

Developing people for health and healthcare





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Intended audience

These guidelines are for everyone with any role or responsibility in commissioning Technology Enhanced Learning (TEL) for the healthcare workforce in England, whether considering investment of public, professional membership or charitable funds, and whether working at national, regional or local level.

Definitions

For the purposes of this document:

- a) 'You' refers to you as the individual, team or organisation wishing to commission, procure or develop a TEL solution for use by healthcare staff and/or patients
- b) 'We' refers to Health Education England (HEE), the system leader for TEL in the NHS
- c) 'Technology Enhanced Learning' encompasses a wide range of methods to support learning, including e-learning courses, mobile learning, online assessments and resources, interactive digital media, videos for learning and reflection, teleconferencing and webinars for virtual workshops and meetings, and simulation using virtual reality
- d) 'Commissioning' means the process of authorising the development of TEL, be it developed internally or bought in from an external company
- e) 'Health Group' are arm's length bodies (ALBs), including NHS England, HEE, Health and Social Care Information Centre, etc.

Scope

This guidance focusses on commissioning **Technology Enhanced Learning (TEL).** Whilst this guidance will be relevant to you if you're commissioning computer-based simulation, there is separate guidance for commissioning of manikin-based simulation and task trainers. This document provides guidance on commissioning of mobile apps for educational use, such as performance support or reference. However, it does not include specific guidance on commissioning mobile apps for health wherein the solution is used to perform complex calculations that may wholly be relied upon by a clinician and could be considered a medical device.



Contacts

For further help and advice in relation to commissioning Technology Enhanced Learning (TEL), please contact the appropriate Health Education England (HEE) TEL lead, below:

Location	Contact	Email address
Midlands and East of England	Ruth Carlyle Clare Edwards Noel Cudden	ruth.carlyle@hee.nhs.uk clare.edwards@hee.nhs.uk noel.cudden@hee.nhs.uk
London and Kent, Surrey and Sussex	Louise Goswami Lucy Reid Franco Henwood	louise.goswami@hee.nhs.uk lucy.reid@hee.nhs.uk franco.henwood@hee.nhs.uk
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South of England	Helen Bingham Alison Potter Vicki Tinkler	helen.bingham@hee.nhs.uk alison.potter@hee.nhs.uk vicki.tinkler@hee.nhs.uk
National	TEL Programme	tel@hee.nhs.uk



Introduction

The effective use of Technology Enhanced Learning (TEL) has been identified as a key priority in supporting the development of the healthcare workforce. In 2011, the Department of Health (DH) published A <u>Framework for Technology Enhanced Learning</u>, which emphasises that technology used as part of a learning solution for the benefit of patients should:

- Be patient centred and service driven
- Be educationally coherent
- Be innovative and evidence based
- Deliver high quality educational outcomes
- Deliver value for money
- Ensure equity of access and quality of provision.

The Framework includes several recommendations specifically relating to the commissioning of TEL:

- Those purchasing technological solutions to support learning should undertake regular review to ensure that they continue to meet clearly defined patient and service need, support the health and social care workforce in their specific learning objectives, and provide value for money
- Healthcare, social care and education providers should work collaboratively to share resources, maximise their purchasing power and increase opportunities for multidisciplinary and inter-professional training across the entire care pathway
- Healthcare, social care and education providers, either individually or working collaboratively, should seek to establish what already exists before developing or procuring any new technologies to support learning, to reduce duplication and secure value for money
- Content to support e-learning on computers or mobile devices should be developed according to agreed technical standards to ensure easy access across different learning management systems.

In recent years, NHS organisations have gained considerable experience in developing and deploying e-learning, but the anticipated benefits have not always been fully realised and duplication of effort and expense has been high.

The use of robust commissioning processes, informed by a common set of principles and criteria, is essential to ensure that investment in TEL results in high quality resources, effective learning impact and best value for money. This document summarises good practice from lessons learned so far. What follows is a step-by-step approach to commissioning TEL.



1. Confirm educational need and service demand

Show that there is clear educational need and service demand for any proposed learning resource. Meet with your education and service leads to determine the following:

- The rationale and value of your proposed development, including the fit with strategic, operational or clinical priorities. Ask yourself: will training solve the problem? You may want to apply Moore's (no date) action mapping process to make sure training is the answer and not an environmental or cultural issue that requires a different intervention
- The expectations and priorities of service organisations for the nature, design and delivery of the resource
- Who supports the proposed learning resource and what benefits they expect to achieve
- The proposed communication and dissemination strategy
- The commitment of organisations and Subject Matter Experts (SMEs) to inform, test and evaluate the resource being developed
- The opportunities for end users to be involved at proposal, review and evaluation stages.

2. Consider whether TEL is appropriate

Decide whether Technology Enhanced Learning (TEL) is appropriate to meet the agreed educational need and requirements. To do this, you will need to consider:

- The size, type and distribution of the learner audience. Be sure that the number of potential learners, with the means to access the learning, is enough to justify the investment²
- The extent to which barriers to TEL may impact on learner access and experience. Read Lafferty et al's (2015) Barriers to Access for Technology Enhanced Learning for more information on what to consider and how to overcome some of the most common barriers
- Whether TEL will be used alone, or as part of a blended approach to learning delivery. A
 blend need not automatically comprise a fifty-fifty split between online and face-to-face
 delivery, or be limited to two components
- The funds available and resources required, including the availability of and backfill costs for Subject Matter Experts (SMEs) and the initial and ongoing support required for those testing, delivering and managing the learning
- The expected lifespan of the resource. Think about the amount/frequency of updating to make sure that it remains up to date, and the resources required to do this

² It is difficult to provide audience numbers that justify a new TEL development. These factors need to be considered on a case-by-case basis.



¹ The Quality Framework — to be launched in April 2017 — may support an evidence-based approach to the identification of educational need and service demand by highlighting areas of best practice and areas requiring improvement. The dashboard will enable commissioners to triangulate where/whether TEL-supported learning equates to overall quality in the learning experience/environment and outcomes.

 The means by which TEL will be deployed and learner progress, results and completion will be tracked. Can platforms already in use by employers and learners be used?
 Consider the preferences and reporting requirements of both employers and learners.

3. Determine the appropriate level for commissioning

Technology Enhanced Learning (TEL) in the NHS in England is commissioned at a variety of levels, by a wide range of organisations and individuals. Resources are commissioned nationally by the Department of Health (DH), Health Education England (HEE) and other arm's length bodies (ALBs), and other national public and professional organisations, regionally by collaborative partnerships and locally by NHS Trusts and others. This greatly increases the risk of duplication.

High quality TEL is not inexpensive and is often designed to meet commonly shared learning needs, therefore TEL commissioned at national level, either by a single organisation or by a collaborative, may be more cost-effective. Contact your HEE TEL lead to discuss whether your idea fulfils a shared need and known gap nationally.

However, high quality, innovative developments are often initiated at regional and local level. If you are a national commissioner of TEL, consider the availability of relevant regional or local products and, if fit for purpose, consider broking wider use of these before progressing with separate developments.

4. Find out what already exists

Regardless of whatever level you are commissioning, you must identify what already exists or is in development, and consider the opportunities for sharing and reusing Technology Enhanced Learning (TEL).

Currently, the NHS eLearning Repository³ (<u>www.elearningrepository.nhs.uk</u>) is a useful starting point; however, there are other sources of information, including

Health Education England (HEE) e-Learning for Healthcare (e-LfH) (http://portal.e-lfh.org.uk), HEE's soon-to-be-launched Learning Solution and HEE Quality Framework⁴ and monthly reports.

Contact one of the HEE TEL leads (see Contacts section) who can use their networks to find out if resources on a particular topic already exist or are in development.

If you find something suitable that is available at local or regional level that could be shared wider across the NHS via the national e-learning platforms, see Appendices 1 and 2.

⁴Whilst the HEE Quality Framework, online portal and monthly quality reports will not provide a comprehensive directory of available programmes, each tool will enable you to access examples of best practice and high quality across all learning environments, and allow further investigation to understand if these approaches are supported by TEL.



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³ Please note that this does not constitute endorsement of the objects contributed by the authors of this document; you should apply the same quality criteria as you would to newly-commissioned material.

5. Create a business case

If you've got to this step then it's likely that nothing already exists and you wish to pursue a new development.

If your proposal is to develop something to be shared nationally, then you will need to work with your Health Education England (HEE) Technology Enhanced Learning (TEL) lead to develop a business case and gain support of the HEE TEL leads group (see Appendix 3). (If you are a commissioner employed by HEE or another arm's length body (ALB), then you may need to seek Cabinet Office approval. See References.)

Similarly, if your proposal is to develop something locally, then you may still need to develop a business case for internal purposes to seek funding or approval for the project to proceed.

Your business case needs to set out the rationale and justification for the proposed development, together with the costs and risks. Where available, use your organisation's standard business case template, or refer to the example in Appendix 4.

6. Develop specification of requirements

If your business case is approved, you need to develop a specification to guide in-house development or to use when inviting external suppliers to tender.⁵ Give as much information as possible so that developers can plan the project or potential external suppliers can make an informed bid. Neither developers nor providers will be able to deliver adequate Technology Enhanced Learning (TEL) solutions if they don't have enough information.

Some sample specifications are included in Appendix 5, but remember your specification may need to vary according to the type of solution you are seeking.

A useful document to refer to when preparing a service specification is <u>E-learning in the Health Sector: Some Key Quality Principles</u> (Skills for Health, 2011).⁶ It is vital that all the elements below are considered.

6.1 Educational aspects

Evidence based

Design your TEL with the same attention to evidence-based findings and the latest knowledge in the field that we currently apply to clinical care. This applies to both the learning content and the pedagogy utilised. The best outcomes result from selecting the best modality for the learner and the subject. Therefore, use clearly defined learning outcomes and design TEL activities to

⁶ Please note that we are aware this document requires updating. It is anticipated that this document will be refreshed in 2017.



⁵ The HEE Quality Framework can support formal procurement exercises by providing a specification to guide in-house development or to use when inviting external suppliers to tender. Whilst the entire 24 Quality Standards may not be applicable in each and every context, a selection of the standards may be appropriate. In particular, Standards 3.1, 3.2, 4.1, 4.2, 5.1, 5.2 and 5.3 may apply in this context.

explicitly meet these. This will help you to focus on the information your learners need to know to help maximise retention.

Lots of advice and guidance is available on the internet with regard to TEL in general and elearning in particular; yet it is not always easy to differentiate between evidence-based guidance and plausible myths. To avoid the more common distractions, you may wish to read Urban Myths about Learning and Education (De Bruyckere et al., 2015).

Particularly relevant is the research of Mayer and colleagues, which has led to the development of a unifying Cognitive Theory of Multimedia Learning (Mayer, 2014). In an era when the term 'updating' is often used in the workplace to apply to both computers and humans, the astronomical gulf between the processing capacity of contemporary information technologies and the human mind grows year on year, and can result in an 'information-transfer' approach to e-learning, which overloads learners. Cognitive Load Theory (Chandler & Sweller, 1991) addresses the amount of processing a learner is able to undertake at one time, and is thus highly relevant to learning designers. Additionally, in the NHS as we attempt to suit e-learning programmes to the needs of a wide range of professionals, we may unwittingly invoke an Expertise Reversal Effect (Kalyuga et al., 2003), in which learning is made less effective for those with existing subject knowledge. Design challenges such as these, and information on how to avoid them, are included in the volumes listed under the Sound, peer-reviewed research into e-learning section in the Further reading chapter of this document. You can borrow these via your local NHS library service.

Make sure that technology is used to improve learning for healthcare staff and for our patients, rather than simply streamline the process regardless of outcomes. Ravet (2007) advocated that technology should be used to improve the quality of all learning in the health sector, and a guiding principle which might underpin the design and commissioning of TEL in the NHS is offered by Salmon (quoted in Jisc, 2010:p16), who implores learning designers, 'Don't ask what the technology can do for you, rather what the pedagogy needs'.

Curriculum alignment

Consider the potential for utilising the proposed resource to meet recognised healthcare education providers' curricula/Continuing Professional Development (CPD) provision.

Mapping to competence and performance frameworks

Map the learning outcomes of the proposed resource to relevant competence frameworks in use within the NHS and wider healthcare sector, such as <u>National Occupational Standards</u>, <u>UK Core Skills Training Framework</u> and/or performance standards, such as <u>Care Quality</u> Commission Fundamental Standards of Quality and Safety.



Accreditation

Consider seeking endorsement or accreditation by a relevant academic, professional, regulatory or statutory body. This will typically require production of evidence to demonstrate compliance with the accreditation criteria, but may add value to the resource for learners and employers, and will be more easily achieved if considered at the planning stage.

Localisation of resources

Resources designed to meet common service needs will encourage widest use and support standardisation of practice. However, consider whether it is possible to include the facility to localise resources as required by individual organisations, for instance, by including local images, voices and policies to situate the content in a local context, as this can significantly assist adoption.

Multi-professional learning

Relevance of content to the defined target audience is paramount, but, where possible, commission developments with the expectation that they will support inter-professional learning, and be designed (or be capable of being repurposed) for use by multi-professional teams. Where a resource is developed for a single profession, provide a clear statement of justification.

6.2 Technical aspects

It is not possible to include technical standards for every type of TEL solution within this one document. Therefore, a simple decision support tool has been developed, outlining the technical standards and considerations you will need to be aware of, and specify, for some of the most commonly commissioned TEL in the NHS at this time.

This can be found at <u>Technical aspects decision support tool</u>.

Read Lafferty et al's (2015) Barriers to Access for Technology Enhanced Learning for more information on what to consider and how to overcome some of the most common barriers.

6.3 Intellectual Property (IP) and associated rights

This section is to assist the creators of TEL solutions by providing an approach about the creation, ownership and exploitation of intellectual property assets.

Early consideration must be given to IP and associated rights of the proposed resource, as this can have a significant impact on the costs of development and the extent to which TEL solution/s can be shared. This includes the Intellectual Property Rights (IPRs) attached to text, assets and images used within a resource, as well as to the end product.



The Department of Health (DH) is currently reviewing how IP is handled across the Health Group. All arm's length bodies (ALBs) are being asked to ensure ownership of IP is secured and that their IP is identified and managed as needed. In pursuing the above approach and through these guidelines, the e-Learning for Healthcare (e-LfH) platform aims to provide high quality content free of charge for the training of the NHS workforce across the UK.

Creators of TEL solutions must make sure that the ownership of the IP attached to NHS-funded TEL solutions is explicitly assigned to your organisation, so that it will be in the best possible position to fully exploit its IP assets within or outside the UK at a later date. You will also need to assign rights of your TEL solution so that, where possible, it can be shared free of charge across NHS healthcare organisations. Where this is not possible or practical, the limits to access and sharing must be clearly stated.

Please contact your TEL lead if you have any further queries.

6.4 Implementation and promotion

You will need to scope, agree and identify resources for implementation and promotion from the outset. Miss out this crucial step and you could adversely impact on delivery of objectives and return on investment. Form a group of key people, including Finance, Marketing, IT, an Educationalist and learners to ensure a successful implementation of your TEL initiative and help to sustain it (Jisc, 2015).

If you plan carefully and communicate well, you will make sure that your organisation's investment in TEL has been effective. Some ways in which you might do this include:

- Gaining support from senior leaders, managers and learners from the outset of the commissioning process and developing a communication plan with their input
- Putting in place trainer and learner support
- Aligning TEL with your organisation's personal development process
- Raising awareness of TEL by:
 - Setting up TEL Champions
 - Using poster and email campaigns
 - Carrying out desk drops of printouts or postcards that include screen shots, FAQs and testimonials
 - Using web links to TEL in your email signature
 - Using intranet sites and the organisation's website
 - Writing articles for your staff bulletin, newsletters and course catalogues
 - Giving hands-on demonstrations with learners
 - Presenting at team meetings



Setting out a description of the resource/s, including learning outcomes and intended users.⁷

To promote shared awareness of TEL developed with public funds, and to help reduce waste and duplication, add descriptions of your TEL programmes, modules and assets to the NHS eLearning Repository. Where possible, share the source files. This means that potential learners, educators and commissioners can discover, preview and, if appropriate, download these for adoption or adaption.

6.5 Updating

Clarify expectations. How often will updating need to be done, who will do it, and what will the process be? We recommend that TEL should be reviewed at least once a year.

Make sure that updating can be done cost-effectively. Where applicable, specify that you wish to have all the source files created to develop the learning resource. This will give you the option to update and maintain the resource at a later date.

6.6 Evaluation

Be clear about the success measures that will be applied to judge the effectiveness of the proposed development, and the type of post-deployment evaluation you require. This may include analysis of usage data, learner satisfaction, assessment of competence, impact on practice, and/or time/cost savings. The HEE Quality Framework may provide a useful structure and suite of success measures when evaluating a proposed development and establishing post-development evaluation criteria.

Don't forget to collect and document data on the current situation, so that you have a baseline that can be measured against once the learning resource is being used. Outline who will do this and how often

7. Decide the development route

7.1 Internal development

Does your organisation have the skills and resources to build in-house?

If so, then you'll need to set up a development team. We'd recommend this comprises, as a minimum, a Subject Matter Expert (SME), Educationalist and Learning Technologist and has close involvement from end users. In some cases, the Educationalist and Learning Technologist roles may be done by one person with enough expertise in each. If there is not adequate

⁷ Many systems require information to be added which describes the object, for example, the learning outcomes and target audience. This is referred to as metadata — information about the learning — and helps make your TEL searchable and discoverable.



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expertise within your organisation, you may wish to enlist the help of Health Education England (HEE) e-Learning for Healthcare (e-LfH) or your local HEE Technology Enhanced Learning (TEL) team.

Review your TEL thoroughly before sign-off. This applies to both technical functionality and content. Make sure you involve SMEs and end users in these reviews (see the government's (no date) Digital by Default Service Standard for good practice guidance on taking a user-centred approach to digital projects). Capture their feedback and note any actions to be taken. If you're developing an e-learning module for national implementation, as a minimum you need to make sure:

- Navigation is clear
- Learning objectives and learning outcomes are clearly stated
- There is no platform-specific text
- There is no local or regional text
- · Content is well written and clear
- · Text has no spelling or grammatical errors
- · There is appropriate use of interactions
- · There is appropriate use of assets
- There is no voiceover text leading the learner
- Subtitles are available for all videos.

7.2 Outsourcing development — tips for tendering

It is essential to follow your organisation's financial procedures on tendering. It is good practice to obtain at least three alternative quotes, regardless of the proposed level of investment. Your invitation to tender should include the specification of requirements and an outline of the evaluation criteria that will be used to select the final supplier.

As a minimum, evaluation criteria will include:

- Educational validity and quality
- Value for money
- Originality/creativity of the proposed solution
- Previous success of the company
- Experience of working with the NHS.

Ask to see examples of each supplier's previous work and for references from previous clients.

Assemble an evaluation group to look at each of the submitted proposals, including as a minimum, the lead SME, Educationalist, Learning Technologist and a representative user; it may be helpful to include an IT specialist to consider technical aspects. Ask the evaluation group to score each proposal using an evaluation grid based on the criteria supplied to the bidders (see Appendix 6 for an evaluation grid template). Depending on the investment level,



the number of proposals and time factors, a two-stage process whereby shortlisted bidders are invited to present may be appropriate.

Keep the completed evaluation grids as an audit trail of decisions made and to help give feedback to unsuccessful suppliers.



References

Applicable to all TEL commissioning:

Cabinet Office. (no date) *Digital by Default Service Standard* [online]. Available at: https://www.gov.uk/service-manual/service-standard [Accessed on 17 August 2016].

Chandler, P. & Sweller, J. (1991) Cognitive Load Theory and the Format of Instruction. *Cognition and Instruction*, 8 (4), pp293–332.

De Bruyckere, P., Kirschner, P. A. & Hulshof, C. D. (2015) *Urban Myths about Learning and Education*. London: Academic Press.

Department of Health (DH). (2011) *A Framework for Technology Enhanced Learning* [online]. Available at: https://www.gov.uk/government/publications/a-framework-for-technology-enhanced-learning [Accessed on 17 August 2016].

Jisc. (2010) Effective assessment in a digital age. A guide to technology-enhanced assessment and feedback [online]. Available at:

http://www.webarchive.org.uk/wayback/archive/20140614115719/http://www.jisc.ac.uk/media/documents/programmes/elearning/digiassasseada.pdf [Accessed on 17 August 2016].

Jisc. (2015) Mobile learning: A practical guide for educational organisations planning to implement a mobile learning initiative [online]. Available at: https://www.jisc.ac.uk/guides/mobile-learning [Accessed on 17 August 2016].

Kalyuga, S., Ayres, P., Chandler, P. & Sweller, J. (2003) Expertise Reversal Effect. *Educational Psychologist*, 38 (1), pp23–31.

Lafferty, N., Teague, M. & Price, R. (2015) *Barriers to Access for Technology Enhanced Learning (TEL)*. NHS HEE/HEA TEL Enablers Group.

Mayer, R. E. (Ed.). (2014) *The Cambridge Handbook of Multimedia Learning*. 2nd ed. New York: Cambridge University Press.

Moore, C. (no date) *Action mapping headquarters* [online]. Available at: http://blog.cathy-moore.com/action-mapping/ [Accessed on 14 June 2016].

NHS Health Education England (HEE). (2016) *HEE Quality Framework* [online]. Available at: https://www.hee.nhs.uk/our-work/planning-commissioning/commissioning-quality [Accessed on 17 August 2016].

NHS HEE. (2016) *HEE Quality Standards* [online]. Available at: https://www.hee.nhs.uk/ourwork/planning-commissioning/commissioning-quality [Accessed on 17 August 2016].

Ravet, S. (2007) From quality of eLearning to eQuality of learning [online]. Available at: http://cdn.efquel.org/wp-content/uploads/2012/03/GP3.pdf [Accessed on 17 August 2016].

Skills for Health. (2011) *E-learning in the Health Sector: Some Key Quality Principles* [online]. Available at:

http://www2.nphs.wales.nhs.uk:8080/ProOrgDevDocs.nsf/(\$All)/5538037D6444D4B0802579E9003ABF13/\$File/SFH_Elearning_Quality_Framework1.pdf?OpenElement [Accessed on 17 August 2016].



Further reading

Applicable to all TEL commissioning:

Cabinet Office. (no date) *Government Service Design Manual* [online]. Available at: https://www.gov.uk/service-manual [Accessed on 17 August 2016].

Cabinet Office. (no date) *Intellectual property and your* work [online]. Available at: https://www.gov.uk/intellectual-property-an-overview [Accessed on 17 August 2016).

Cabinet Office. (2016) Cabinet Office controls: Annex 5 Digital and technology, including ID assurance [online]. Available at: https://www.gov.uk/government/publications/cabinet-office-controls [Accessed on 17 August 2016].

The Chartered Institute of Library and Information Professionals (CILIP). (2016) *Copyright and e-learning:* 6 tips for practitioners [online]. Available at: http://www.cilip.org.uk/blog/copyright-e-learning-6-tips-practitioners [Accessed on 17 August 2016].

Care Quality Commission (CQC). (2016) *CQC Fundamental Standards* [online]. Available at: http://www.cqc.org.uk/content/fundamental-standards [Accessed on 28 February 2017].

Department of Health (DH). (2012) *Liberating the NHS: developing the healthcare workforce* [online]. Available at: https://www.gov.uk/government/publications/developing-the-healthcare-workforce-from-design-to-delivery [Accessed on 17 August 2016].

Dirksen, J. (2015) Design for how people learn. 2nd ed. San Francisco: New Riders.

eLearning Industry. (2015) *How to Choose an eLearning Authoring Tool* [online]. Available at: https://elearningindustry.com/choose-elearning-authoring-tool [Accessed on 17 August 2016].

eLearning Industry. (2016) *10 Tools To Create Web Based Training For Multiple Devices* [online]. Available at: https://elearningindustry.com/10-tools-create-web-based-training-multiple-devices [Accessed on 17 August 2016].

Gordon, N. (2014) Flexible Pedagogies: Technology-enhanced learning. York: HEA. Available at: https://www.heacademy.ac.uk/system/files/resources/tel_report_0.pdf [Accessed on 17 August 2016].

Higher Education Academy (HEA). (no date) *Technology enhanced learning (TEL) toolkit* [online]. Available at: https://www.heacademy.ac.uk/enhancement/toolkits/technology-enhanced-learning-tel-toolkit [Accessed on 28 July 2016].

Jisc. (2016a) Scaling up online learning: Provides tools, techniques, strategies and activities to support the development and provision of online learning programmes [online]. Available at: https://www.jisc.ac.uk/guides/scaling-up-online-learning [Accessed on 17 August 2016].

Jisc. (2016b) *Technology and tools for online learning: Provides guidance, resources and case studies around the use of technologies to support online courses and distance learning programmes* [online]. Available at: https://www.jisc.ac.uk/guides/technology-and-tools-for-online-learning [Accessed on 17 August 2016].

Kirkwood, A. & Price, L. (2014) Technology-enhanced learning and teaching in higher education: what is 'enhanced' and how do we know? A critical literature review. *Learning, Media and Technology,* 39 (1), pp6–36.



Secker, J. & Morrison, C. (2016) *Copyright and E-learning. A guide for practitioners*. 2nd ed. London: Facet. Accompanying online resources available at: https://ukcopyrightliteracy.wordpress.com/publications/copyright-and-e-learning/copyright

e-learning-further-resources/ [Accessed on 17 August 2016].

Skills for Health. (no date) *National Occupational Standards* [online]. Available at: http://www.skillsforhealth.org.uk/standards/item/215-national-occupational-standards [Accessed on 17 August 2016].

Skills for Health. (no date) *UK Core Skills Training Framework* [online]. Available at: http://www.skillsforhealth.org.uk/services/item/146-core-skills-training-framework [Accessed on 17 August 2016].

World Intellectual Property Organization (WIPO). (no date) Available at: http://www.wipo.int/portal/en/index.html [Accessed on 17 August 2016).

Sound, peer-reviewed research into e-learning:

Clark, R. C. & Lyons, C. (2010) *Graphics for learning: Proven guidelines for planning, designing, and evaluating visuals in training materials.* 2nd ed. San Francisco: John Wiley & Sons.

Clark, R. C. & Mayer, R. E. (2012) Scenario-based e-Learning: Evidence-based guidelines for online workforce learning. San Francisco: Pfeiffer.

Clark, R. C. & Mayer, R. E. (2016) *e-Learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning*. 3rd ed. San Francisco: Pfeiffer.

Dirksen, J. (2015) Design for how people learn. 2nd ed. San Francisco: New Riders.

Mayer, R. E. (2009) Multimedia learning. 2nd ed. New York: Cambridge University Press.

Particularly relevant to mobile learning and apps:

NHS Innovations South East. (2014) *App development: an NHS guide for developing mobile healthcare applications* [online]. Available at: http://innovationssoutheast.nhs.uk/healthcare-apps [Accessed on 17 August 2016].

This gives very useful guidance, within the framework of a six-stage development framework. The emphasis is on healthcare apps to support service delivery, rather than mobile learning. There is therefore useful reference to medical device legislation.

D4 Research. (2012) *Regulation of health apps: a practical guide* [online]. Available at: http://www.d4.org.uk/research/regulation-of-health-apps-a-practical-guide-January-2012.pdf [Accessed on 17 August 2016].

Further guidance on the legal aspect of health apps:

NHS South of England. (2012) *Mobile learning for the NHS: 2012 report* [online]. Available at: https://www.hee.nhs.uk/sites/default/files/documents/WES_Mobile_learning_NHS_Research_2 https://www.hee.nhs.uk/sites/default/files/documents/WES_Mobile_learning_NHS_Research_2 https://www.hee.nhs.uk/sites/default/files/documents/WES_Mobile_learning_NHS_Research_2 https://www.hee.nhs.uk/sites/default/files/documents/WES_Mobile_learning_NHS_Research_2 https://www.hee.nhs.uk/sites/default/files/documents/WES_Mobile_learning_NHS_Research_2 <a href="https://www.hee.nhs.uk/sites/documents/wes-nhs

This research report considers mobile learning in the context of the NHS, evidencing the increasing appetite and need for providing access to learning content via mobile devices, as an



option and as part of a blend. It concludes with a set of recommendations (p34) relating to the following key elements: deployment, publicity, design and technology.

Towards Maturity. (2014) *In focus: mobile learning at work* [online]. Available at: http://www.towardsmaturity.org/article/2014/06/16/towards-maturity-mobile-learning-work-2014/ [Accessed on 17 August 2016]. (Registration required for free download.)

This report summarises evidence on the use of mobile learning in the workplace, gained from across all sectors.

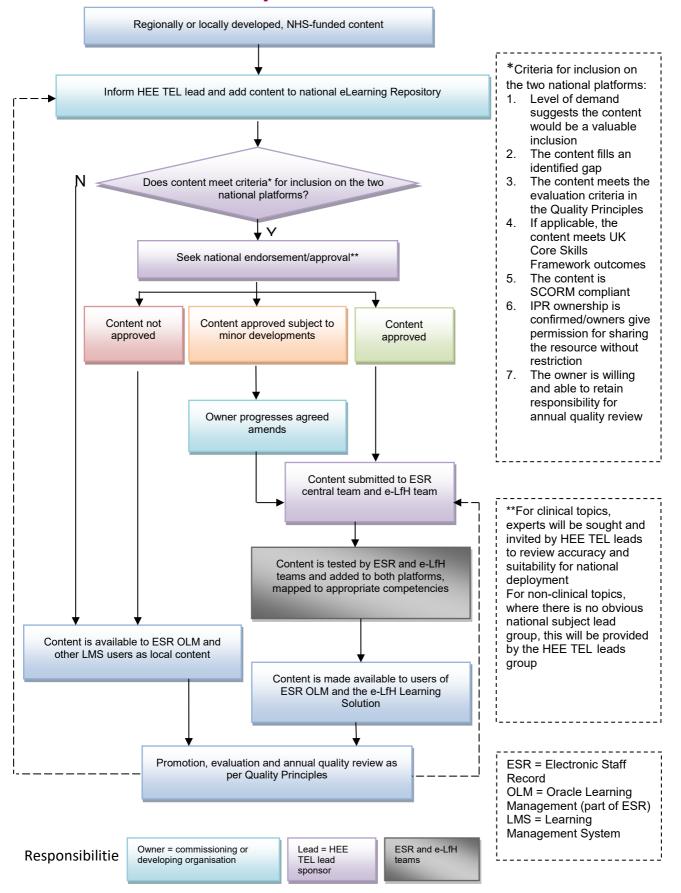
App Quality Alliance (AQuA). (2016) Available at: http://www.appqualityalliance.org/ [Accessed on 17 August 2016].

Meek, T. (2015) Four step app 'endorsement' process. Available at: http://www.digitalhealth.net/news/29963/ [Accessed on 17 August 2016].

Singh, K., Bates, D., Drouin, K., Newmark, L. P. et al. (2016) *Developing a Framework for Evaluating the Patient Engagement, Quality, and Safety of Mobile Health Applications [online]. Available at:* http://www.commonwealthfund.org/publications/issue-briefs/2016/feb/evaluating-mobile-health-apps [Accessed on 17 August 2016].



Appendix 1 — Process for adding existing e-learning to the two national platforms





Appendix 2 — Module request for national consideration

E-learning to be considered for inclusion on the national NHS e-learning platforms

Title	
Preview link	
Date	
Project team	
Description	
Objectives	
Audience	
Length	
Pass mark	

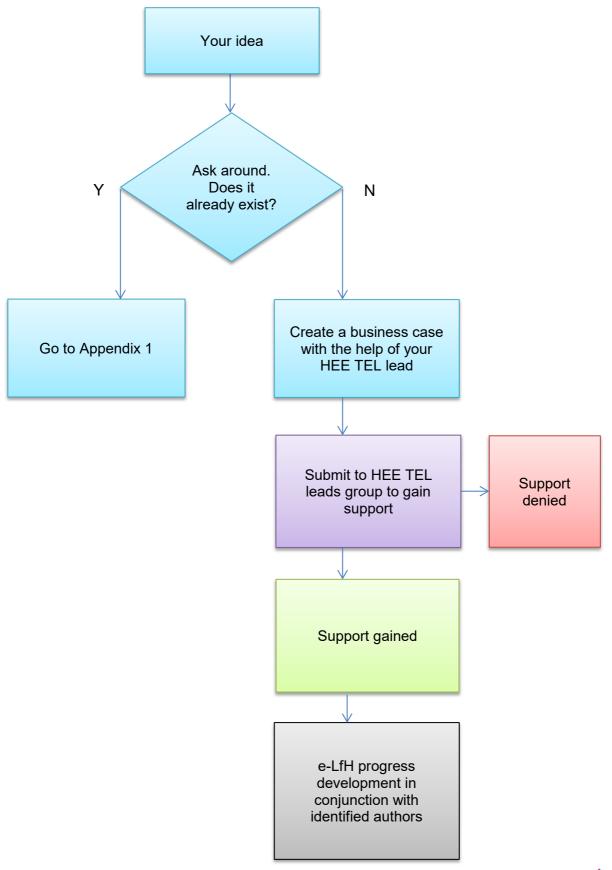
Assessment against criteria for inclusion on national platforms

	Yes/No	Notes
Evidence of demand		
'Fills a gap'		
Quality assured		
Content nationally		
applicable and endorsed		
SCORM compliant		
IPR cleared — owner has		
given permission to share		
Owner willing/able to retain		
responsibility for annual		
review		



20

Appendix 3 — Process for approving new e-learning that fills an identified gap nationally



Appendix 4 — Sample business case template

Title of business case

This should be succinct, specific and relate to the sponsoring organisation.

Audience

A clear statement of the target audience/s, including projected numbers.

Problem statement/opportunity statement

A problem statement should be given to clearly indicate why the proposed e-learning business case is required. This should also include what organisational/learner problems will be addressed with the proposed development.

Background

Identify the national and local priorities/strategies driving the need for the proposed development and indicate how these will be supported by the proposed development.

Rationale for development

This section requires a thorough assessment of the problem/issue/opportunity to be addressed by the business case. It needs to indicate what processes are currently in place and would be affected/enhanced by any proposed e-learning development. It should include details of a range of other approaches/options that could be used to address the needs identified.

A clear justification must be given to support the recommended option against the available options proposed within the business case. This recommendation must be objective and well supported. Confirm here that a search has been undertaken to ensure that there is currently no e-learning in existence or in development that would address the needs identified.

Proposal

This section briefly details the e-learning solution/approach to be used. This needs to indicate the proposed target audience, the overall design and the delivery platform for the proposed resource.

List of deliverables that will be delivered through the business case

These are the outputs that will result from the implementation of the proposed e-learning development.

Costs

Many business case proposals for developments in the NHS are unrealistic in terms of proposed costings, or fail to give a detailed breakdown of costs. This information is vital for



appraisal of the business case and therefore requires careful preparation. Include costs relating to testing, implementation and maintenance, as well as development.

Benefits analysis

The benefits analysis section should clearly specify the benefits that will be derived from the development. These benefits should be articulated for patients, organisations and the health and social care workforce.

Anticipated return on investment projections should be provided. This assessment should also include the expected quality improvements that the resource will support.

Risks

It is important the business case identifies the risks that might be generated by either undertaking or not pursuing the proposed development. Wherever possible, risks must be quantified and objective. It is important to check the relevance and the reality of any potential risks with those who will be required to implement any project. For each identified risk, state measures that can be taken to reduce the risk.

Promotion and implementation

This section should explain how the resource will be promoted and implemented, and demonstrate that consideration has been given to communication strategies and provision of support that may be required by organisations, trainers and learners.

Timescale

This section requires an overall indication of the expected timeframe for development and implementation of the e-learning resource. The emphasis should be on determining realistic and achievable timescales. The expected time to deployment should be clearly stated.

Evaluation and success measurements

This section should clearly indicate the key success measures that will be applied to judge the effectiveness of the development, the methods of evaluation that will be used, the groups/individuals who will be involved in the process, and overall responsibilities.



Appendix 5 — Sample specification document

'Improving Breast Milk Provision on Discharge from Neonatal Units' e-learning resource: specification and invitation to quote

Introduction

This invitation to quote is for the development of an e-learning resource designed to enable health professionals to improve breast milk provision rates at discharge from neonatal units. Currently, education and training of health professionals about the importance of breast milk to preterm infants is lacking, which contributes to the low rates of breast milk provision upon discharge from neonatal units.

The e-learning resource will be used as a stand-alone resource to educate health professionals. It is also hoped that the e-learning resource will be accessible to parents, as well. The content will be provided by a lead Subject Matter Expert (SME) working in conjunction with a number of key healthcare professionals.

Upon completion, we wish for users to be able to:

- Build a relationship with the parents to support and encourage them to express breast milk for their preterm infant from day one
- Document a clear and concise feeding care plan
- Show the mother how to hand-express
- Provide and know how to set up breast pumps with parents
- Support the mother to express using a breast pump
- Outline options to parents on the locations available to express breast milk
- Assess and closely monitor the milk supply for each baby and how long it will last, and support the mother to increase her milk supply as required.

OrganisationABC (ABC) has been approached to support the development of an 'Improving Breast Milk Provision on Discharge from Neonatal Units' e-learning resource. This will support Health Education England's (HEE's) mandate in relation to the child health and maternity workforce.

ABC is seeking to commission the design and development of the 'Improving Breast Milk Provision on Discharge from Neonatal Units' e-learning resource by a third-party supplier. The supplier is expected to help us refine the prototype after piloting and we wish for this to be covered as part of the bid.

We are looking for a third-party supplier that can provide a solution that meets the following high-level requirements, below.



We are looking for a supplier that can take our content and design learning activities to meet the learning objectives both effectively and creatively. Our content authors have already invested some time action mapping and refining the must-have content required for the resource.

We require the learning resource to:

- Be built using responsive design, optimised for viewing on commonly used tablets and desktop computers
- Be primarily designed for, and accessible to, a diverse audience of professionals who work to support/contribute to improving breast milk provision, such as:
 - ➤ Both non-registered and registered nurses from preceptees to senior nurses
 - Midwives
 - > Trainees
 - Consultant neonatologists
- Include interactive scenario-based learning content, relevant to the user groups outlined above
- Include audio, animation and video, where appropriate
- Be formatted to include colour and images
- Be developed in a way which can be readily updated
- Be easy to use and apply best accessibility practices
- Record who has accessed and completed the learning resource
- Be SCORM 2004 compliant.

Specification of requirements — delivery

The e-learning will need to be supplied to ABC in a format that can be hosted on both national NHS e-learning platforms — Electronic Staff Record (ESR) and e-Learning for Healthcare (e-LfH) — having been piloted with a range of users prior to sign-off.

The e-learning will need to be accessed by people using both desktop computers and tablets.

Specification of requirements — general

The e-learning resource and its content will be the property of the NHS. Acknowledgements and a disclaimer will be incorporated, and a Creative Commons licence applied.

Responsibilities

Funding, hosting and delivery via ESR and e-LfH, sign-off from a technical perspective: ABC.

E-learning development, including project management, liaison with content producers, piloting and making post-pilot amends: third-party supplier.

Supply of content (including text, diagrams, images), identification of pilot user group, sign-off from a subject/user perspective: Miss Ann Expert with help from co-authors.



Timescales

A prototype of the learning resource must be available for testing with pilot users by February 2017, after which time amendments may be required with the final published resource available to our users by end March 2017.

Process for submitting costed proposals

Suppliers interested in tendering for this project should submit a response, including the information listed below, to Mr A Buyer by Friday 22nd July 2016.

Your response should briefly include the following:

- a) A brief summary of the skills, capacity and knowledge you can bring to this project
- b) A brief summary of your experience of developing and delivering similar resources, including links to examples
- c) Your proposed methodology, including an outline of your approach to project management and your proposal for making the content as easy as possible to update
- d) Your proposed timeframe
- e) The cost (please include a full breakdown and any optional/variable elements)
- f) Any ongoing costs, including the costs of updating.

Proposals will be assessed using the following criteria:

- a) Your track record of designing and delivering similar resources
- b) Your proposed methodology and timeframes
- c) Cost
- d) Creativity of proposed approach
- e) Any added value, benefits and ideas you can bring to the proposal.

Further information

If you have any queries, please contact:

Mr A Buyer, Learning Technology Lead, OrganisationABC

Tel: 01234 567890 Email: a.buyer@nhs.uk

Miss Ann Expert, Lead Subject Matter Expert, OrganisationABC

Tel: 01234 567890

Email: ann.expert@nhs.uk

Mrs A Geek, IT Support Officer, OrganisationABC

Tel: 01234 567890 Email: <u>a.geek@nhs.uk</u>



Appendix 6 — Evaluation grid template

The following grid will aid with evaluating supplier proposals and can be found at <u>Evaluation grid template</u>.

1	A	В	С	D	E
1	Evaluation of TEL Supplier Proposals				
2	1 – Unacceptable, 2 – Poor, 3 – Acceptable, 4 – Good, 5 – Excellent				
3					
4	Criteria	Supplier 1	Supplier 2	Supplier 3	
5	Educational validity and quality				
6	Value for money				
7	Originality/creativity of the proposed solution				
8	Previous success of the company				
9	Experience of working with the NHS				
10	Score	0	0	0	
11					
12					

