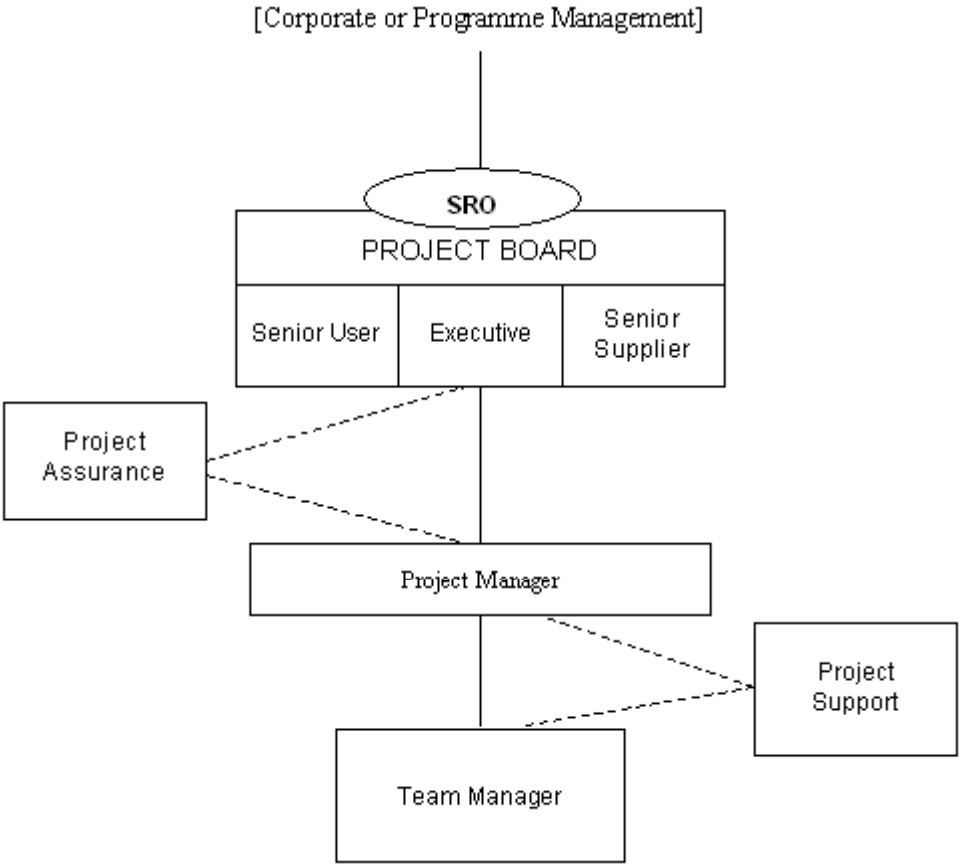
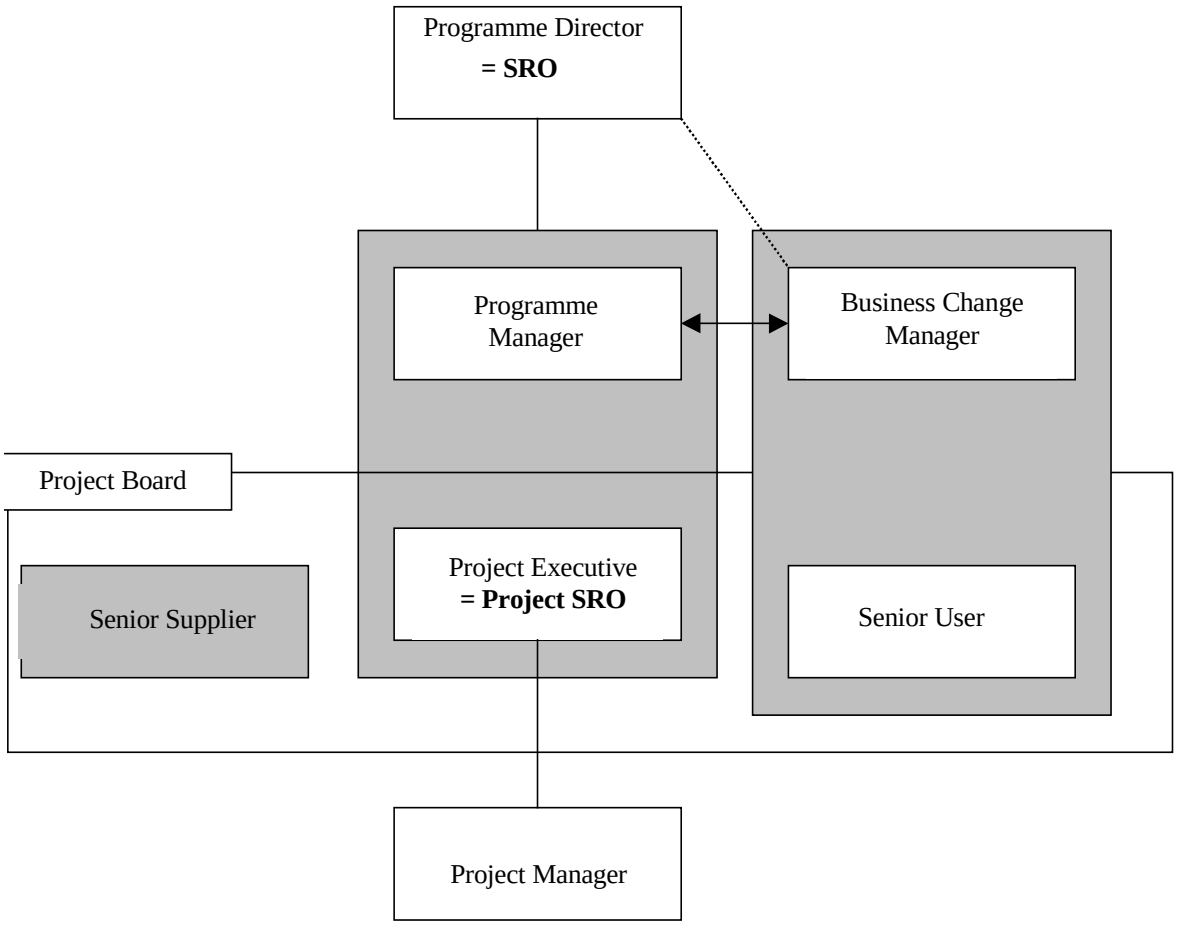


Figure 4 illustrates how SROs fit with the current Central Computer and Telecommunications Agency (CCTA) Programme Management Guidance, which complements PRINCE 2. Individual projects within a programme would have individual SROs. Although individual Business Change Managers may not all report in line management terms to the SRO, they are accountable for realising elements of the business benefit in their business areas, a process for which the SRO is ultimately responsible.

Figure 4.



Programme Organisation **Adapted from Managing Successful Projects with PRINCE 2 (HMSO 1999),** Figure 5.

Modular and incremental development

CCTA's Programme Management methodology provides a formal approach for managing interdependent portfolios of projects and for breaking down projects into realistic components. However, experience has shown that this advice is not always followed. *Successful IT: Modernising Government in Action* gives the following guidance:

- large, ambitious projects carry a high risk of failure to meet some, or all, of their goals;
- government and the private sector have recognised that an effective way to bring about a large reduction in this risk is to break these large projects into smaller, more manageable components;
- departments and agencies must consider the subject explicitly, and must document their chosen approach before initiating large projects.

The Modular Approach

A module is a distinct part of an overall programme of work that offers some value to the organisation, even if the other parts of the programme are not complete. In a modular approach, the overall business requirement will be delivered by providing IT support in modules, each able to underpin a limited set of business processes.

When faced with a large project, it is best to look at the overall range of business support functions required. High priority functions that can be identified should be separated out from the project to be delivered as modules and will thus have a higher probability of success. It is critical that the boundaries of modules are accurately identified at the outset to enable either parallel or sequential delivery of modules. Progress will be determined by:

- financial limitations;
- the ability of the organisation's staff to adjust to multiple simultaneous changes;
- the organisation's ability to manage multiple projects effectively;
- other activities such as existing operations, that make unavoidable demands on resources.

The Incremental Approach

The incremental approach allows evolutionary development of the overall system by beginning with and subsequently building on a component to increase its value to the organisation. The approach is based upon the timely delivery of a baseline requirement followed by planned upgrades to increase capability incrementally through manageable steps. This allows for continuous cost versus benefit evaluation, risk reduction and responsiveness to technology maturation and operational feedback. Incremental acquisition should be adopted for fast-moving or rapidly evolving technologies.

Where the level of IT support can be phased in, this allows an incremental development approach, which will deliver increasing levels of support in a series of smaller, more manageable projects. This approach is particularly valuable where some of the requirements are likely to change due to environmental factors such as legislative or policy change, or improvements in technology.

In an incremental acquisition project, it is vital that the perceptions of both the end-user and the supplier are properly managed. The initial standard of equipment to meet the baseline requirement is not in any sense a prototype; it must be robust, supportable and operable.

Combining modular and incremental approaches

It is perfectly feasible, and advisable, to combine modular and incremental approaches, thus limiting the risks and delivering support to a wider range of business functions.

CCTA, in collaboration with the Office of the e-Envoy and corporate OGC, is producing new outline guidance for departments on modular and incremental approaches.

1.5. Suppliers

Procurers of successful projects, IT suppliers, management consultancies and academics all cite effective communication between client and supplier as a major factor in achieving success in the delivery of complex projects. Recommendations in the *Successful IT: Modernising Government in Action* acknowledge this by stating that:

- departments must ensure that they put in place processes that will actively encourage co-operation and open dialogue between supplier and client;
- before contracts are signed, suppliers must have produced a realistic plan, including time scales, resources and technology, for how they will deliver the desired outcomes;
- the OGC continues to gather and share information about the top 10 suppliers of IT to government (by volume and value of business).

2. CASES

The following case examples have been drawn from *Successful IT: Modernising Government in Action*.

Business change

A government agency developed a new system using leading-edge technology but failed to implement it within the context of its existing IT. So many changes were made to the existing system during the development of the new one that the two proved difficult to integrate.[1]

Time scale

A large, updated business system was delivered late. This was due, in part, to a high-level decision to implement the system on an extremely tight time scale in an attempt to meet a deadline in proposed legislation.[2]

Success

In implementing a resource accounting and budgeting system in the public sector, the senior official with responsibility for finance took an active hands-on approach, established a board for stakeholders and regularly briefed senior managers. Key decisions on implementation were referred to the departmental management board for approval. The project was delivered to time and within budget.[3]

1. NATS, NERC Project.
2. CAPITAL project, Ministry of Defence.
3. Department of Social Security.

Project management

A project to deliver an application to a large number of users was developed by the IT supplier with negligible representation from the users. As the application was rolled-out, user hostility was such that the hoped for benefits of the application did not materialise. The system did not meet the needs of its users. Effective adoption of a project management methodology would force a project to consider key stakeholders (such as staff) and their needs (such as training) in the project.[4]

Risk

A government project adopted a formal risk management approach but with little visibility or appreciation of the risks to the organisation outside the project. However, learning from past experience, this project has now introduced a series of risk reporting channels running from the project manager to the board and an executive sub-committee tasked with reviewing progress. A channel also exists between an independent consultant and the board, resulting in an increased visibility of risk.[5]

Incremental/modular approach

A public sector project successfully used both modular and incremental approaches to implement a resource accounting system. The functionality was split into "initial" (basic resource accounting) and "additional", ensuring early implementation of a working system while allowing more time to get the additional functionality right. Eight Early Implementation (EI) sites were identified and proved useful in clarifying the implementation process and system sizing.[6]

Benefits realisation

A media company conducted a project for handling copyright that technically performed as expected but did not deliver the claimed benefits. The company has since focused on monitoring projects against the planned benefits at each stage before committing further resources.[7]

Roles and responsibilities

A large, business-critical system was procured using PFI. Failure at the outset by the purchaser and the supplier to agree on roles and responsibilities, or a mutually acceptable management structure, hampered the progress of the project and caused serious diversion of management effort, with damaging consequences.[8]

4. Immigration and Nationality Directorate, Home Office.
5. Private Sector.
6. Private Sector.
7. Private Sector.
8. QUANTUM, Prison Service, Home Office.

Peer reviews

A government department has an established and successful programme of peer reviews. They intend to significantly expand their in-house capability, accelerate the process of skills transfer and reduce their reliance on consultants.[9]

3. LESSONS LEARNED

Some of the major lessons learned have been:

- There has been a lack of clarity about UK Government procurement policy and how it supports departments, agencies and IT suppliers. There is concern that in negotiations with IT suppliers, particularly under PFI, current policy and guidance places too much emphasis on the financial aspects at the expense of business considerations around the quality of new and existing services. Important questions, for example on contingency planning, supplier capability and recent performance, and integration of technology with business processes, have at times been overlooked in the pursuit of a financial deal.
- In the past, some change programmes and projects have suffered from a lack of active ownership. As a result the UK Government has made the recommendation that overall responsibility for delivering the business objectives and benefits of any programme or project must be vested in a single, responsible and visible individual, the SRO. The seniority of the SRO will be dependent on the size, complexity and associated risk of what is being undertaken.
- Some UK Government organisations and private sector firms are much better than others at recognising and addressing this need for projects to have intelligent, active ownership from a single individual. There is also evidence that projects and programmes run into serious problems if they do not have a business owner to perform this role. Of course, having such an owner is not a guarantee of success. However, not having one significantly increases the prospects of failure.
- The quality of risk management varies widely across government. Its application ranges from simple lists (without ownership of risks or actions to mitigate them) to the allocation of full-time risk managers with comprehensive risk registers. Some of the reasons for poor risk management include:
    - Too narrow a focus on inward-looking project risks which are tangible and within the project manager's control, without considering risks to the organisation's business as a whole.
    - Lack of understanding that the ultimate risks of not meeting the business objectives, realising the business benefits, or delivering satisfactory service to the public cannot be transferred to partner or supplier.
    - Failure to understand or define the boundary between the responsibilities of the supplier and the purchasing department or agency.
    - Too much reliance on the contract or penalty clauses and not enough on action to mitigate risk or devising effective contingency plans.
    - Failure to monitor the effectiveness of mitigating action or to refer serious risks to the appropriate level quickly.

For successful IT management, key lessons learned show that you must be able to:

9. California, USA.

- treat IS and IT as a business issues, not as something to delegate to technical staff;
- think innovatively but pragmatically about the opportunities to transform the business;
- demonstrate leadership in bringing about IT-related business change;
- be realistic in assessing your organisation's ability to cope with change;
- Understand the implications of providers' proposals for change;
- commit realistic resources to supporting staff to work in new ways and set achievable time scales for implementation;
- demonstrate robust management of risk, especially business risk;
- have access to effective project management skills;
- manage business change as an ongoing programme, not as an event that concludes with implementation of new services and systems;
- manage effective working relationships with providers.

Project failures occur due to:

- lack of adequate contingency planning;
- lack of senior level management commitment;
- incomplete/changing requirements and specifications;
- overstatement of the requirements;
- inadequate supplier appraisals and market research;
- lack of resources provided by the contracting authority/supplier;
- problems with suppliers leading to breach of contract and litigation;
- lack of controlled planning in contracts/projects;
- lack of experience of project teams provided by suppliers;
- organisational politics;
- over-ambitious time scales and underestimated budgets;
- overuse of external consultants;
- lack of business user involvement/too much user involvement.

Recommendations for the future based on these lessons are:

- departments should ensure that they analyse and understand fully the implications of the introduction of new IT systems for their businesses and customers;
- departments must adopt a formal project management methodology such as PRINCE 2;
- departments must consider carefully the scale and complexity of projects to assess whether they are achievable;
- delays in implementing projects place them at risk of being overtaken by technological change;

- the project specification must take into account the business needs of the organisation and the requirements of users;
- senior management has a crucial role to play in championing the successful development of IT systems;
- the development of high-quality project management skills within government is essential;
- it is vital that departments pay attention to the management of risks and have contingency plans in case projects are not implemented as planned;
- relations between the department and the supplier will have a crucial effect on the success of the project;
- contracts between departments and suppliers must be clearly set out;
- departments should seek to review the success of projects as soon as possible so that lessons can be fed back into consideration of later projects;
- sufficient time and resources should be spent on ensuring that staff know how to use the IT system

It is essential that departments learn from past mistakes and consider how they can better co-ordinate their considerable resources to ensure better value for money from IT development. One of the recommendations of *Successful IT: Modernising Government in Action* is for the UK Government to develop a database for gathering, maintaining and sharing information about the progress of projects and programmes. A questionnaire is currently being drafted for circulation to departments.

4. LITERATURE, WWW AND STUDIES

Guidance

New electronic guidance in response to Review of Major IT Projects***, Successful IT: Modernising Government in Action*** report – briefings on procurement, business cases and risk
http://www.ccta.gov.uk/bestpractice/mccartneyreport.htm

IS Management Handbook http://www.ccta.gov.uk/bestpractice/handbook/, 2000

Acquisition (CCTA 1999)
IS Strategy: Process and Products (CCTA 1999)

Managing Change (CCTA 1999)

Managing Performance (CCTA 1999)

Managing Services (CCTA 2000)

Managing Partnerships (CCTA 2000)

Managing Successful Programmes (CCTA 1999)

Managing Successful Projects with PRINCE 2 (CCTA 1998)

PRINCE 2: An Outline (CCTA1997)

Standardisation of PFI Contracts - Information Technology (HM Treasury 2000)

Studies and reports

National Audit Office, Value for money study: *Missed Opportunities - Managing Business Risk in Government,* May 2000

Office of the e-Envoy, Review of Major Government IT Projects, *Successful IT: Modernising Government in Action*, 2000

Cabinet Office, *Modernising Government White Paper*, 1999

Public Accounts Committee, *Improving the Delivery of Government IT Projects*, January 2000

Office of the e-Envoy, e-Government: *A strategic framework for public services in the Information Age*, April 2000

Department of Health: *Maximising Value for Money: Examining the role of Strategic Outline Cases*, July 2000

WWW Links

Cabinet Office
http://www.cabinet-office.gov.uk/

Central Computer and Telecommunications Agency (CCTA)
http://www.ccta.gov.uk/

e-Envoy, Office of the
http://www.e-envoy.gov.uk/

Central IT Unit, Cabinet Office (CITU)
http://www.citu.gov.uk/

Government Commerce (OGC), Office of
http://www.ogc.gov.uk/

Government Information Service (Open)
http://www.open.gov.uk/

Her Majesty's Stationary Office
http://www.itsofficial.net/

HM Treasury
http://www.hm-treasury.gov.uk/

Information Age Government Champions
http://www.iagchampions.gov.uk/

National Audit Office (NAO)
http://www.nao.gov.uk/

Annex A: Recommendations from *Successful IT: Modernising Government in Action*

Business Change

Recommendation

Recommendation 1: Business development skills must be included as a key feature in the extended Skills For the Information Age (SFIA) framework to be developed by the Central IT Unit (CITU) supported by the Office of Government Commerce (OGC) and the Centre for Management and Policy Studies (CMPS) – see Recommendation 25.

Recommendation 2: CITU (supported by OGC) will, by building on existing best practice and ensuring flexibility for different departments with different needs, involve departmentsin the provision of guidance and expertise to strengthen the application of the necessary business development skills across government – see Recommendation 29.

Recommendation 3: Business cases must reflect all of the business change to be delivered. Practical guidance on the contents of such a business case will be provided by OGC using the draft business case model developed by the study team (Annex D). The model, available by August 2000, will be taken into account in the OGC audit of procurement guidance – see Recommendation 19.

Leadership and Responsibility

Recommendation

Recommendation 4: Professional development events for ministers and senior civil servants being organised by the Centre for Management and Policy Studies (CMPS) will include informing them of their role in, and responsibility for, major IT projects and programmes. These events will include joint seminars. CMPS will also explore the scope for running joint events with the IT industry. The first of the development events will take place in May 2000.

Recommendation 5: All IT-supported change projects or programmes must have a single, named Senior Responsible Owner (SRO). This individual is responsible for ensuring that the project or programme meets its overall objectives and delivers its projected benefits.

The seniority of the SRO will depend on the size, complexity and associated risks of the work being undertaken but, in all cases, they must be the business sponsor of the change that is driving the IT development. This applies to individual projects and also groups of projects making up a programme.

Recommendation 6: An interim checklist of the roles and responsibilities of the SRO will be made available to departments and agencies by June 2000. A fuller version will be issued by December 2000. The guidance will be regularly updated and refined in the light of experience, and supplemented by information-sharing processes, including forums and networks. This work will be led by OGC.

Recommendation 7: An individual's responsibilities as an SRO must be explicitly included in their personal objectives. The SRO for a project or programme should remain in place throughout or change only when a distinct phase of benefit delivery has been completed. Departments and the Centre should take the need for continuity and previous experience into account when jobs are advertised and appointments made.

Project Management

Recommendation

Recommendation 8: The SRO of each project must ensure that a formal approach to project management, such as PRINCE 2, is applied.

Recommendation 9: Key staff on major projects must undertake formal project management training appropriate to their role in the project, and mentoring should be made available to all project managers across government through mechanisms put in place by OGC from December 2000.

Recommendation 10: Departments and agencies must assess the difficulty of their projects, using the Project Profile Model, and match this against the abilities of their project management.

Risk Management

Recommendation

Recommendation 11: Taking into account the NAO and HM Treasury initiatives already under way, the OGC will investigate further methods of problem reporting and upward referral. These will be based on the Project Profile Model and incorporate the Summary Risk Profile. OGC will bring forward a flexible method that can be modified according to the complexity of each project. Supported by clear guidelines for project managers and peer review teams, the model will be available by December 2000.

Modular and Incremental Development

Recommendation

Recommendation 12: Departments and agencies must adopt a modular and/or incremental approach to projects, unless there are very strong reasons for not doing so. The approach to be taken must be clearly documented before large projects are initiated and must explicitly consider the capabilities of the organisation and its supplier(s) and the size of each proposed increment.

Recommendation 13: OGC must refine and expand on the preliminary guidance issued by the Major IT Projects Review team (Annex E) to provide more advice to help project planners determine their approach to modular and incremental developments. This guidance should be completed by December 2000.

Benefit Realisation

Recommendation

Recommendation 14: All major projects or programmes must undertake periodic reviews of proposed benefits throughout development and implementation. The SRO is responsible for ensuring that this is done.

Recommendation 15: A post-implementation review must be undertaken of all projects or programmes and benefits realised assessed against projected benefits outlined in the original business case or subsequent amendments. These reports must be endorsed by the SRO and, for projects where their involvement is required, tabled with HM Treasury and the OGC.

Recommendation 16: HM Treasury (HMT)should review the systems departments and agencies have in place for monitoring the realisation of benefits and take these into account when considering proposals for major initiatives and investments. These reviews should be undertaken in parallel with the regular reviews of departmental investment strategies.

Recommendation 17: The OGC should review the results of post-implementation reviews, and ensure that valuable common information, such as trends in areas of successful or difficult realisation, is widely available. The work is to be ongoing, but should start by September 2000.

Recommendation 18: OGC, in consultation with CITU, should examine what additional measures and guidance need to be established to ensure government maximises benefits from its investments in technology. This work to be complete by December 2000.

Procurement and Supplier Relationships

Recommendation

Recommendation 19: OGC should audit existing policy and guidance on procurement and produce a consolidated and unambiguous set of material for IT, making it clear which elements are mandatory. This should be made available on-line and at no cost to government users. The work should be completed by October 2000.

Recommendation 20: Departments and agencies must ensure that they put in place processes that will actively encourage co-operation and an open dialogue between supplier and client. Projects already under way should immediately re-examine their communication mechanisms to ensure appropriate processes are in place.

Recommendation 21:

Part 1: Before contracts are signed, suppliers must have produced a realistic plan, including time scales, resources and technology, for how they will deliver the outcomes being sought under the relationship. The same applies to evolutionary or modular phases within an existing contract. These supplier plans must be re-examined during the development stages of the project to ensure a close fit between business design, assurance and implementation intentions and the supplier activities concerned with developing the solution.

Part 2: Guidance for departments on how to evaluate such plans should be developed, initially by HM Treasury Task Force and then by OGC.

Recommendation 22: OGC should continue to gather information about the top 10 suppliers of IT to government (by volume and value of business). The first set of intelligence data should be available by December 2000. The information gathered should include, for each supplier:

the range of IT services supplied (as defined in the Project Profile Model);

their recent performance with government; and

in time, their ongoing performance against our recommendations.

Cross-Cutting Initiatives

Recommendation

Recommendation 23: Cross-cutting projects and programmes must have a unified, regularly updated business case. An SRO must be appointed to all such initiatives and they must assure themselves that the recommendations of this study are being applied.

People and Skills

Recommendation 24: Government, through CITU (supported by OGC), must develop the processes and guidance necessary to enable the SFIA or an equivalent technical skills framework to be used by departments and agencies as they develop their responses to the e-government Strategy.

Recommendation 25: CITU (supported by OGC and CMPS) must develop an extension tothe SFIA, embracing the core IS skills identified in the SLOAN review. We recommend that:

departments and agencies should use the extended SFIA in developing their responses to the e-government Strategy; and

in order to meet the demanding timetable of the Modernising Government agenda, initial processes and guidance must be made available by August 2000, so that departments and agencies can use them in preparing their responses to the e-government Strategy (due October 2000).

Recommendation 26: The work on Civil Service Reform, being led by Civil Service Corporate Management (CSCM) in the Cabinet Office, should explicitly take into account the findings of this study.

Recommendation 27: The government, through CITU (supported by OGC and CMPS), must develop processes to support the co-ordinated and ongoing assessment of its IS skills base and mechanisms to ensure delivery of improvements. These proposals should be in place by December 2000.

Learning Lessons

Recommendation

Recommendation 28: The draft peer review process developed by this study (see Annex B) should be implemented by OGC by September 2000, in parallel with their gateway approvals process, and departments and agencies should carry out and contribute to project peer reviews at the recommended intervals.

Recommendation 29: Government must establish effective permanent mechanisms for obtaining and disseminating information about managing programmes and projects. This should be carried out by CMPS in co-operation with OGC and CITU. The first outputs, including information on GSI, to be available by September 2000.

Recommendation 30: The government, building on specifications developed by this review, must construct a system for gathering, maintaining and sharing information about the progress of projects and programmes. This system will be developed and maintained by OGC, in consultation with CITU and others, with completion of the system due by December 2000.

Annex B: Project Profile Model - criteria for assessing risk

Criteria	Comments
Total value of the business benefits in £.	Total (as opposed to annual) value, calculated in line with HM Treasury guidance.
Total value of the business costs in £.	Total (as opposed to annual) costs, calculated in line with HM Treasury guidance. Excludes IT costs which are covered later.
Number of individuals affected.	Refers to internal personnel within Government – i.e. includes technical and business staff and users, but excludes citizens, suppliers, etc.
Impact on business processes (includes changed processes).	Refers to the impact that the project will have on the organisation (both during development and after implementation). Allocate a score between 1 and 6.
Impact on Government services at implementation.	Refers to the impact that the project will have outside the organisation, for example on the public and businesses (both during development and after implementation). Allocate a score between 1 and 6.
Impact on other projects and changes.	The degree to which the project is dependent on and connected to other projects and changes. Allocate a score between 1 and 8.

Technical Impact

Criteria	Comments
Total IT costs.	Total (as opposed to annual) IT costs, calculated in line with HM Treasury guidance. For commercial contracts this will be the total charge to department rather than cost to supplier.
Number of IT practitioners (including internal and out-sourced suppliers).	
Degree of innovation.	The extent to which the project involves innovative solutions, and the level of familiarity and experience available. Allocate a score between 1 and 4.
Impact on legacy systems and data.	The degree to which the project will need to develop interfaces to existing systems and data stores. Allocate a score between 1 and 4.
Scope of IT supply. (Note: for this criterion score for each element, *i.e.* may be cumulative.)	The range of activity that will be undertaken by the IT supplier, and the extent to which these will impact on the business processes of the organisation.

Client/Supplier Arrangements

Criteria	Comments
Client-side organisation.	The complexity of the client-side arrangements. Allocate a score between 1 and 4.
Supply-side organisation.	The complexity of the supply-side arrangements.