

Functional requirements for ICT services

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Executive summary

The use of ICT in schools and colleges has moved from being an add-on to becoming fully integrated into teaching, learning and management. This means that more than ever ICT infrastructures, applications and services must be reliable and secure and deliver an appropriate performance. As technology advances and user needs change, there is a need to consider new ways to deliver these services.

It is Becta's aim to assist institutions to develop and maintain a coherent, sustainable and dependable ICT infrastructure by offering guidance in specifying both the functional requirements for ICT and the technical principles that support delivery of those requirements, as well as offering procurement advice. To facilitate this it is vital that there is a standards-based approach to ICT infrastructure and services.

This document sets out Becta's minimum functional requirements for ICT services that should be expected by learners, educators, managers and administrators. It is aimed at school and college leadership teams, ICT coordinators and local authority ICT teams to help inform their vision and discussions with suppliers, managed ICT service providers and procurement partners.

This document outlines a number of high-level statements of the functions that different users within education want to be able to perform that can be delivered using technology.

It is anticipated that the requirements outlined here will be achievable by *all* institutions yet allow for suppliers and advanced institutions to innovate and add extra value.

The overarching aim is to deliver "***Technology that works first time, every time for everyone, wherever and whenever they need it***".

Introduction and Overview

Introduction

This document is one of a series that help to define the ICT services, functionality and technologies to be deployed (or employed) within schools, colleges and other educational institutions. All institutional ICT infrastructure needs to be based on the requirements of the user: learners and educators need high-quality tools and resources to support them in their learning and teaching. Similarly, administrators and institution managers need to be able to use ICT resources that allow them to undertake their work efficiently and effectively. Using the functional requirements outlined here, institutions should be able to concentrate on their priorities for meeting the expectations of the user rather than attempting to prioritise on particular perceived technical requirements. Using a common set of functional requirements tailored to meet local and regional needs will help to develop an infrastructure that suits the demands of all users and is reliable, secure and flexible.

Overview

From an institutional management and procurement perspective, it is sometimes easier to group together collections of functionality or services within ICT provision. At the same time, users shouldn't need to know how something works or how it was made available to them; what they need is the ability to use an application or service to solve a problem, get a job done or perform a function.

In this document a number of user statements are listed in a table by user type: Teaching staff; Non-teaching staff (including managers and administrators); Learner; and Parent. Depending on the size and type of your institution, not all statements will be relevant and some functions may be performed by teaching staff instead of non-teaching staff.

Intended audience

This document should be read by those who have an interest in, and responsibility for, institutional ICT infrastructure and services. It can be used alongside the Self-Review Framework in schools and the Generator tool in FE colleges. It should be of particular interest to school and college leadership teams, ICT coordinators and Local Authority and Regional Broadband Consortia ICT teams, to help inform their vision and strategies for ICT Infrastructure as well as discussions with suppliers, managed ICT service providers and procurement partners.



The document has been written for a non-technical audience. Technical staff should read Becta's corresponding **Technical Principles** document, which sets out the detailed technical functionality that is required.

Wording conventions

The following wording conventions apply to the functions described in this document:

- The word ***shall*** (italicised and bold) defines a requirement that in Becta's view is *essential* in the delivery of ICT services to meet users' needs
- The word ***should*** (italicised and bold) defines a requirement that in Becta's view is *highly recommended* to meet users' needs.

The statements in this document are of two types:

- **Functional requirements** (denoted by the  symbol): these are functions that the supporting infrastructure and applications shall or should provide, expressed from a user's perspective (teaching staff, non-teaching staff, learner, parent/carer)
- **Aspects/qualities** (denoted by the  symbol): these are the aspects or qualities that the infrastructure or applications shall or should have, also expressed from a user's perspective, to illustrate an underlying quality such as performance, reliability or availability.

High-level functional requirements

The following high-level functional requirements and principles are designed to meet individual user requirements that apply to all educational institutions:

Using ICT to improve learning and teaching

At the heart of any plan should be a clear understanding of the learning and teaching needs, and any technology should be driven by a pedagogic requirement as well as flexibility and usability for the end user.

Using ICT to offer a wide range of choice and access

The ICT infrastructure and services need to support individual choice by offering a range of supported applications, services and access devices to enhance the learning experience for all. Institutions will need to ensure that users have the tools to meet their specific requirements and that the tools work together.

Using ICT to support flexible working

To enable an ICT infrastructure and services to support learners, educators, managers and administrators there needs to be inbuilt flexibility so that users have a range of ways and locations in which they can undertake their daily tasks.

Using ICT to manage data and improve efficiency

The institution's ICT infrastructure and services need to be efficient resources which take care of managing data on behalf of the user, and which are supportive yet unobtrusive. The user needs to have confidence in the ICT infrastructure to deliver a fast and reliable service, regardless of the task in hand.

Using ICT safely and securely

By meeting the requirements in this document, schools and colleges will be able to ensure that all learners and staff have access to reliable systems whenever and wherever they want in a way that allows them to develop their skills and make use of technology safely. These requirements will help keep data secure and protect users.

The following features are essential in the ICT infrastructure and services of every institution:

Reliability

The institution's ICT infrastructure and services must be reliable. An unreliable infrastructure is likely to detract from the learning experience and obstruct the educator. It will become a frustration to learners, educators, managers and administrators alike if devices, applications and services cannot be relied upon. While using an infrastructure that meets Becta's technical principles will greatly aid reliability, the institution will still be responsible for checking with suppliers and providers that components of the infrastructure are of proven reliability.

Coherence

With the variety of technologies on offer in the marketplace, it is important that an institution ensures coherence by implementing ICT technologies that work together and fit with the overall ICT strategy. This coherence must be applied equally to devices and services running over the institution's infrastructure and to any connection that enables effective use of the National Education Network [<http://www.becta.org.uk/nen>] or the internet.

Accessibility

ICT literacy is fast becoming as essential a skill as literacy and numeracy, and it is natural to assume that – given access to a computer – anyone can gain the ICT skills they need for learning, leisure or employment. Unfortunately, this is not the case: on-screen text cannot be seen by those with serious visual impairment; it may be hard to interpret for those with dyslexia, learning or language difficulties; and users with physical or neurological problems may be unable to use a keyboard or mouse. If they have access to hardware and software matched to their needs, users with these difficulties may in turn gain access to the knowledge and tools available through the computer – provided that they are accessible. As the number of ICT devices and applications has grown, so too have the ways in which they can be accessed – collectively known as 'assistive technology'.

To take a few examples:

- Users who are unable to use a keyboard can be supported by voice-activated software, so they control it by speech
- Switch access can provide access for users who cannot use a keyboard or mouse
- A screen-reader can read text aloud for users who cannot see it

- Software such as animations and video can offer text captions to those who cannot hear the sound
- Talking word processors and word banks can support those who struggle with writing and spelling
- Mind maps and frameworks can help users to organise their thoughts and writing
- Simplified language, or support in symbols, can help those with learning or communication difficulties.

In the last few years, several pieces of legislation have placed duties on educational institutions with respect to the provision they offer to learners with special educational needs and/or disabilities. All schools and colleges must make 'reasonable adjustments' to ensure that these learners are not put at a substantial disadvantage in using any facilities or resources – including the use of ICT.

Institutions need to enable full access and create fully accessible systems that meet the needs of all users.

Affordability and sustainability

The ICT infrastructure and services need to support energy conservation and wider environmental sustainability. They should be energy efficient in themselves by offering a range of devices, applications and services that incorporate energy-saving technology, management and other measures. Learners, educators and administrators should have a clear understanding of the impact the technology has on the environment, in particular carbon emissions.

While institutions can often identify the immediate costs of a new ICT resource, the total cost of ownership (TCO) must be considered in order for the institution to be able to sustain a resource. Consideration should therefore be given not just to purchase price and running costs but also decommission and transition costs to future services. The cheapest solution may not always be the most cost effective when taking these into consideration. Institutions should also consider value for money and ease of purchase. Long procurement processes and legal complexities may add costs so institutions should always investigate the procurement options that are open to them such as local, regional or national procurement frameworks or collaboration with others.

As technology changes, so will the institution's ICT needs. The needs of users – and the institution's capacity to meet those needs with technology – are also subject to change. Longer term planning, and consistent management and support, are also essential.

Longer term planning

It is essential to plan upgrades or enhancements to the institution's current infrastructure. Institutions' infrastructures will need to be enhanced over time, therefore plans need to be drawn up looking at long- as well as short-term goals to allow the infrastructure to continue to evolve, yet at the same time remain a reliable, coherent and sustainable resource. Goals and visions, whether short term or long term, need to be based on the gains to the learner, educator or institution as a whole. In this way, the institution will be able to plan for improvements to its infrastructure led by educational requirements rather than focused on perceived technical requirements.

Management and support

Users need confidence that the ICT infrastructure and services will work reliably and consistently, allowing them to concentrate on their learning, educating or management and administration activities. There is a need to remove the inefficiencies of systems that do not work together. A lack of common technical standards in many cases has resulted in ad-hoc solutions being implemented by non-experts. In order to help meet and manage ICT requirements, where appropriate, Becta advocates a managed service approach to institutional infrastructure¹. Such an approach could support the expressed desire to move towards support for teaching and learning, leaving the technical aspects to a third party (which could either be a local authority or commercial provider, another college or a university). A managed service would also address the risk of losing key personnel.

Additionally, Becta has carried out a considerable amount of work in the field of network management and support by developing and helping institutions to implement the *Framework for ICT Technical Support (FITS)*. Familiarisation with and adoption of this scheme, or ITIL [<http://www.itilofficialsite.com/home/home.asp>] should be considered as a prerequisite to meet the requirements outlined in this document [<http://www.becta.org.uk/fits>].

¹ Further information is available from [http://schools.becta.org.uk/index.php?section=re&catcode=ss_res_pro_bps_ms_04&rid=15103]

User Functional Requirements – teaching staff

Teaching staff

T1. I need to access learning materials whenever and from wherever I want.

Teaching staff will need access to resources that they have created, that have been shared with them, or that have been purchased. Access **should** be via a single username and password (or other suitable authentication method) and **shall** be available from anywhere outside and inside the institution, for example from home and from any wired or wireless machine within the school or college. Access to the resources **shall** be controllable through rights and permissions, time constraints, and user profiles. For example, access could be restricted to 'all teaching staff' or 'all members of the maths department'.



T2. I need learner information to be consistent throughout all the systems I access.

Learner information **shall** be consistent throughout the system. Processes **shall** be automated to reduce the burden of having to re-key data, the need to sort out duplicate entries or having to manually import and export to other systems. Inefficiencies of systems that do not work together **shall** be removed and an open standard for interoperability **shall** be adopted to enable this to happen without the need for additional spend every time a new system is introduced into the institution.



T3. I need to manage my lesson plans and materials online and be able to share my work with colleagues.

Teaching staff **shall** be able to log in from anywhere (as above) and **shall** be able to choose with whom they want to share their plans and materials by granting or restricting access to resources, including portfolios, lesson plans, schemes of work and courses with peers, colleagues and others. The access to the resources **shall** be controllable through schedules, timetables, rights and permissions and user profiles. This means that, if staff cover is needed, another teacher/lecturer can be given permission to use the absentee's lesson plan to take the class.



T4. I need sufficiently fast and reliable network and web connections to access a wide range of applications and services.

Teaching staff need to be sure that whatever lesson they have planned will work. So if they have planned to video conference with someone in France, for example, the web connection will be fast enough for them to see and hear the people they are talking to. It could be that while this video conference is happening, another lesson is viewing some videos online and someone else is uploading some pictures to a website. The connections inside and outside the institution **shall** be fast enough for multiple lessons utilising ICT resources to happen at once.

If something does go wrong with the connection it **shall** be fixed within an agreed, reasonable time period².

Institutions **should** follow or ensure their service provider follows Becta's Framework for ICT Technical Support (FITS) and **should** ensure that Technical Support staff are appropriately trained and accredited.



T5. I need to mark attendance from a range of locations

Schools and colleges need to mark attendance for legal and funding reasons, but this does not necessarily just happen within set locations. Teaching staff **shall** have the flexibility to mark attendance from anywhere within the institution.

Where learning happens across a number of sites (including institutions and workplaces) attendance information **shall** be transferred automatically to the home institution.



T6. I need to communicate with other staff, learners and parents and be confident that we will be protected from access to or distribution of inappropriate content and from unsolicited contacts.

Teaching staff **shall** share and exchange information in different formats and with different people – other staff, learners and (for schools) parents. Some of this sharing will be one way, such as via a website, but could also be via text message or email.

However information is shared, everything possible **shall** be put in place to ensure that recipients are protected from inappropriate and unsolicited messages.



² What is defined as 'reasonable' will differ depending on specific situations and will typically be a locally defined period agreed with the supplier of the support service, written into a Service Level Agreement.

T7. I need to give out and collect work from learners online.

Systems **shall** be available to teaching staff to enable them to set and receive work to and from learners. This **should** involve scheduling work for a certain date or setting a number of tasks that must be completed in a certain order. It **should** also be possible to set different levels of work for different learners on the same task.

**T8. I need my institution to be more environmentally sustainable.**

Teaching staff **shall** be able to use energy efficient electronic services that extend the institution's global reach, negate the need for travel and reduce the consumption of paper and ink.

**T9. I want to be able to use information about the learners' use of the building and resources in the curriculum to demonstrate what sustainable development means at a personal level.**

Teaching staff **should** have access to environmental data that can help in educating the learners to assist in improving energy efficiency across (and beyond) the institution to reduce the environmental impact of catering, water consumption, paper consumption and waste of other consumables and resources.

**T10. When logging in at the start of a lesson I need to login and start working without having to wait for excessive periods of time.**

Teaching staff **shall** be able to start delivering their lessons as soon as the period begins. They **shall** not have to wait unreasonable³ lengths of time for machines to boot up, log in and for applications to load.

**T11. I need the technology I use to work first time.**

Teaching staff **shall** be confident that when delivering a lesson, any technology they use (such as video conferencing or interactive whiteboards etc.) will work.

In the unfortunate case that something does go wrong, then the technology **shall** be replaced or fixed within an agreed, reasonable time period.



³ What is defined as 'reasonable' or 'unreasonable' will differ depending on specific situations and will typically be a locally defined period agreed with the supplier of the support service.

T12. I need to create, reuse and share my own resources⁴. I also need to add information to these resources so others can find them and know what they are allowed to do with them.

Teaching staff **shall** be able to create, edit and repurpose resources independently or in collaboration with colleagues. This functionality **shall** be available on and offline. Resources **shall** be able to be shared both inside and outside their institution. The systems they use **shall** be capable of loading and running digital resources that can then be shared. The resources **shall** also be able to be tagged to associate information with a resource, for example information such as 'date last used', and peer reviews and comments.



T13. I need to be able to find and use different types of resources from different places.

Teaching staff **shall** be able to browse and search inside and outside their institution for resources and filter results according to features such as file type, licence, curriculum mapping etc. Information about resources **should** be displayed to the user to help select appropriate resources. Any suitable resource that has been found **shall** be able to be loaded and run (launched) within the institution's systems. There **shall** also be a way of discovering what copyright and intellectual property rights information is associated with the resource so it can be used legally.



T14. I need to set tests and mark them online.

Teaching staff **shall** be able to seek and interpret evidence of a learner's performance to identify where the learners are in their learning, where their next learning goals are, and what to do next to achieve them. The systems available to staff **shall** allow them to deliver assessments to learners, for example multiple-choice quizzes, essay or single word answers, based on a learner's individual needs.

Once a learner has used an assessment item, the system **shall** be able to report which one was used and what the results were. Assessment tools **should** include self and peer review functionality. Items **should** also be shareable with internal and external reviewers for the assessment of teaching and learning.



T15. I need to record, monitor and report on a learner's assessment, both formative and summative.

Teaching staff **shall** be provided with the functionality to manage all aspects of a learner's assessments, including the generation of usage data which **should** be stored for tracking, reporting, analysis and planning.



⁴ Resources could include (but are not limited to) multiple-choice quizzes, video clips, sounds, text or a mixture of these and others.

T16. I need to be able to schedule my work so I can set it in advance of lessons.

Teaching staff **shall** be able to set rules to control access to resources at specific times or events. Rules **shall** allow access depending upon time constraints; for example, certain resources may only be available for a set time or linked to a timetable. Rules **should** allow access to resources to be linked to, for example, the successful completion of another task.

**T17. I need to be able to see how well my learners are progressing.**

Teaching staff **shall** be able to track learners' progress and support needs and see what resources they have been using.

**T18. I need my learners to be able to work together online in a safe environment.**

Current technologies make it possible for learners and educators to communicate and collaborate in more targeted and effective ways than ever before.

Users **shall** be able to work collaboratively on resources, and communicate effectively and safely with collaborators. Users **shall** be able to take part in discussion forums by posting and reading messages. Communication and collaboration channels **shall** include age-appropriate safety measures, which may include moderation on discussion forums and access controls. These controls could limit contributions to a particular group or for a set period of time.

**T19. I'd like to be able to chat with other members of staff and learners online.**

Functionality **should** be provided which facilitates the support and integration of audio conferencing and video conferencing with other functionality or services, for example: instant messaging; enabling voice or visual communication with learners and staff. This functionality should be available from anywhere and not be restricted to within a particular application.

This functionality **should** be available for a range of purposes including teaching and learning, presentation, communication, assessment and reflection etc. It **should** be possible to record, tag and store or link to such interactions, for example as part of a portfolio of evidence.

**T20. I need to have flexibility in where I teach within the institution.**

Teaching staff **shall** have access to appropriate curriculum resources and administration data from all computers in the institution and from all learning spaces within the institution.



T21. I need to record, monitor and report on a learner's behaviour.

Teaching staff **shall** be able to record, monitor and report on learner behaviour (both positive and negative). Where appropriate, the reporting of behaviour information **shall** also be available for parents to view.

**T22. I need to record, monitor and report on a learner's SEN information.**

Teaching staff **shall** be able to record, monitor and report on a learner's SEN information. Where appropriate, this **shall** also be provided to parents to view.

**T23. I need to record, monitor and report on a learner's option choices.**

Functionality **shall** be provided to enable the management, recording, monitoring and reporting of learners' 'options' (based on any Individual Learning Aims/Plans which might exist).

For a school, the recording of option choices **should** be undertaken for the appropriate school level, and is most likely to be required for Year 9 and Year 11.

**T24. I need to record, monitor and report on exam entries and exam results.**

Staff **shall** be able to manage the recording, monitoring and reporting of exam entries and exam results.

The reporting function **should** also facilitate statistical analysis of exam information.

**T25. I want to be able to track my own performance development and identify any training needs I may have.**

Teaching staff **should** have access to a system that enables them to maintain a record of their professional development.

**T26. I want my learners to be able to create and share electronic portfolios.**

Functionality **should** be provided which facilitates the creation and maintenance of electronic portfolios for reflective learning, presentation, assessment and/or transfer to other organisations.

**T27. I want to be able to plan our curriculum.**

Functionality **should** be provided which facilitates the planning of the educational establishment's curriculum (which, in the case of schools, supports the delivery of the National Curriculum).



T28. I need to be able to plan my lessons and allow other staff to use them if necessary.

It **shall** be possible for teaching staff to produce and manage lesson plans. The system **shall** enable plans to be created, saved, located, edited, stored, launched and shared.



T29. I want an easy way of storing and finding documents.

The system **should** provide a means of identifying and tracking versions of key documents.



T30. I need data on my learners, my work and my learners' work to be stored safely and securely.

Institutions **shall** have access to a dedicated repository (or series of repositories) to facilitate the secure storage of all curriculum and administrative data. Institutions **should** make use of Becta tools such as the *Information Management Strategy Framework* (<http://www.becta.org.uk/plansustainableSUCCESS>) and *Data security guidance* (<http://www.becta.org.uk/schools/datasecurity> and <http://www.becta.org.uk/feandskills/datasecurity>)



T31. I need to know how to get the most out of the applications that have been made available to me and to know what to do if anything goes wrong.

Staff **shall** be trained⁵ to use applications effectively. They **shall** also be aware of how to report any issues or difficulties they may have with the functions provided by any application (or suite of applications), such that the issue or difficulty is resolved to their satisfaction.



⁵ The type of training required will be a local decision depending on specific needs. This could include 'formal' training, coaching, self-learning or other means of ensuring that staff can use applications effectively.

User Functional Requirements – non-teaching staff

Non-teaching staff⁶

NT1. I need to fulfil my legal obligations regarding statutory returns.

Functionality **shall** be provided to enable statutory returns to be submitted in a digital format as defined by the DCSF and other government agencies.



NT2. I need the information required to do my job well to be available securely, whenever and wherever I need it.

Staff **shall** have access to data systems that have been bought for them or are freely available. Access **shall** as a minimum be via a username and password (or alternative method of authentication) and **shall** be available from anywhere outside and inside the institution, for example from home and from any wired or wireless machine within the school or college.

A risk assessment **shall** be carried out to establish the level of protection required for access to data. Two-factor authentication⁷ **shall** be provided where the outcome of the risk assessment deems it necessary.

Permission to access different resources **shall** be specific to individuals or based on an individual's role or group. Where usernames and passwords are required for different systems access **should** be via a single username and password.



⁶ Depending on the size or type of institution it is acknowledged that some of these requirements may be relevant for teaching staff.

⁷ An authentication factor is a piece of information and process used to authenticate or verify the identity of a person requesting access to a system. Two-factor authentication is a system where two different factors are used together: something you have, something you know or something you are (biometrics). For example, username and password that are known and a key fob that generates a random electronically generated password (something you have in your possession).

NT3. I need learner information to be consistent throughout all the systems I access.

Learner information **shall** be consistent throughout the system. Processes **shall** be automated to reduce the burden of having to re-key data, the need to sort out duplicate entries or having to manually import and export to other systems. Inefficiencies of systems that do not work together **shall** be removed and an open standard for interoperability **shall** be adopted to enable this to happen without the need for additional spend every time a new system is introduced into the institution.

**NT4. I need real-time attendance data and access to group and individual attendance reports.**

Schools and colleges need to mark attendance for legal and funding reasons. Institutions' systems **shall** provide the functionality for the reporting and analysis of individual and group attendance. Institutions **should** enable attendance data to be transferred automatically between both internal systems and other institutions where necessary.

**NT5. I need to communicate with other staff, learners and parents and be confident that we will be protected from access to or distribution of inappropriate content and from unsolicited contacts.**

Non-teaching staff **shall** share and exchange information in different formats and with different people – other staff, learners and (for schools) parents. Some of this sharing will be one way, such as via a website, but could also be via text message or email.

However information is shared, everything possible **shall** be put in place to ensure that recipients are protected from inappropriate and unsolicited messages or content.

**NT6. I need accurate information about all learners whether the information has come from the local authority or elsewhere.**

Functionality **shall** be provided to enable the creation, updating and maintenance of admissions information and make it possible for the import of admissions information from other institutions or local authorities, and the export of admissions information to other institutions or local authorities using open standards.

**NT7. I need to be able to add learner information and keep it up to date.**

Staff members **shall** have the capability to manage the creation, updating and maintenance of learner information (e.g. 'name', address etc.).

It **shall** also be possible for learner information to be imported from and exported to other institutions or Local Authorities.



NT8. I want to be able to track my own performance development and identify any training needs I may have.

Non-teaching staff **should** have access to a system that enables them to maintain a record of their professional development.

**NT9. I need to be able to manage staff records including their contact details and contract management.**

Functionality **shall** be provided to enable the creation, updating and maintenance of statutory workforce information (as defined by the DCSF and government agencies) and make it possible for the export and import of information to or from other institutions or local authorities where necessary.

**NT10. I need a way of managing staff cover and supply cover.**

The system **shall** be capable of managing staff cover including recording and reporting on cover.

**NT11. I need a way of managing assets within my institution including room bookings and keeping track of equipment.**

Systems **shall** be capable of monitoring the use of resources such as rooms as well as maintaining an inventory of various assets.

**NT12. I want to record payments for dinners. I also want to manage payments for other things including trips, uniforms etc.**

Staff **should** not have to waste time collecting, counting cash and manually keeping records of who has paid for what. Instead, the institution's system **should** accommodate multiple payments and be capable of recording, processing and storing transaction information, then generating receipts and other reporting information.

**NT13. I want to record and manage financial information including my budget, transactions and invoices, payments and payroll.**

Functionality **should** be provided to enable authorised users to manage the recording and maintenance of financial information which could include, for example: e-ordering; budget (including strategic multi-year budget) management; transactions and invoices; payments; payroll; and for schools, Consistent Financial Reporting (CFR)⁸.



⁸ The Audit Commission has produced a tool for schools to help manage school resources [<http://www.schoolresources.audit-commission.gov.uk/>].

NT14. I want to manage the library so I know who has borrowed what. I don't want to have to re-enter learner details.

Functionality **should** be provided to enable the recording and maintenance of library transactions (e.g. the borrowing and returning of books or other items).

Learner details **should** be automatically provided to the library system to prevent duplication errors and to ensure details are kept up to date.

**NT15. I want to be able to drill down into the information we have on learners and their learning, to carry out data mining and statistical analysis of the data.**

Functionality **should** be provided to enable authorised staff to undertake 'data mining' or statistical analysis of data contained within relevant repositories holding the institution's information.

**NT16. I need to be able to set up and manage a timetable to include room bookings, staff cover and resource scheduling.**

Functionality **shall** be provided which facilitates the construction and maintenance of a timetable. The timetable **should** be able to be shareable with other systems.

**NT17. I want to keep track of extra-curricular activities such as open evenings and concerts, clubs and societies.**

Functionality **should** be provided that facilitates the creation and maintenance of an online calendar that can be shared with other applications and viewed on a public-facing website and intranet.

The calendar **should** be capable of displaying information from other systems without someone having to retype event information.

**NT18. I want an easy way of storing and finding documents.**

The system **should** provide a means of identifying and tracking versions of key documents.

**NT19. I need my institution's data to be stored safely and securely.**

Institutions **shall** have access to a dedicated repository (or series of repositories) to facilitate the secure storage of all curriculum and administrative data. Changes to this data **shall** be logged to provide an audit trail. Institutions **should** make use of Becta tools such as the *Information Management Strategy Framework* (<http://www.becta.org.uk/plansustainablesuccess>) and *Data security guidance* (<http://www.becta.org.uk/schools/datasecurity> and <http://www.becta.org.uk/feandskills/datasecurity>)

All staff **shall** be made aware of their responsibilities when handling data. The institution **shall** also have an acceptable use policy for staff and learners accessing the internet and other ICT resources.



NT20. I want to record, monitor and report on energy use and other environmental factors.

Functionality **should** be available to allow institutions to fulfil their obligations regarding government targets around reduction of carbon emissions and publicising their energy-saving actions.



NT21. I need to meet national requirements for environmental sustainability and sustainable development.

Institutions need a way of managing assets to demonstrate that they are procuring energy-efficient sustainable products and using electronic services that extend the school's global reach, yet reduce the need for travel and reduce the consumption of paper and ink. Systems **should** help institutions to take care of managing environmental data (including room bookings and keeping track of equipment) in order to provide evidence that they are improving energy efficiency and reducing the environmental impact of catering, water consumption, paper consumption etc.

For schools this includes meeting the requirements of the National Framework for Sustainable Schools and being able to demonstrate Sustainable Development in inspections.



NT22. I need to know how to get the most out of the applications that have been made available to me and to know what to do if anything goes wrong.

Staff **shall** be trained⁹ to use applications effectively. They **shall** also be aware of how to report any issues or difficulties they may have with the functions provided by any application (or suite of applications), such that the issue or difficulty is resolved to their satisfaction.



NT23. I want to be able to plan our curriculum.

Functionality **should** be provided which facilitates the planning of the educational establishment's curriculum (which, in the case of schools, supports the delivery of the National Curriculum).



⁹ The type of training required will be a local decision depending on specific needs. This could include 'formal' training, coaching, self-learning or other means of ensuring staff can use applications effectively.

User Functional Requirements – the learner

Learner

L1. I want to be able to access learning materials whenever and from wherever I want using the same way of logging on.

Learners will need access to resources that have been bought for them or are freely available. Access **should** be via a single username and password (or other appropriate method of authentication) and **shall** be available from anywhere outside and inside the institution, for example from home and from any wired or wireless machine within the school or college. Permission to access different resources **shall** be specific to individuals or based on an individual's role or group, such as 'all Year 9s' or 'all members of the Business Studies department'.



L2. I want to use my own laptop or mobile phone in school/college.

With the prevalence of highly functional user-owned devices there is a need to ensure that they can be used safely, securely and effectively within the institution. User rights and responsibilities **shall** be clearly detailed. Where the use of personally owned devices is deemed inappropriate, clear policies **shall** be in place to avoid confusion.



L3. I want to be environmentally friendly in my use of ICT.

Learners **should** have access to sustainable systems in a way that allows them to make use of technology whilst reducing their impact on the environment. Devices **should** have power management capability enabled and include specific instructions on how to use power-saving modes.

Learners **should** be able to use electronic services that reduce the consumption of paper and ink.



L4. I need sufficiently fast and reliable connections to access a wide range of applications and services.

Learners need to be sure that any technology they will be using in lessons will work. So if the lesson involves video conferencing with someone in France, for example, the web connection will be fast enough for them to see and hear the people they are talking to. It could be that while this videoconference is happening, another class is viewing some videos online and someone else is uploading some pictures to a website. The connections inside and outside the institution **shall** be fast enough for multiple lessons to happen at once.

If something does go wrong with the connection it **shall** be fixed within an agreed, reasonable time period¹⁰.



L5. I want to submit and receive work online.

Systems **shall** be available to allow learners to receive, complete and submit work online. This **should** allow for the completion of tasks in a certain order.



L6. I need somewhere online to store all my work and choose who I want to share it with, including documents, photos, videos and other content.

Institutions **shall** have access to a dedicated repository (or series of repositories) to facilitate the secure storage of all curriculum and administrative data.



L7. When logging in at the start of a lesson I don't want to have to wait for ages before I can start working. I want the device I'm using to start up and log me in quickly so I don't miss any of my lessons.

Learners **shall** be able to start their lessons as soon as the period begins. They **shall** not have to wait unreasonable lengths of time for machines to boot up; to log in; and for applications to launch.



L8. I want to be able to email staff and learners.

Learners need to share and exchange information in different formats and with staff and other learners both from within and external to the institution, subject to appropriate controls. Everything possible **shall** be put in place to ensure that recipients are protected from inappropriate and unsolicited messages.



¹⁰ What is defined as 'reasonable' will differ depending on specific situations and will typically be a locally defined period agreed with the supplier of the support service.

L9. I want to choose how I learn and set my online area up however I want.

Learners **shall** be able to personalise their learning environment and have access to a wide range of technologies and applications that are appropriate to their needs.



L10. I want to work online with my friends and comment on what they've done.

Users **shall** be able to work collaboratively on resources, and communicate effectively and safely with collaborators. Users **shall** be able to take part in discussion forums by posting and reading messages. Communication and collaboration channels **shall** include age-appropriate safety measures, which may include moderation on discussion forums and access controls, or restrictions placed on a particular group or for a set period. Users **shall** be provided with a protected online environment and be educated in the use of online resources and online safety.



L11. I'd like to be able to chat with members of staff and other learners online.

Functionality **should** be provided which facilitates the support and integration of audio conferencing and video conferencing with other functionality or services, enabling voice or visual communication with learners and staff.







L12. I want to be able to create and share electronic portfolios.

Learners **should** be able to share representative parts of their work with a range of internal and external parties. These could include assessors, prospective employers or their parents. Portfolios **should** also be able to be shared when transferring to other organisations.



User Functional Requirements – parents and carers

Parent/carer
<p>P1. I want to be able to log on using a single set of credentials to see how my children are getting on at school.</p> <p>Parents and carers will need access to up-to-date information about their child's learning, at any time and anywhere they like. This access shall be provided.</p> 
<p>P2. I want to see my child's attainment and progress compared to the average progress in the school, with other schools and nationally.</p> <p>An individual learner's academic progress shall be made available to his or her parents or carers by logging on to a secure system.</p> <p>School systems shall be capable of fulfilling the online reporting expectations as described at www.becta.org.uk/schools/parentalengagement.</p> 
<p>P3. I want to see information on my child's behaviour – both good and bad.</p> <p>An individual learner's behavioural achievements shall be made available to his or her parents or carers by logging on to a secure system.</p> <p>School systems shall be capable of fulfilling the online reporting expectations as described at www.becta.org.uk/schools/parentalengagement.</p> 
<p>P4. I want to see information on the environmental performance of the school.</p> <p>Parents and carers should have access to up-to-date information that shows whether and how the institution is procuring sustainable products, reducing its energy consumption and addressing other environmental issues.</p> <p>Parents and carers should be able to assist in improving the environmental impact across the institution and to help support the wellbeing of the local community.</p> 

P5. I want to be able to send and receive messages with the school or college electronically.

Schools **shall** use a range of different technologies to improve parental engagement, for example, publicly accessible websites, emailed newsletters and subscription text services. Providing parents and carers with access to up-to-date information via electronic services will reduce the consumption of paper and ink.



P6. I want to see my child's lesson attendance information and to be notified immediately if they haven't arrived at school.

Email and text messaging are commonly used by schools to contact parents and carers and keep them informed.

Where parents/carers are frequently accessing information online then systems **should** be used to alert them to issues via 'dashboards' of information, or be used to provide further detail and context.

School systems **shall** be capable of fulfilling the online reporting expectations as described at www.becta.org.uk/schools/parentalengagement.



P7. I want to see appropriate information relating to my child's special needs (SEN).

Information about an individual learner's special educational needs and how parents/carers can support their child's needs **shall** be made available to parents. Access to this information **shall** be via unique credentials (username and password or other appropriate method of authentication).

School systems **shall** be capable of fulfilling the online reporting expectations as described at www.becta.org.uk/schools/parentalengagement.

