Department of Engineering
IT Strategy 2014

Introduction

This strategy is the responsibility of the Department's IT Strategy Committee and defines the aims and objectives, anticipated new developments and the most serious potential risks to the successful delivery of the strategy. A five year financial plan for the implementation of the strategy is presented to the Committee in a separate document which is updated annually. Appendix A outlines the IT Services Division's (ITSD) role in delivering the strategy. Divisional IT staff have similar and separate specialist roles in its delivery and are expected to interact closely with the ITSD so as to provide a cohesive service for users. Others also contribute greatly to the development of the Department's IT and an important part of the role of the IT staff is to facilitate and work together with them in doing this.

The strategy contributes to the Department's overall strategy: "The Department of Engineering is the largest department in Cambridge and one of the leading centres of engineering in the world. Renowned for both its teaching and research, the Department's aim is to address the world's most pressing challenges with science and technology. To achieve this aim the Department collaborates with other disciplines, institutions, companies and entrepreneurs. Cross-linking themes are fostering new connections." It is also set in the context of the broader IT strategies of the School of Technology and the University.

Strategy

Aims

To support the general aims of the Department and to support its teaching, research, administration and other service areas.

To provide systems which facilitate the Department's activities, deliver value for money within the available resources and prioritise those areas that have the maximum beneficial impact.

To ensure a quality of IT provision commensurate with the Department's excellence in Teaching and Research. This includes the Department's external electronic presence as well as internal systems.

Objectives

To provide systems and services to meet the Department's teaching, research and administrative needs; designed and supported in such a way as to maximise usability by all those members of the Department and their collaborators who need them. Key components of this infrastructure are:

> A reliable, secure, high capacity, wired and wireless data network throughout all the Department's buildings supporting the Department's systems and users' own devices.
>
> A reliable, secure and fully backed-up departmental filestore to minimise the risk of data loss.
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> Linux and Windows desktop services and associated servers, primarily for teaching but also usable by researchers and administrators.
>
> Web servers, applications and databases.

To provide timely and mutually agreeable solutions to all IT issues via a friendly and easily accessible front-line help-desk through which more complex issues can be referred to the appropriate specialist support.

To provide as high a level of availability as possible, especially of core infrastructure and services, so that the

Department's IT systems are usable by any of around 4000 registered users (staff, students and visitors) whenever they are needed. Services to be fully supported in normal working hours, with out-of-hours cover on an individual goodwill basis.

Systems and services to be provided in an affordable and cost-effective way taking into account the total cost of ownership, e.g. including support staff costs and energy usage.

To adhere wherever possible to Open Standards in order to avoid lock-in to a single supplier's products.

To select new IT systems and services on the basis of their fitness for purpose, total cost of ownership, and delivery timescales. Based on these criteria on a case by case basis, these may either be developed and provided locally, bought in but hosted locally, or fully outsourced including cloud-based solutions.

To manage in-house developments on a project basis involving an appropriate team of IT staff and users to ensure that the original criteria are met. IT staff will contribute from the outset, advising where changes to business processes or other requirements would lead to a better overall solution.

To ensure that an adequate budget (staff and equipment) is available to support, develop, maintain and upgrade the full range of systems and services required.

To adhere to all relevant IT-related legislation, including: DPA, RIPA, and licence terms and conditions.

Emerging Developments

The following anticipated major developments will form a significant part of the planning process in the next few years and may imply the need for changes to the strategy and/or to the emphasis placed on different components of it.

West Cambridge move: we need to ensure that the new infrastructure requirements are properly defined and provide a world-leading environment; but simultaneously maintain services on the old site while the new one is developed. There will be a range of interesting opportunities for developing the Department's IT as part of the showcase elements of this new building and IT staff will be taking active roles in the planning. There will be a need for increased investment in the IT infrastructure while the move takes place.

The growing use of mobile devices including for teaching: to some extent we are better placed than many to face this challenge having for many years supported user-owned systems on the network but there are other challenges including wireless network capacity, web page design and application interfaces.

Home working: improvements in home network speeds make it possible for many members of the Department to do much of their computer-based work as well at home as in the Department. There are policy as well as technical issues in supporting this.

Internal communications: various factors including some of the risks and the planning for the move to West Cambridge have highlighted the importance of effective internal communications. The challenges in delivering this are partly technological, partly cultural. There is an opportunity within this area for the Department to be at the forefront technologically and to provide an environment which facilitates collaboration. The ITSD plan to organise an informal working group involving interested parties from across the Department to develop this.

IT Review: the review of IT support and provision in the Department currently taking place will use The Strategy as a basis for defining the goals that should be being achieved and thus provides a cross-check that it properly identifies and defines these.

Key Risks

Appendix B lists the most serious current risks to the successful delivery of the strategy. The suggested mitigation of these risks relies on a mixture of policy and implementation and, in a number of areas, effective communication is a key factor. Some of the mitigation measures are already in place, some need further work and consequently resource to be allocated to them. Where project work is involved there is a clear need for a team-based approach to ensure that delivery of the project is not dependent on a single individual and to improve the sharing of experience and the development of shared methodologies. Care needs to be taken when considering risk that the risk of not doing something is considered as well as the risk of doing it otherwise the Department's overall effectiveness may be jeopardised, e.g. a wait-and-see approach may be superficially safe in the short term but cause huge inefficiency until something is done.

Appendix A
ITSD Remit

The ITSD is responsible for the provision and support of Departmental, as opposed to Divisional, IT infrastructure and systems. These services are delivered in cooperation with Divisional IT Staff and with the University's Information Services (UIS). The ITSD also work with the Department's Library, its administrative offices and others to provide Information Services in the more general sense and particularly in facilitating access to and the sharing of information. The boundaries between these service providers are pragmatic rather than being rigidly defined and the ITSC has an important role with the ITSD in guiding and facilitating the coordination of the services and support provided.

The core infrastructure systems are fully supported by the ITSD, user systems are supported on a best effort basis (best where these systems are most similar to the departmental systems).

The services provided are (see http://www.eng.cam.ac.uk/itservices/ and linked pages for fuller details):

- Helpdesk
- IT Administration - ITSD Office
- Desktop services
- Network and telephones
- Audio Visual Support
- Print Room and Printing
- Administrative and information systems
- Projects and system development
- User accounts and passwords
- Departmental Teaching System
- Divisional and research support

As well as supporting existing systems, the ITSD has a key role in developing, and helping others to develop, new ones. This includes working with members of the Department to identify new needs and in producing the solutions. A list of such projects is maintained on-line so that all members of the Department are aware of what is being produced, or going to be, and can provide feedback on this and/or help to avoid duplication of effort.

Appendix B
Major Risks

	Risk	Mitigation (current or planned)
1	Hardware or software failures prevent critical work in the Department taking place	Adequate investment in staff, equipment and software to ensure continuity of service. This includes allocating staff time to proactive monitoring, giving this priority alongside the development of new systems and services, and having cover arrangements for holiday and other absences.
2	Fire or other disaster destroys key IT infrastructure and/or data	Replication of systems and data between sites and clear disaster recovery plans.
3	Loss of key IT staff especially where there is too much reliance individuals' knowledge and experience	Making time and facilities available to enable team working, and through this the development of shared methodologies and expertise. Fostering job satisfaction amongst IT staff. Succession planning.
4	The shared role of the ITSD, Divisional IT staff and other staff for implementing the strategy risks no one having full responsibility and/or of failure to identify where a solution in one area could be reused in another.	The ITSC has overview of all this activity and responsibility for ensuring that problems of this kind can be addressed appropriately. The projects list should list all IT systems in use or development to help to avoid opportunities for reuse not being identified. Better communication between all those involved in IT systems development (this includes others than “IT staff”) and the provision of online tools to facilitate this.
5	Users are unaware of the services provided or these services do not fully meet their needs.	High quality, readily accessible documentation of the services available. Effective two-way communication between service providers and users. This involves day-to-day communication as well as a formal role for the ITSC. Periodic service reviews by the ITSD to ensure each service's continuing usefulness.
6	Critical IT projects are not delivered sufficiently quickly	Correct identification of needs and prioritisation of projects is a prerequisite. The ITSC must oversee this and ensure that sufficient resources are available in competition both with other projects and with running existing services.
7	Lack of clear definition of the Department-wide policies and the business processes which IT systems are intended to support and hence risk of: multiple overlapping solutions; solutions to only part of a broader requirement; business process change becoming a side-effect rather than a planned part of the introduction of a new IT system.	Before any new administrative IT system is introduced, the relevant business processes must be fully agreed by all those with responsibility for them. Where new policies and processes are needed, these may require referral by the ITSC to other committees including the Department Council.
8	Lack of clearly understood requirements for new software systems and hence the risk of inappropriate solutions and/or unmanageable shifting requirements, scope creep and projects overrunning.	Wherever possible, ensure close involvement throughout the project by those who will use the new system; where not possible, the Project Sponsor must be able to act on their behalf. Robust project governance and management (sufficient rather becoming an end in itself) with progress of

		major projects overseen by the ITSC.
9	IT systems, particularly applications, become out of date and no longer fit for purpose. Multiple ad hoc workrounds are developed rather than proper solutions.	Robust service management processes required. This includes ensuring that user feedback about evolving requirements is noted and acted upon. Service maintenance must have sufficient priority and resources alongside new developments.