

Harnessing Technology Delivery Plan



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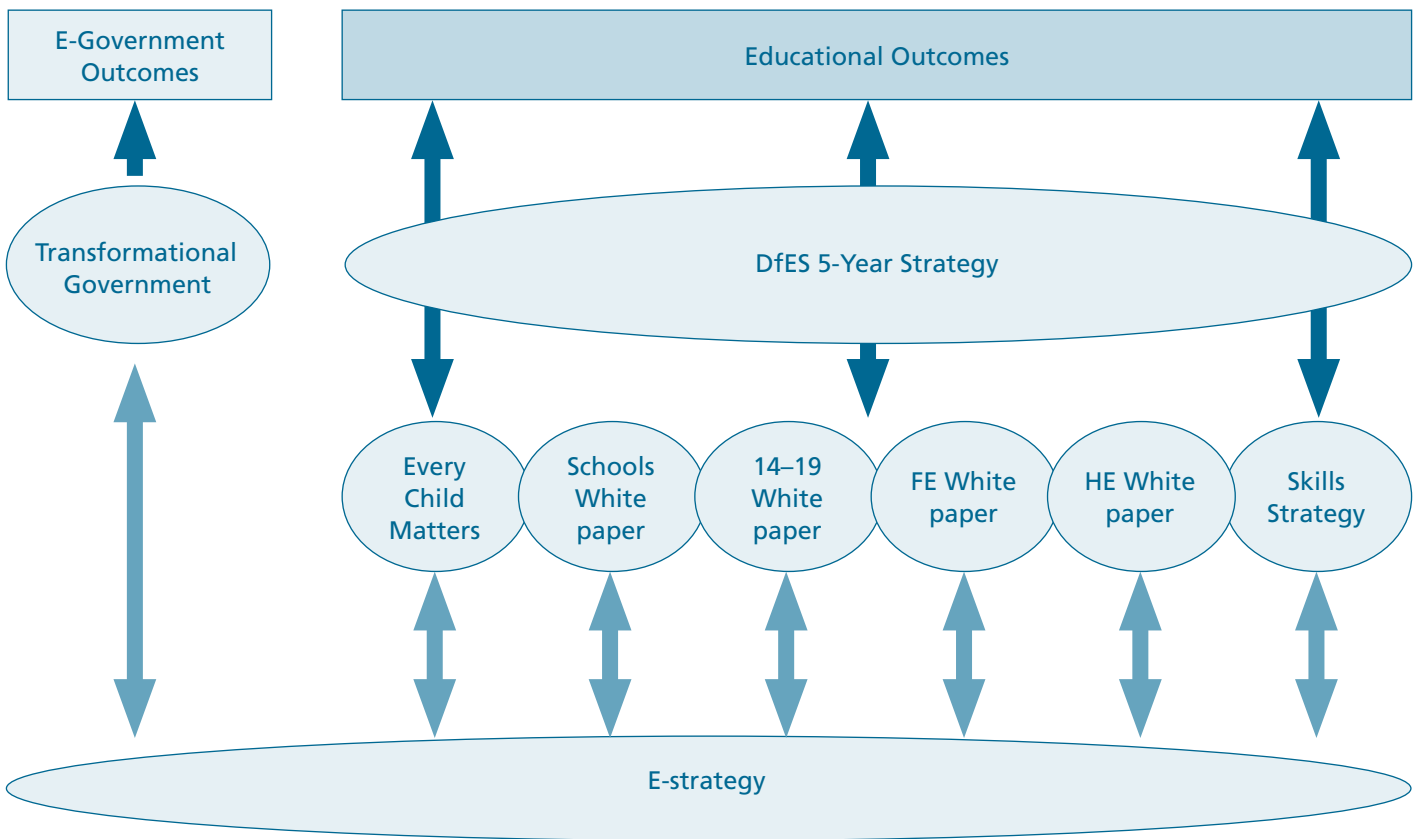


1.1 Vision and transformation

1. In March 2005, the Department for Education and Skills (DfES) published its e-strategy, *Harnessing technology*. It set out a system-wide approach to the application of ICT in education, skills and children's services, and identified four key objectives:
 - To transform teaching, learning and help to improve outcomes for children and young people, through shared ideas, more exciting lessons and online help for professionals
 - To engage 'hard to reach' learners, with special needs support, more motivating ways of learning, and more choice about how and where to learn
 - To build an open accessible system, with more information and services online for parents and carers, children, young people, adult learners and employers; and more cross-organisation collaboration to improve personalised support and choice
 - And achieve greater efficiency and effectiveness, with online research, access to shared ideas and lessons plans, improved systems and processes in children's services, shared procurement and easier administration¹
2. Progress in using ICT effectively varies in different sectors; for example, children's services is still developing its approach, while the use of ICT within higher education is ubiquitous.
3. There is compelling evidence² from practice that the appropriate and effective procurement, deployment and use of ICT has major benefits in four key areas; it:
 - leads to greater efficiency and cost saving across the system
 - increases productive time for teaching
 - increases learner choice and opportunity and improves the quality of the learner's experience
 - raises standards.
4. Currently, too few schools, colleges and training providers take all the actions needed to reap the benefits of ICT consistently, and so there is now a strong moral argument that all providers should gain the clear benefits for learners and improve the effectiveness and overall efficiency of the education system. The e-strategy aims to help all involved in education to work together to make this happen in all institutions and wherever learning takes place.
5. The e-strategy should not be seen as an independent policy initiative, but rather as an enabler, directly supporting and connected with the country's main educational goals and policies. This strategy must therefore work in support of other DfES and wider governmental strategies, and this relationship is represented below.

¹ DfES (2005) *Harnessing technology: transforming learning and children's services*.

² PricewaterhouseCoopers (2005) *Moving towards e-learning in schools and FE colleges: models of resource planning at the institutional level*, DfES research series reference number RR601, London, DfES.



6. This delivery plan seeks to intelligently apply technology that will have a significant impact on achievement levels to enhance learning for all, to stimulate the imagination and creativity of learners, to engage, enthuse and motivate, to engender collaboration and to promote self-directed, personalised approaches to learning.
7. There is a clear and simple goal: that children's services, schools, colleges, higher education and all learning providers should get the best out of the current and future technologies to improve the quality of learning and to help raise standards. We want all institutions and providers to regard using technology for learning as an essential but normal and integrated aspect of their teaching, learning, assessment and management practice. We want all children and learners to harness technology to have more choice and chances to learn in a way that suits them, which leads to greater opportunities to learn inside and outside formal education.
8. The e-strategy seeks to apply technology to transform the way in which educational institutions operate and are managed, the way they connect with each other and enable interaction, for the benefit of learners, parents, carers and employers.
9. The ultimate objective is to achieve a technology-enabled transformation that will open up opportunity for learners and empower them to make choices that will help them to acquire knowledge, skills and understanding when they need it, geared to their needs and aspirations for their life and well-being in the 21st century.

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2.1 What is this delivery plan and who is it for?

10. This plan is for the Government, Becta and partner agencies to show how the e-strategy will be delivered. It sets out how Becta will co-ordinate and lead the delivery of the Government's e-strategy for education and children's services.
11. The e-strategy presents an ambitious agenda for change and transformation. This delivery plan describes what Becta is aiming to do and how we will do it. It describes the roles and accountabilities of the various partners: Government and its agencies, Becta itself, intermediary bodies working regionally and locally, the commercial sector and the front-line education workforce. It describes how all involved will turn the vision of the e-strategy into reality.
12. The delivery plan spells out how the changes needed to harness technology for the benefit of the learner will be brought about. It describes how technology will be applied to help create the conditions in the system that will lead to transformation and how these changes will be measured.
13. The strategy for delivery can be described as two stages: first adoption, to embed good practice within more learning providers and educational institutions; secondly, transformation, to widen approaches to learning and thus increase opportunities for learners and support the overall improvement of the education system.
14. This delivery plan is intended to be a dynamic, working document that clarifies how Government, Becta and key partner agencies will ensure the coherent and co-ordinated delivery of the e-strategy.

2.2 The development of the e-strategy to date

15. *Harnessing technology* was built around six priorities, their actions and milestones. The work for each of these priorities was described within each of the four sectors: higher education, post-16, schools and children's services. An additional level of 'system' milestones was included to co-ordinate cross-sector activity and to show the actions that would be needed to develop coherence.
16. The six priorities were identified as:
 - an integrated online information service for all citizens
 - integrated online personal support for children and learners
 - a collaborative approach to personalised learning activities
 - a good quality ICT training and support package for practitioners
 - a leadership and development package for organisational capability in ICT
 - a common digital infrastructure to support transformation and reform.³
17. After publication, it quickly became clear that it would not be easy to communicate and deliver the e-strategy within this structure, so the DfES Technology Group worked with Becta and others to simplify it during the autumn of 2005, taking account of the dynamic nature of the evolving strategy.
18. This work led to the DfES developing a more explicit vision for the e-strategy, which focused on learning rather than the technology.
19. This new vision of the e-strategy is: 'that individuals maximise their potential through the personalisation of their learning and development'.
20. As a result, the DfES developed four themes that identified significant areas of delivery that would deliver most, but not all, of the actions and milestones. These themes were translated into programmes of work and were titled:
 - e-maturity
 - personalised content
 - knowledge architecture
 - strategic technologies.
21. A summary of each of the programmes of work is contained in Appendices D–G.
22. Becta was recently given the role of lead delivery agency for the e-strategy and the responsibility to work with partners to deliver it.

³ DfES (2005) *Harnessing technology: transforming learning and children's services*.

2.2.1 What do we now need to do and why?

23. As was noted in the introduction, those institutions and learning providers that have adopted technology effectively get better results. They deliver higher achievement, better learning and more efficient teaching; they provide better information for, and communicate better with, learners and parents, with a more streamlined and less bureaucratic administration. However, only around 15 per cent of educational establishments in the schools and further education sectors have adopted technology effectively.⁴
24. The Delivery Plan aims to engage with front-line institutions and learning providers to realise the benefits that technology can offer.
25. Additionally, the aim is to improve the provision of technology to raise the standard for all sectors.

2.3 Becta's role

26. Becta's delivery role is to work with Government and its key agencies to create the conditions in the system that will lead to the majority of institutions and learning providers making more effective use of technology. This in turn will help to create the foundations of an education system that will have both the capacity and capability to reinvent how, where and when learning and teaching is conducted. The aim is to offer a more personalised, high-quality education for every learner.
27. In order to meet the Government's ambition and take forward the e-strategy, Becta, in collaboration with key partner agencies, will lead the co-ordination, development and agreed delivery of the national e-strategy in partnership and on behalf of Government and its agencies, and in doing this:
 - take steps to ensure that the whole education system has the right technologies in place in a sustainable form
 - commission provision targeted to improve the speed of adoption of new technology within the education workforce and the impact

of new technology on learning, teaching, achievement and organisational effectiveness/efficiency

- directly deliver, in partnership with other agencies and the commercial sector, a number of focused strategic initiatives, which will act as levers for accelerating adoption or enabling innovation – geared to widen educational opportunity, reduce inequality, narrow the achievement gap, target the hard to reach and affect the quality of teaching and learning.

28. Becta will provide 'grounded', evidence-based strategic advice to Government and its agencies in all sectors to shape technology-informed policy, focused on the needs of learners
29. Together with key partner agencies and drawing on and analysing the potential of emerging technologies as levers for transforming learning and widening opportunity, Becta will look ahead and develop 'next practice' to provide leadership within the educational community on all aspects of the application of new technology to learning, teaching and institutional improvement.

2.3.1 Leadership

30. Becta will work with the DfES and key national and sector agencies, the broader educational community and employers to build a high-level commitment to, and endorsement of, the Government's e-strategy.
31. To ensure that the right technologies, systems, connectivity and content are in place, Government, local authorities, key partner agencies and the commercial sector will need to work through the right kinds of value-for-money and sustainable agreements.
32. Becta will also lead the development of a new relationship and partnership with the ICT industry, broadcasters and content and educational software producers. This new relationship will be one that secures joint commitments to the development of the education and learning market during the coming decade and that places priority on securing universal access for learners to high-quality, more personalised e-learning.

⁴ PricewaterhouseCoopers (2005) *Moving Towards e-Learning in Schools and FE Colleges: Models of resource planning at the institutional level*, DfES research series reference number RR601, London, DfES.

2.3.2 Influence

33. Becta, working with partner agencies and other bodies, will develop and take action that will help the education workforce to use technology more effectively, to affect achievement and quality. Actions will include:

- taking forward an outward-facing communication and engagement strategy to involve school, college and university leaders and practitioners in developing their own approaches and plans for implementing the e-strategy on the ground and encouraging the transfer of the most effective approaches across networks of institutions and across the system
- providing timely, evidence-based professional advice to Government on the implementation and future development of the e-strategy and the implications for broader education policy
- with key partner agencies, developing a coalition to co-ordinate the planning and delivery for training provision in all sectors – geared to improving teaching, learning, assessment for learning and leadership
- developing systematic approaches to quality improvement and review, which help institutions to review their own effectiveness and progress in applying technology, to benchmark their practice and to learn from others
- the co-ordination of joint research from the DfES, Joint Information Systems Committee (JISC) and other public bodies into the impact of ICT on learning, teaching and achievement, and better application of the lessons learned in practice.

2.3.3 Accountability for impact and outcomes

34. Becta is working with the DfES and partner agencies to agree output and outcome targets for all strands of the e-strategy, with a particular focus on improving system-wide capability, capacity and performance, including:

- the overall level of institutional capability across all sectors, including the application of ICT to the management and leadership of the organisation
- the level of technology capacity across the system
- the outcomes being achieved for children and learners
- the effectiveness, efficiency and value for money achieved as a result of applying technology.

3 Key principles

3.1 Strategic outcomes: defining success

35. To describe the impact of the e-strategy at its highest level, Becta has developed a comprehensive set of strategic outcomes, which can be represented by a balanced scorecard (as shown below).
36. The scorecard translates the priorities of the DfES five-year strategy, providing a framework for both business delivery and performance measurement. It aims to put the learner at the centre of the delivery process while identifying improvements within the education system.
37. The approach to delivering the e-strategy, set out in this document, directly supports and links with the Government's five-year strategy for education and children's services; section 3.1.1 shows how this is achieved.
38. The strategic outcomes will act as the core for the delivery, serving a number of purposes. They will provide:
 - clarity for all about what the e-strategy seeks to achieve and how
 - a framework linking outcomes to delivery plans, ensuring all strategy delivery actions can be clearly linked to outcomes
 - a framework for deriving measures against which to evaluate the progress and impact of the e-strategy
 - an accountability framework for Becta
 - a means of prioritising existing actions and plans.

Capability and capacity of the workforce, providers and learners

- 1.1 Leaders have the knowledge and skills to ensure technology for learning can be harnessed for the benefit of learners
- 1.2 Institutions and providers plan and manage technology for learning effectively and sustainably
- 1.3 Practitioners exploit technology consistently to offer engaging and effective learning experiences
- 1.4 Practitioners, parents and learners can share and use information and data effectively for the benefit of learners
- 1.5 Improved learner capability in using technology to support their learning

Outcomes and benefits for learners and children

- 3.1 There is a greater choice in learning opportunities and modes for all learners
- 3.2 Learners have increased motivation for engagement in learning
- 3.3 Fewer learners under-perform or fail to succeed in education
- 3.4 An improvement in the quality of learning provision is accelerated
- 3.5 There is improved child safety and child protection

Fit for purpose technology and systems

- 2.1 All learners and practitioners have access to the appropriate technology and digital resources they need for learning
- 2.2 Every learner has a personalised learning space to enable them to learn when and where they choose
- 2.3 Technology-enabled learning environments are secure, supported and interoperable
- 2.4 There is a dynamic, vibrant and responsive technology market that can meet the needs of the system

Efficiency, effectiveness and value for money across the system

- 4.1 Learning providers collaborate and share information and resources
- 4.2 The management and administration of learning and institutions is more efficient
- 4.3 There is a greater level of effective, learner-focused assessment for learning
- 4.4 Practitioners collaborate and share good practice and learning resources
- 4.5 There is good use of information to support learner transitions between institutions and sectors

39. The strategic outcomes are written with a view to changing the whole education system. However, each sector is at a different stage of maturity, and so this will need to be recognised when detailed activity plans are developed.
40. The outcomes of the left-hand columns of the scorecard can be described as increasing the capacity of technology within the education system and the capability to use it effectively. These outcomes reflect the six priorities described in *Harnessing technology*, against which all of its delivery activity is described.
41. The right-hand columns of the scorecard represent an assessment of system performance that will be delivered as a result of increasing capacity and capability, then engaging with practitioners, institutions and learning providers to embed this into the system. Ultimately, outcomes and benefits for learners and children can only be achieved after the embedding of increased technology and good practice has taken place.
42. To differentiate the different types of provider, this document uses the term 'institution' to refer to formal places of learning (such as schools, colleges or universities), and 'learning provider' to refer to the wider range of provision across all sectors.
43. A relationship diagram, in Appendix A, shows how the strategic outcomes work together to deliver the overall objectives of the e-strategy.

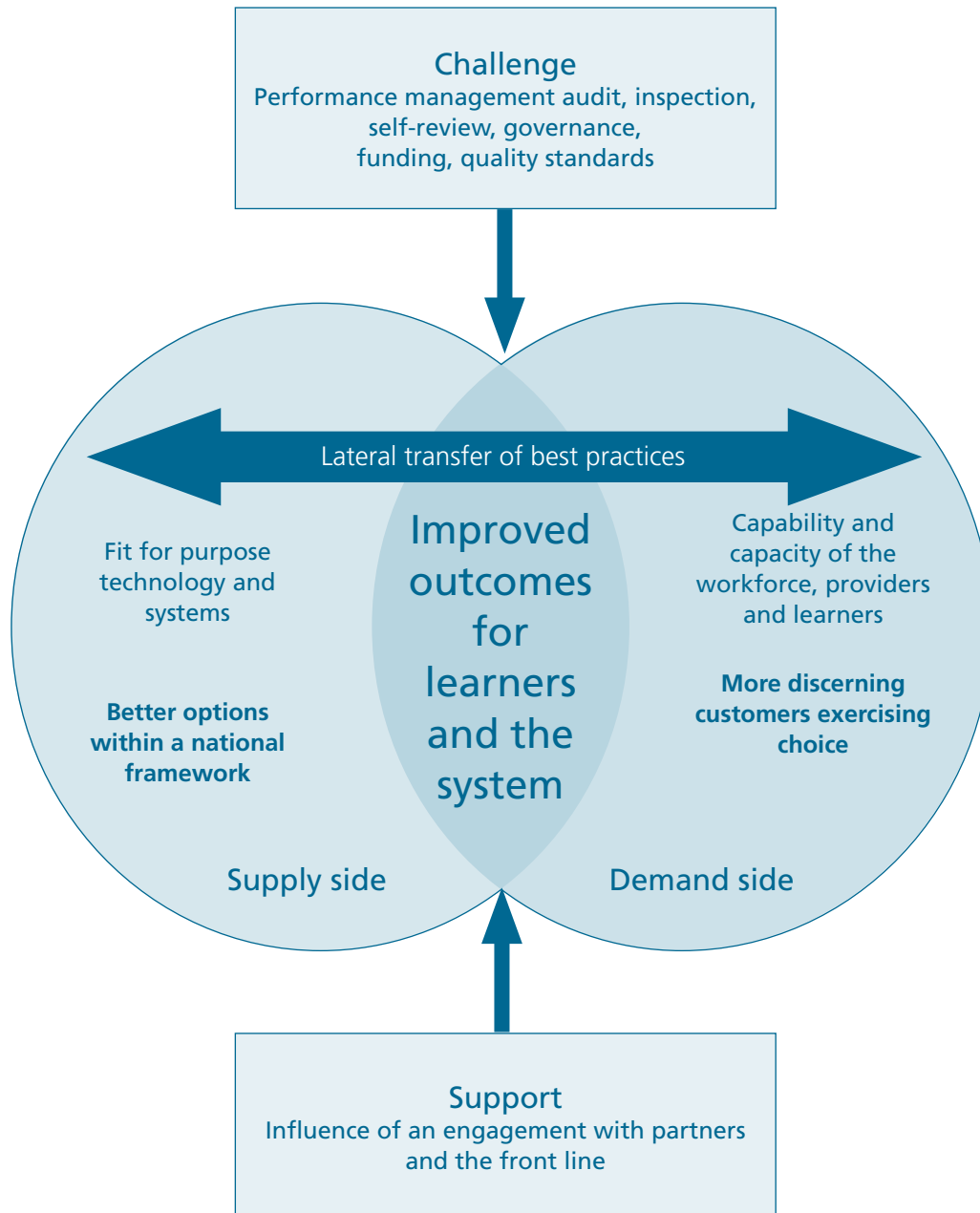
3.1.1 An analysis of how the strategic outcomes deliver to the DfES five-year strategy

	Closing the gap in educational attainment between those from low income and disadvantaged backgrounds and their peers;	While at the same time continuing to raise standards for all across the education system;	Increasing the proportion of young people staying in education or training beyond age 16;	Reducing the numbers of young people on a path to failure in adult life;	Closing the skills gap at all levels – from basic literacy and numeracy to postgraduate research – to keep pace with the challenge of globalisation	safeguarding the young and vulnerable
Capability and capacity of the workforce, providers and learners						
1.1	Leaders have the knowledge and skills to ensure technology for learning can be harnessed for the benefit of learners	✓			✓	
1.2	Institutions and providers plan and manage technology for learning effectively and sustainably	✓			✓	
1.3	Practitioners exploit technology consistently to offer engaging and effective learning experiences	✓	✓	✓	✓	
1.4	Practitioners, parents and learners can share and use information and data effectively for the benefit of learners	✓			✓	
1.5	Improved learner capability in using technology to support their learning	✓		✓	✓	
Fit for purpose technology & systems						
2.1	All learners and practitioners have access to the appropriate technology and digital resources they need for learning	✓				
2.2	Every learner has a personalised learning space to enable them to learn when and where they choose	✓				
2.3	Technology-enabled learning environments are secure, supported and interoperable	✓				
2.4	There is a dynamic, vibrant and responsive technology for learning market that can meet the needs of the system	✓				
Outcomes and benefits for learners and children						
3.1	There is greater choice in learning opportunities and modes for all learners	✓	✓	✓	✓	
3.2	Learners have increased motivation for and engagement in learning	✓	✓	✓	✓	
3.3	Fewer learners under-perform or fail to succeed in education	✓	✓	✓	✓	
3.4	An improvement in the quality of learning provision is accelerated	✓	✓	✓	✓	
3.5	There is improved child safety and child protection	✓	✓			✓
Efficiency, effectiveness & value for money across the system						
4.1	Learning providers collaborate and share information and resources	✓	✓	✓		
4.2	The management and administration of learning and institutions is more efficient	✓	✓	✓		
4.3	There is a greater level of effective, learner-focused, assessment for learning	✓	✓			
4.4	Practitioners collaborate and share good practice and learning resources	✓	✓			
4.5	There is good use of information to support learner transitions between institutions and sectors	✓	✓	✓	✓	

3.2 Delivery model: leveraging change and transformation across the system

44. Driven by government policy, co-ordinated by Becta and delivered by the wider partnership across all sectors of education, the process for realising the outcomes of the scorecard has three main components:
 - First, on the supply-side, the coherent and integrated delivery of the strategic technologies, personalised content and knowledge architecture themes, delivering a better choice of cost-effective technologies and services
 - Secondly, the demand-side changes, leading to an increased ability of the education workforce and learners to use the technology effectively – the e-maturity theme
 - Thirdly, the systems and processes that make sure effective practice spreads rapidly through the system.
45. This approach matches the DfES's approach to system reform. By stimulating supply and demand, expectation and capacity can be increased, leading to sustained, customer-driven reform.
46. Current system capacity will be transformed by developing, with industry, a more dynamic market that will provide robust technology, services and content, underpinned by better data and information systems to support learning, teaching and management.
47. To transform the capability of the education workforce, Becta will work with the DfES to engage those working at policy/strategy level in Government and with supporting key partner agencies, local authorities and intermediary bodies that provide support and challenge to the system. We will directly involve some of our best school, college and university leaders, willing and able to play an active role in leading the whole-workforce changes that will be necessary to improve capability across their sector. It is necessary to create a more informed and discerning 'demand side' and a more capable workforce, confident to use technology effectively as a tool for learning and teaching. Doing this will create the conditions to make further innovation and transformation more likely across the system.
48. In close collaboration with key partner agencies, Becta is already putting in place co-ordinated professional development support and actions designed to influence and change the behaviour of front-line leaders and the education workforce, in order to create many more 'e-mature' institutions. Given the nature of devolution in the system, sustainability will be achieved only if front-line leaders develop the understanding and commitment to plan for the long term and strategically allocate their devolved resources to support this. Developing and supporting highly effective institutional strategic leadership of ICT is therefore a central plank of our approach.

49. This system-wide delivery model can be illustrated as:



4 Leading and delivering change

50. The core of the approach that Becta is promoting is to intervene to strengthen both supply and demand and to lever change in the system by systematically applying challenge and support. The delivery model has four key elements:

- Increasing choice and market capacity (the supply side)
- Increasing workforce and learner capability and ability to make choices (the demand side)
- Strengthening management processes
- Engaging with Practitioners, institutions and learning providers to promote the spread and wider adoption of best practice.

4.1 Market capacity

51. Considerable investment has been made over recent years to provide reliable and high-quality ICT infrastructure. However, the lack of a co-ordinated approach on a national scale has resulted in pockets of excellence in a minority of institutions and unreliable systems and higher cost for many others. By building on the current infrastructure and also the services deployed through previous government programmes, such as the National Grid for Learning, the DfES is now putting in place system-wide capacity to make sure that appropriate technology is available for the education sector, wherever and whenever it is needed.

52. During the early implementation of the strategic technologies strand of the e-strategy, Becta is striving to achieve greater coherence by developing a common standards approach spanning services for infrastructure, data, connectivity and learning systems. This activity will put in place purchasing framework agreements underpinned by clear and appropriate functional and technical specifications for key technology and supporting systems, with a major aim being that such approaches across education will be widely adopted and used effectively and will drive aggregation of individual institutional demands to achieve economies of scale and improved value for money.

53. There needs to be an even stronger commitment from the commercial sector to work in partnership with Government to deliver the aims of the e-strategy.

4.2 Demand-side capability

54. In combination with the application of these levers, front-line leaders need to be empowered and, through them, the broader education workforce, to become more demanding customers. Taking a functional approach to achieve learning outcomes will help to exert greater demand onto the commercial sector to provide more appropriate technology solutions that directly support learning objectives. In addition, greater support from intermediary bodies to meet learning technology and professional development needs will enable significant improvements to the education system, which will benefit learners.

55. A key element of the e-strategy will be to develop the convincing business case for the better adoption of technology and actively engage front-line education decision-makers and leaders with this proposition. There is a need to combine challenge mechanisms, such as inspection, with support that will both engage the hearts and minds of the education workforce about the benefits of technology for learning, teaching and its management and also provide opportunities for collaboration, learning transfer and longer-term development. We need to support the workforce to develop higher capability and the higher confidence that will allow them to make discerning and effective use of technology for learning, teaching and management. This is the essence of the e-maturity strand of the e-strategy.

56. To secure the necessary high levels of institutional e-maturity across the whole system, the understanding and confidence of practitioners will be increased through measures such as the use of the self-review framework (SRF) and the ICT Mark in the schools sector. Parallel developments in the learning and skills and higher education sectors will also be needed and are currently in development. This will be reinforced by strengthening external inspection, audit and performance management requirements as levers to change behaviour and improve capability. It is also clear that greater emphasis on professional development is needed to ensure that all in the education workforce are expected to be able to make better professional use of technology and are supported to do this.

57. The criteria and expected standards for initial teacher training (ITT) must set a sufficiently high threshold of e-maturity. Similarly, the leadership standards for headteachers and college principals must include clear expectations that focus on the strategic leadership of ICT. In parallel, workforce and leadership development programmes need to reflect these expectations.
58. Consideration is needed on how learners and parents/carers can be supported to make more demands on institutions to ensure that technology is better used and is more available for learning. Lessons can be learned, for example from higher education, where the research community has been an enabler for change, which has led to a modernised approach to technology provision.

4.3 Challenge and support

59. Too few educational institutions are making effective use of technology for learning. The goal is for all schools, colleges, higher education and other learning providers to use and apply technology to improve standards and quality and to open up opportunity and choice. To drive these developments, the key system levers that will apply challenge to the system at both the intermediary and front-line levels need to be used. These levers include:

- governance and the linkages to the performance management processes of front-line leaders, for example through the School Improvement Partner arrangements in the schools sector
- inspection and audit – ensuring that audit and inspection criteria and recorded inspection judgements focus more directly on the role of technology in delivering better outcomes and efficiencies
- funding as a lever to directly affect the actions and behaviour of institutions and their workforces.

60. Working closely with the DfES, Becta needs to:
- secure commitment from key agencies to support front-line practitioners to adopt and use technology for learning more effectively. These partner agencies include:
 - in schools, the Training and Development Agency (TDA), National College for School

- Leadership (NCSL), the Qualifications and Curriculum Authority (QCA), the Specialist Schools and Academies Trust (SSAT), national strategies, the leadership professional associations and the Office for Standards in Education (Ofsted)
 - in the post-16 sector, the Learning and Skills Council (LSC), Centre for Excellence in Leadership (CEL), QCA, Quality Improvement Agency (QIA) and key sector bodies
 - in higher education, the Joint Information Systems Committee (JISC) – with the Higher Education Funding Council for England (HEFCE) and the Higher Education Academy
 - in Children’s Services – the Confederation of Children’s Services Managers (Confed) and the Local Government Association (LGA)
- in the context of Becta’s new role in technology-informed policy development, ensure that all DfES policy teams and key partner agencies are engaged in the e-strategy, contribute to policy thinking, support it and build relevant action into their own policy and delivery plans
- focus, with the TDA, NCSL, CEL and QIA, on specific technology for professional development and support for front-line leaders and the broader education workforce.

4.4 Promoting lateral transfer

61. Becta’s approach will build the system’s capacity and significantly strengthen its capability through support and challenge and by encouraging the lateral transfer of effective practice. Lateral transfer refers to the process by which a more e-mature institution will, when supported by existing local networks of partner organisations, share its good practice with others in the most effective way and ensure its transfer.
62. To promote lateral transfer, Becta will:
- secure e-maturity as a lever to transform teaching, learning and assessment; we will build on developments in the schools and post-16 sectors and further refine the work on the maturity of the whole system
 - second into Becta excellent institutional leaders from each sector, with a role to act as system champions and advocates

- establish a national strategic group of senior directors from key government agencies to 'hard wire' commitments, allocate resource, ensure coherence and contribute to thinking on future strategy
 - extend the engagement and action, led by a national delivery group of key partner agencies and sector leaders that we have brought together to help drive delivery. The national delivery group will play three main roles:
 - First, to strengthen our delivery activity and ensure that their organisations play their part in delivering the actions and activities in the e-strategy
 - Secondly, to ensure that the front-line leaders have access to coherent information, advice and support
 - Thirdly, to monitor and aid the evaluation and further development of the e-strategy as a vehicle for supporting future system transformation.
63. Becta will lead a sustained national dialogue with front-line leaders and partner agencies to gain buy-in to the e-strategy vision and commitment to delivery. This commenced with a major national conference on 7 November for 500 system leaders from schools, colleges, universities, partners and industry. This key event brought together the most influential and successful leaders from children's services, schools, colleges, local authorities, adult learning, workplace learning, universities and the technology industry, as well as the Government, its agencies and intermediaries. Our intention is to make the e-strategy powerfully visible by directly involving practitioners, institutions and learning providers to work with us, with national partners and with each other and formulate the means of delivering the Government's vision for learning. This event is the start of a national commitment to ensure that technology is better and more widely used to affect quality and achievement. The conference aims were to:
- promote the national system-wide e-strategy, focusing on benefits to the learner
 - drive forward educational reform through the use of technology
 - showcase exemplary practice at a national, regional, local and institutional level
 - encourage debate on barriers to success and on the additional support needed from Government and its agencies
 - explore how technology can be better used to narrow the gap in achievement between our most successful and least successful learners
 - decide in which direction to go, exploring the next steps in the e-strategy.
64. As these influential and successful leaders take key messages back to their own organisations and regions, Becta will start to use existing networks to achieve practice transfer, which is a critical element in achieving improved outcomes for learners and increasing the benefits of technology. As the networks start to take on increased collective responsibility for delivering e-strategy outcomes, we will be in a good position to establish 'change champion' institutions in all sectors. These will act as centres of excellence to support others, linking with and drawing on existing powerful networks such as the Association of Colleges (AoC) National Information and Learning Technologies Association (NILTA) – AoC NILTA – community in the further education sector, the SSAT ICT Register and the Strategic Leadership of ICT (SLICT) host schools networks in the schools sector.

5.1 Leadership and vision

65. In partnership with the DfES, Becta will lead in building the commitment from key partner agencies to deliver the e-strategy. Our role is to act as strategic champions, building effective relationships with the commercial/public sectors and all delivery partners, which will result in an agreed, focused and collective drive to deliver the outcomes of the e-strategy.
66. Becta will apply strategic leadership of new technologies through all delivery, support, challenge and development channels, ensuring institutional leaders are equipped to lead, enlarge and implement the vision.

5.2 Influence and engagement

67. By establishing the National Strategic Group of key partner agencies and sector leaders to steer the delivery and development of the e-strategy, Becta will not only strengthen delivery activity, but also ask partner agencies to play a key role as national advocates and champions for the e-strategy across the system.
68. The National Strategic Group will be reinforced through direct and close collaboration with those government agencies holding key roles in the delivery of the e-strategy.
69. Becta has already established a national delivery group of key partner agencies to co-ordinate the delivery and development of the e-strategy. The group will support and accelerate the delivery of the e-strategy by gaining specific commitments to delivery and defining roles, responsibilities and accountabilities for agreed action and outputs.

5.2.1 Membership of the National Strategic Group

- Training and Development Agency for Schools (TDA)
- National College for School Leadership (NCSL)
- Qualifications and Curriculum Authority (QCA)
- Association of School and College Leaders (ASCL)
- National Association of Head Teachers (NAHT)
- Office for Standards in Education (England) (Ofsted)

- Specialist Schools and Academies Trust (SSAT)
- National Association of Advisors for Computers in Education (NAACE)
- General Teaching Council for England (GTCE)
- National Strategies
- Learning and Skills Council (LSC)
- Centre for Excellence in Leadership (CEL)
- Quality Improvement Agency (QIA)
- Higher Education Funding Council for England (HEFCE)
- Higher Education Academy (HEA)
- Joint Information Systems Committee (JISC)
- Confederation of Children's Services Managers (Confed)
- Association of Colleges National Information and Learning Technology Association (AoC NILTA)
- United Kingdom Education and Research Network Association (UKERNA)
- British Educational Communications and Technology Agency (Becta)
- Department for Education and Skills (DfES)

5.2.2 Membership of the National Delivery Group

- Training and Development Agency for Schools (TDA)
- National College for School Leadership (NCSL)
- Qualifications and Curriculum Authority (QCA)
- Association of School and College Leaders (ASCL)
- National Association of Head Teachers (NAHT)
- Regional Broadband Consortia (RBC)
- Partnerships for Schools (Building Schools for the Future)
- General Teaching Council for England (GTCE)
- National Strategies
- Specialist Schools and Academies Trust (SSAT)
- Learning and Skills Council (LSC)
- TechDIS
- National Institute of Adult Continuing Education (NIACE)
- Centre for Excellence in Leadership (CEL)

- Learning and Skills Network (LSN)
- Association of Colleges National Information and Learning Technology Association (AOC NILTA)
- JISC Regional Support Centres (JISC RSCs)
- e-skills UK
- Quality Improvement Agency (QIA)
- University for Industry (Ufi)
- Association of Learning Providers (ALP)
- Joint Information Systems Committee (JISC)
- Association of Learning Technology (ALT)
- Higher Education Academy (HEA)
- Confederation of Children's Services Managers (Confed)
- National Association of Advisors for Computers in Education (NAACE)
- British Educational Suppliers Association (Besa)
- Department for Education and Skills (DfES)
- Futurelab
- United Kingdom Education and Research Network Association (UKERNA)
- Lifelong Learning UK (LLUK)
- British Educational Communications and Technology Agency (Becta)

5.2.3 Communications

70. Communication and engagement with all e-strategy stakeholders to change behaviour is core to every aspect of the delivery plan. The aim now is to move rapidly with each key audience group through the communication hierarchy from awareness to engagement to adoption, to the main goal – impact.
71. The challenge now is to move beyond the early adopters, those using technology effectively, to mainstreaming the effective use of technology in the rest.
72. Some of the 'engaging for change' mechanisms for mainstreaming the effective use of technology have been described, and further plans will evolve from the event on 7 November 2006, which has been set up to start a new movement and impetus to increase the speed of progress.

73. In summary:
 - Lateral transfer of knowledge and experience will be developed by building on existing networks.
 - Users will be segmented by their issues, needs and motivations, and their separate networks will be utilised.
 - Collaborative approaches will be used to encourage learning from others on how to transfer knowledge and to support action that brings about change.
 - Geographical areas and hubs will be developed when and where appropriate.
74. Understanding of the needs and motivators of headteachers and other leaders will be key to drive demand for technology-enabled solutions.
75. Communication with all partners will reflect their specific role and shared purpose agreements. Communication through partners will continue to be important and part of the crucial process of building on existing networks. Both will be led and co-ordinated by Becta.
76. Communication to and through advisors and buyers will reflect their needs and motivations and focus on themes relating to the adoption of standards, costs and service improvements, productive time and the engagement of learners. Again, feeding news, information and 'calls to action' to existing networks will be important, and co-ordinated campaigns will be piloted to build up new drivers for change.
77. Two key principles are:
 - Becta will do only what only it can do.
 - Communications activity will be branded at the point of delivery.
78. These principals ensure our audiences do not become confused by a lack of clarity around roles and responsibilities.

5.3 Management and delivery

79. To ensure effective co-ordination of delivery and to monitor progress towards key milestones, Becta will:
 - in close co-operation with the DfES, deliver effective programme and project management techniques and processes

- create a team to manage Becta's internal responsibilities, along with e-strategy co-ordination that will support the implementation of the delivery plan
- establish an internal co-ordination board of senior managers from across Becta, who will take responsibility for driving delivery of activity within the four e-strategy themes
- ensure that a measure of impact on outcomes, informed by evidence, and an accountability framework are in place, and that this framework is fully understood by all partners.

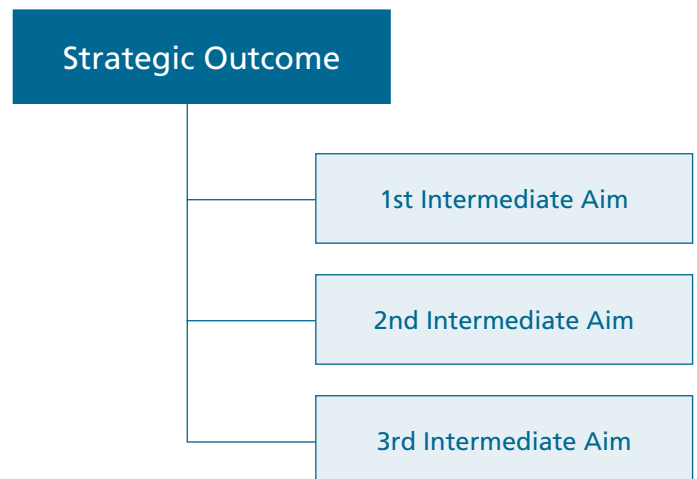
5.3.1 Getting buy-in from key partner agencies and intermediaries

80. Becta's key partner agencies have a major role to play in challenging and supporting local authorities and front-line practitioners.
81. Becta is, therefore, involving key partner agencies in a range of delivery activities and collaborative work including:
- steering the development and planning of the national dialogue with practitioners, institutions and learning providers and the November 2006 Harnessing Technology conference; we have formed a national delivery group of key partner agencies to support this
 - involving senior directors of key partner agencies in the National Strategic Group to oversee the strategic delivery and development of the e-strategy
 - developing our thinking with partners in the areas of workforce, institutional and system e-maturity
 - co-developing the schools' self-review framework and the national ICT Mark, and parallel developments in the learning and skills sector
 - developing and implementing our approach to strategic technology provision.
82. The DfES and Becta need to secure a strong shared commitment from the leadership of these agencies to work together more systematically to actively play their part in the delivery of the e-strategy. DfES policy teams, in consultation with key partner agencies, should more systematically 'hard wire' delivery responsibility into agency

remits or priorities letters and hence into their corporate and operational plans and programmes.

5.3.2 Intermediate aims

83. The strategic outcomes described in the scorecard give a good high-level description of the aims of the e-strategy, but there are dependencies and tensions between them. More specific aims are needed to help translate the scorecard into the deliverables that will result from the programmes of work.
84. Because the strategic outcomes are inter-dependent, each of the intermediate aims will map to at least two of the strategic outcomes, either side of the central dividing line of the scorecard. The complete list of intermediate aims is shown in Appendix B.
85. This document shows how each of the intermediate aims supports each of the strategic outcomes in the scorecard, using a series of delivery chains. The delivery chains show each of the intermediate aims that will need to be met before each of the strategic outcomes can be considered to be complete. The complete list of delivery chains is shown in Appendix C; however, they all follow the model below:



86. The current set of intermediate aims reflect an analysis of present priorities; however, they do not yet fully support the scorecard, particularly the outcomes for the learner and the system. Additional work is needed to enhance the current set of intermediate aims to focus on the needs of the scorecard – a review of the existing aims is needed along with the identification of additional ones.

5.3.3 Action plans

87. In developing the strategic outcomes and intermediate aims, the delivery plan has only considered how the education system, as a whole, should look and how this will benefit learners. However, different sectors are at different stages of delivery and may need to adopt different approaches. In order that the plan can accommodate this and still retain an overall vision of the system, a series of action plans will be developed for each of the intermediate outcomes. These action plans will show all the significant activity that needs to take place, in each sector, in order that the overall system-based intermediate aim can be achieved. Additionally, there may need to be system-wide intervention that will enable the completion of sector activity, and this should also be identified within the action plan. Thus all activity relating to a particular intermediate aim will be gathered in one place, allowing the identification of gaps and the monitoring of progress.
88. Each line within the plan will show the planned activity, the sector that it will be carried out in, the anticipated completion date and the owning programme or organisation. In this way, it will be possible to estimate the expected completion date for all activity leading to the delivery of a particular intermediate aim. This can then be further aggregated to show the date when realisation of the strategic outcomes can be expected. In addition all the activity being carried out by different sectors can be shown within the overall system framework.
89. An additional piece of information within the action plan will be the type of activity being undertaken. This will provide some qualitative information about the nature of the activity. Although the production of position papers, strategies and pilots is essential, and need to be identified within action plans, they will not deliver any sector- or system-wide changes and will need to be further developed. It will not, therefore, be possible to accept that an outcome has been delivered until the further embedding work has been completed. However, the embedding work may be done by another organisation, and so the pilot work will still need to be included within the action plan.

5.3.4 Programmes of work and projects

90. The total activity identified in the action plans will be gathered into logical groupings to facilitate delivery of outputs. These groupings are referred to as 'programmes of work'. The current programmes are based on the four themes and form key components of the capacity and capability outcomes of the balanced scorecard.
91. In addition to the four themes, the delivery plan recognises the remainder of the actions and milestones of *Harnessing technology*, which address the needs of the citizen and of the *Transformational Government*⁵ strategy.

5.3.5 Reporting progress

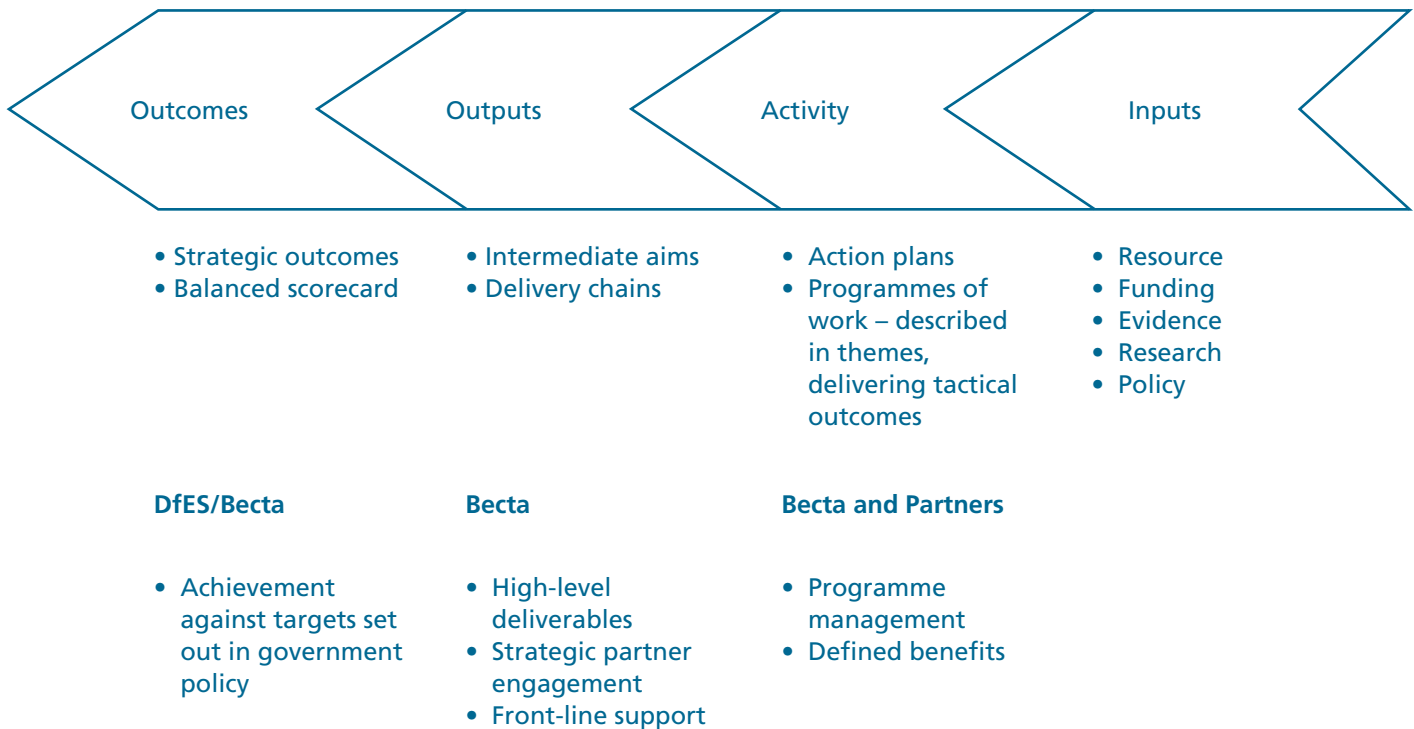
92. Reporting will be against the activities contained in the action plans, and progress will be shown in milestone maps of three levels of detail:
 - The first level will show the activity that will have a significant impact on the delivery of a strategic outcome.
 - The second level will show the activity that will have a significant impact on the delivery of an intermediate outcome. This will include all of the activity identified in the action plans.
 - The final-level milestones will show the level of detail needed by each programme of work to monitor its delivery. These milestones may reflect the work being carried out in projects that will report to the programme.

5.3.6 The delivery process

93. The approach described in this document is for delivery to be driven from the outcomes described in the balanced scorecard. Although, in practice, this will result in a bottom-up delivery, the effectiveness of any project or programme should always be tested against the parent outcomes. Thus the action plans can be tested against their intermediate outcome, which, in turn, can be tested against the strategic outcomes, via the delivery chains, to ensure that the strategic outcomes will be realised.

⁵ Cabinet Office (2005) *Transformational Government: Enabled by Technology*

94. The delivery process is described as follows:



5.3.7 System and sector perspectives

95. The delivery process is designed as a model to be used for the whole system (ie to be used system wide), yet it is also able to reflect sector-specific needs or arrangements that are already in place. The delivery plan plots a careful course that manages the balance between achieving overall system change and consideration for the specific nature of sectors.

5.3.7.1 Children's services

96. Becta also needs to explore, with local authority directors of children's services and lead members, their local actions in support of e-strategy deliverables. Local authorities have continuous and ongoing relationships with schools and other services for children and families.

97. The delivery plan recognises the relatively recent establishment of the children's services agenda, and that much needs to be done to develop an explicit focus on the role technology can play. Further more-detailed discussions and work are underway to improve the definition of need and approach for this sector.

5.3.7.2 Schools sector

98. *Harnessing technology* recognised the significant progress made within the schools sector in respect of ICT and related programmes. It implicitly brought together the existing and planned activity formerly under the ICT in Schools banner and identified key outcomes that have been revised and are reflected in this delivery plan. The progress in this sector has been impressive. However, this delivery plan emphasises the need to strengthen

the focus on outcomes, bring key partner agencies and stakeholders together with common goals, and extend the track record of co-delivery and co-operation between those partners.

99. Given that the majority of schools do not make sufficiently effective use of ICT for learning and teaching, Becta and key delivery partners need to work more closely and in a better partnership with local authorities to tackle improvement. There is an opportunity to re-think how support for schools to make better use of new technology should be configured during the next three years. Here, the role of the regional broadband consortia and the support provided through networks such as the SSAT ICT Register will be important in providing a national system of support and challenge and in helping to accelerate adoption and best practice.
100. An example of partnership working is associated with the opportunity provided by the Building Schools for the Future programme in relation to infrastructure provision and leadership development, along with the NCSL. A key element of this work is the crucial role played by school leaders in driving the changes necessary at individual school level to ensure that current and future technology resources are procured, deployed, supported and used effectively to supporting teaching, learning and business administration.

5.3.7.3 Post-16

101. The vision for post-16, as with the e-strategy as a whole, is to establish a higher standard for the effective use of technology, by setting challenging targets to accelerate progress across the sector.
102. There needs to be more choice for learners, higher quality teaching and learning, increased motivation of learners, increased standards in place and more technology infrastructure and resources in place to create the conditions for transformation in the post-16 sector. The level of e-enablement in the post-16 sector is patchy and not increasing fast enough. The speed of e-enablement needs to urgently increase to support the challenges set by the further education white paper and agenda for change.

103. Because the LSC has rigid deadlines to meet for completion of tendering for 2007–08 activity, the new post-16 outcomes are currently being treated as additional to the e-strategy intermediate aims. In time, the post-16 and e-strategy intermediate aims will be merged to provide a consistent system and allow sector measurement of achievement and transformation.
104. The new post-16 outcomes will be delivered through the LSC-funded post-16 e-learning programme, along with additional local, regional and national activity.
105. The post-16 outcomes have been mapped to the strategic outcomes in the balanced scorecard, and the results are shown in Appendix J.

5.3.7.4 Higher education

106. The HEFCE has the major responsibility in the higher education sector to support the adoption of e-learning and has set this out in its 10-year strategy document, published in March 2005. The HEFCE e-strategy is being delivered by JISC and the Higher Education Academy. JISC also works closely with Becta and other partners to deliver, where it is appropriate, related services, advice, products and innovation across education. A significant part of this is the funding of UKERNA, the organisation responsible for the JANET network. UKERNA is committed to working with partners to fully embed e-learning in a sustainable way within the life of the HEFCE strategy.
107. The HEFCE e-strategy reflects responses to extensive consultation, which was conducted in parallel with the DfES consultation on the development of the e-strategy for all levels of education. The HEFCE e-strategy sets out the aims, objectives and principles that will be adopted within higher education, and provides a detailed implementation plan that has been developed jointly with the Higher Education Academy and JISC. Appendix K provides greater detail about the HEFCE e-learning strategy.

6.1 Evaluation

108. Evaluation of national policy and government strategy is about establishing whether it is meeting its objectives and whether those intended to benefit have done so.⁶ Evaluation is more than just monitoring the delivery of a policy or strategy, but rather it is about understanding the changes that have happened in the system as a result.
109. Policy initiatives are often so complicated and diffuse that they have little prospect of describing the key elements necessary for evaluability, such as clear and identifiable interventions, target population, and outcomes that are specific and measurable.
110. Against this background, it is likely that the e-strategy is too complex to meet the central requirements of evaluability. However, an overall evaluation project is possible on the basis that aims/objectives and anticipated benefits exist at two basic levels. A two-tier evaluation plan is proposed, targeting assessment of benefit arising from:
- assessment of progress represented originally by the six priorities and four themes, and now enshrined in the capacity and capability elements of the balanced scorecard, and
 - assessment of performance, represented originally by the four e-strategy objectives, and now by the performance outcomes on the right-hand side of the balanced scorecard.
111. Linking the evaluation to the balanced scorecard offers the opportunity for further analysis of the links between priority action areas and impact in terms of education reform, and, as such, offers potential for the evaluation project to better support ongoing strategy and policy development.

6.1.1 Obtaining data on current progress and performance

112. Using the structure of the balanced scorecard as a framework, Becta will identify and develop proxy indicators for each element of the four quadrants of the scorecard. From this initial work, it is hoped to agree simple and aggregate measures of outcomes, using existing metrics where possible, for early baselining. The exercises will be undertaken at four levels to show the picture for the schools, learning and skills, and higher education sectors, and for children's services. Initially, work will concentrate on the schools and

learning and skills sectors, and will be taken forward to the higher education sector and children's services over time.

113. To provide a meaningful picture of the situation, data relating to the indicators will be derived from recent surveys and research studies that allow conclusions to be drawn at a national level and provide analysis of progress to date. The primary evidence sources used are likely to be:
- national statistics and large-scale and national-level surveys, such as the Becta survey on ICT and e-learning in further education, including some international comparisons
 - national and large-scale research studies of ICT implementation and use
 - projects to evaluate national ICT programmes, such as the evaluation of Curriculum Online
 - inspection data and reports from Ofsted.

6.1.2 Partnerships for data

114. While, initially, indicators will be established on the basis of existing data, it is intended to ensure that current and future Becta research activity allows existing data sets to be maintained as well as collecting new evidence to improve the scope of current data provision. For example, Becta will conduct surveys of institutions and practitioners in the schools sector and continue the annual e-learning survey of further education providers, providing valuable time-series data.
115. Initial analysis indicates that the level of data available is not as extensive in the other sectors as it is in the schools sector, and even here there will be gaps in the evidence base that will need to be addressed. Indicators in one sector may not be appropriate in others. Working closely with partner organisations, such as HEFCE, the Higher Education Academy and JISC in higher education, Becta will seek to identify evidence needs, formulate appropriate indicators and collect data across the sectors. Over time, the intention is to populate the data matrix of the balanced scorecard as fully as possible and for all sectors.

6.1.3 Supporting performance

116. Understanding and providing valid indicators of performance will be especially challenging. For example, there is current evidence about the relationship between the use of ICT and learner

⁶ National Audit Office (2001) *Modern policy-making: ensuring policies deliver value for money*, National Audit Office publication HC298 – Session 2001-02.

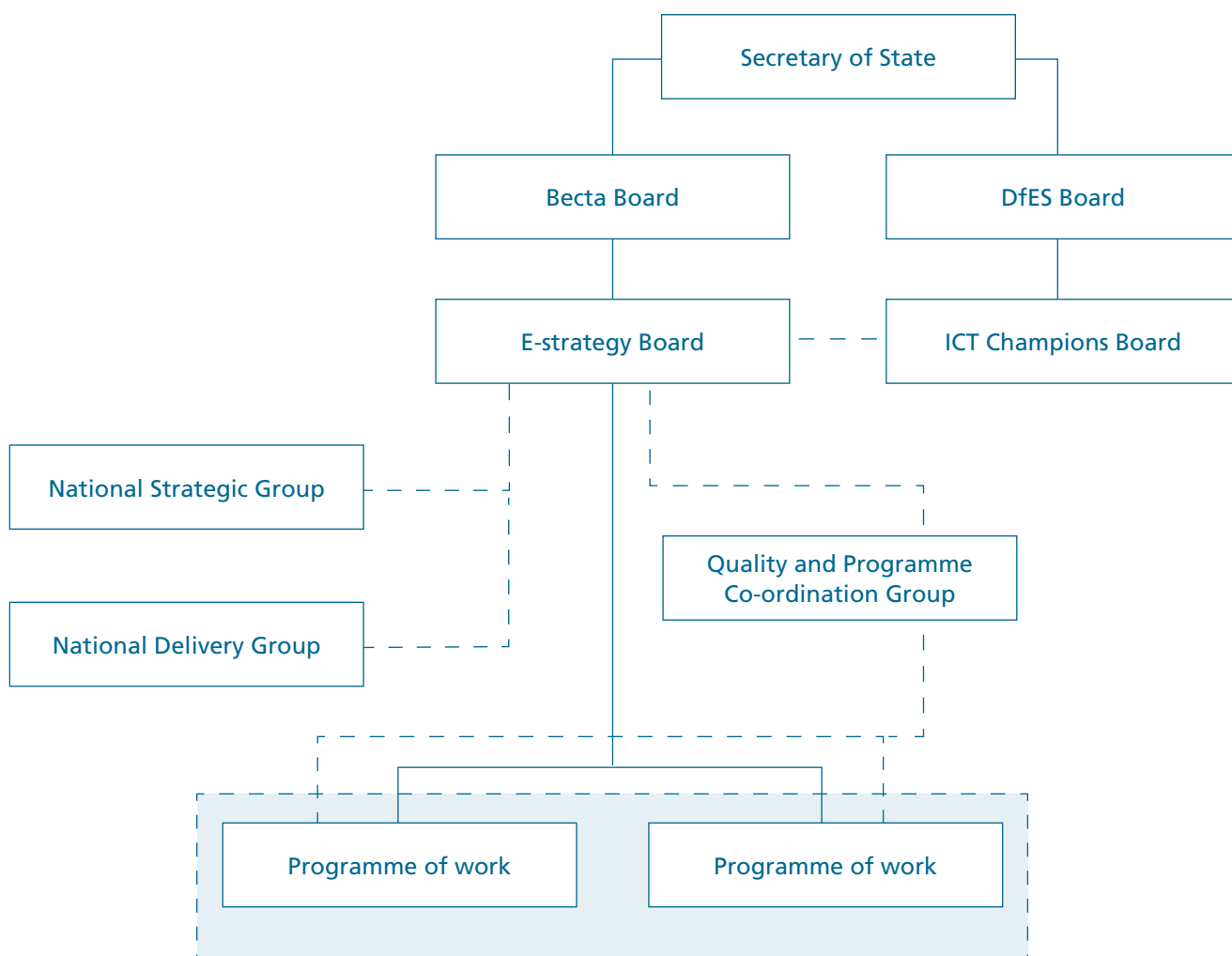
motivation and studies on the impact of ICT on standards and attainment. In 2006–07 there will be a further report from the ICT Test Bed evaluation and a new Becta impact study will provide additional data on learning outcomes to inform the performance measures. Ongoing analysis associated with Becta's ICT and Productive Time project will provide data relating to efficiency and value for money. Further analysis of existing data, including, where appropriate, the use of robust small-scale studies, will provide additional insight into the various factors that relate to the capability, capacity and performance of the system. Again, Becta will work with key partner agencies to ensure that the impact of technology on the strategy's performance outcomes is properly researched and understood.

6.2 Innovation and renewal of the e-strategy

117. *Harnessing technology* aims to ensure the development of capacity and capability in the education system, so that the benefits from and value of technology are realised across the system.
118. Supporting innovation is a key aspect of the e-strategy. Innovation in this context is not simply about new systems and tools, but about new approaches to using technology to support learning. Many innovations of this kind involve the application of existing systems and tools in novel ways.
119. In achieving the aim of realising benefits and value, it is critical that new opportunities for adding value to learning are recognised and nurtured. Becta and all key delivery partners need to ensure that the right conditions and programmes exist to create opportunities for innovation to develop.
120. A range of national organisations support the development of innovation in technology for learning. In the higher education sector, for example, JISC funds a range of applied research to develop new tools, systems and approaches. The DfES Innovation Unit funds a range of school-based innovation projects, many of which are technology related. The Economic and Social Research Council (ESRC) leads a technology-enabled learning research programme, which aims to support both applied and fundamental research. The DfES-funded Futurelab also develops and researches many technology-based learning innovations. And, in 2006, Becta is delivering two development and research projects that focus on the innovative application of technology to address priority issues in education.
121. In delivering the e-strategy, Becta will ensure that these current areas of development and research join up and complement and add value to each other.
122. Specifically, in the schools area, a partnership will be developed between the Innovation Unit, which funds school-based innovation, Becta, which leads the strategic development of technology in education, and Futurelab, which conducts innovation research.
123. Becta's intelligence function will also have a formal role in ensuring that there is cross-sector learning from innovations in one sector that have relevance to another.
124. In addition, Becta will ensure that there are systems and networks in place to ensure that details of best practice are shared within the education system.
125. Currently, many innovations in the application of technology to learning are created by practitioners, institutions and learning providers. Other innovations are led by industry or are jointly developed. To maximise the learning value from these innovations, it is important that:
 - the best can be recognised and captured
 - benefits to learning of new approaches can be assessed
 - issues relating to the transferability of practice can be understood
 - knowledge from these projects can be transferred appropriately.
126. Becta will work with a range of key partner agencies (eg SSAT, NAACE, LSN) to build on existing networks and systems (for example Becta's award schemes) to ensure that the learning value of innovations is maximised.
127. It is important that the developments and innovations captured through these processes are used to inform the future direction of the e-strategy. Intelligence about innovations, for example, could inform thinking about future practitioner continuing professional development requirements or changes to curricula to support the embedding of innovations with proven value. Through the governance processes of the e-strategy, Becta will advise on the significance and consequence of significant innovations in technology for learning strategy and policy.

128. The e-strategy is an overall change programme with a wide portfolio of delivery programmes and projects focused on realising its outcomes. It will need a governance structure that reflects the need for clear direction and the devolved nature of the partnership needed to achieve those outcomes.
129. The programme can be divided into two broad categories of activity: those directly managed through Becta and those managed by partners, with Becta monitoring and identifying overall progress against the strategy's targets.
130. Those programmes of work directly managed by Becta will have their governance based on the structure described below, in accordance with Becta's remit as a DfES non-departmental public body.

131. Where work will be carried out by partners, Becta will work with them to develop mechanisms to enable Becta to gather progress data and enable co-ordination across the programme. Key elements of these mechanisms will be the National Strategic Group and the National Delivery Group.
132. In the diagram (and in the next section), the solid lines represent direct lines of accountability, the dotted lines represent flows of information.



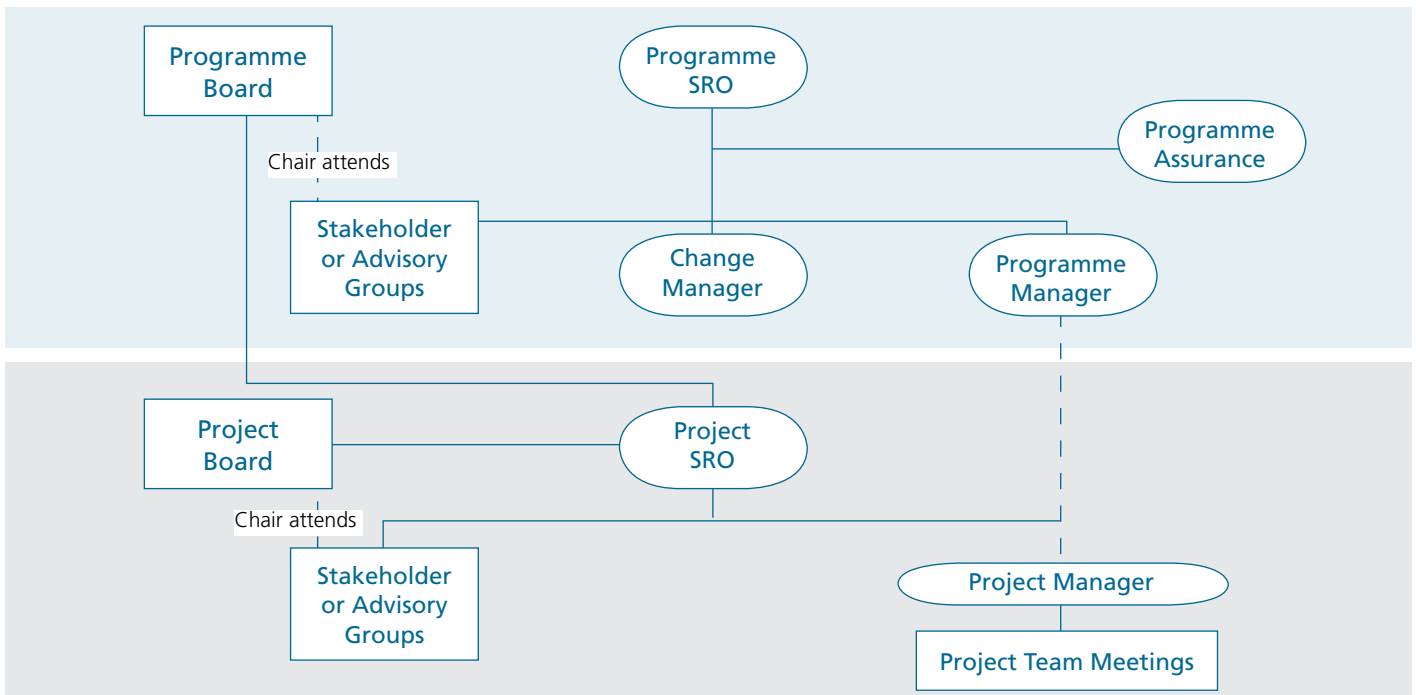
7.1 Overall governance structure

133. The Secretary of State holds Becta accountable through its board for the delivery of the e-strategy, as defined in Becta's remit and its priorities letter. Becta's Executive will operate as the overall programme board and will have direct responsibility for the management of the programme. This board will receive and review progress against the key measures for the strategy and will review partner activity reported via the National Delivery Group.
134. Becta's Chief Executive, who will sit on the ICT Champions Board, will discuss with departmental policy leads the progress, issues and risks relating to the e-strategy programme.
135. The e-Strategy Board represents the most senior board that has direct responsibility for the management of the programme, and this board will report to the Secretary of State via Becta's board and the DfES policy boards.

136. The e-Strategy Board will consider what recommendations it should make to the DfES about the future of the technology policy, having gained partners' views via the National Strategic Group.

7.2 Programme structure

137. The delivery of activity in the e-strategy can be divided into two broad categories: that which can be directly managed through Becta, and that which will be managed by partners, but that Becta will want to monitor to identify progress against the strategy.
138. Those programmes of work that will be directly managed by Becta will implement the governance structures outlined in this section of the delivery plan.
139. Where work will be carried out by partners, we will work to develop, with them, mechanisms to enable Becta to gather progress data.
140. The formal governance structures for the identified programmes of work will follow the model below:



141. The detailed descriptions of the roles and responsibilities of each of the boards and officers can be found in Appendices H and I.

7.3 Programme and project management standards

142. We recognise that to have effective programme and project management is a vital component in the delivery of change.

143. A programme office ensures that consistent, structured project management practices and tools are in place to support the implementation of the e-strategy. It also has an important role of maintaining awareness of the 'big picture', working with partners as appropriate.

144. We would class as standard within the programme and project management procedures the following documents:

- **Programme:** Governance document, programme brief, business case, benefit realisation plan, project mandates, milestone schedule, risk/issues/action and change register, highlight reports.
 - **Project:** Project brief, business case, project plan, resource plan, product description, quality review reports, risk/issues/action and change register, highlight reports, post project appraisal.
145. There will be different levels of engagement by partners, some working directly as part of a programme of work while others are independently implementing aspects of the strategy. All of this activity will need to be monitored in order that we can ensure that the strategy is delivered. For this reason, our approach to programme and project management needs to be flexible to ensure that it provides a mechanism to harness resources from all partners to effectively gather data to monitor the delivery.

7.3.1 Controls – planning and progress monitoring (including agreement of key milestones and identification of project interdependencies)

146. Actively working with the Programme Manager, the Programme Office will monitor progress against milestones to ensure that the desired outcomes are being realised within the timescales agreed.
147. Each programme/project will be planned and monitored using appropriate planning techniques – Gantt (bar) chart, tasks, milestones.
- The Programme Office will work with programme teams to agree milestones, which should be recorded in both the programme plan and the overall e-strategy programme plan.
 - Each milestone will be defined and supported by a milestone description and be known by a unique but common identifier. Milestones will cover deliverables/products, cross-project dependencies and benefits realisation.
 - Targets (outcomes) may also be identified in the schedules and will be flagged as such.
148. The Programme Office will monitor the progress of milestones, providing status reports in agreed formats.

7.4 Risk and issue management

149. Risk and issue management is vital in the management of programmes and projects; it looks at potential problems as well as real ones. All programmes and projects will need to have in place procedures and documents that include an escalation path, to support the management of risks and issues.
150. To enable effective risk management, each programme office will:
- maintain accurate risk, issue and change logs
 - work with the programme teams to ensure that risks are regularly reviewed and that mitigation actions have identified owners who are progressing their actions to completion
 - pursue resolution of issues with the issue owner as required
 - offer challenge to try and ensure that issues and risks are resolved at the lowest possible level and are not escalated unnecessarily.

7.5 Change control

151. Changes may arise from action or out of the necessity to achieve the project requirements. They may be due to new information or criteria, or they may form the solution to an issue.
152. All changes must be advised to the Programme/Project Manager immediately they are identified, using the basic change control form. Once approved, changes are authorised. A register will be maintained by the Programme/Project Manager.

7.5.1 Objectives

153. The objectives of change control are to:
- provide a disciplined environment in which changes may be made
 - ensure changes have been fully defined, understood, planned and documented
 - analyse the risk and impact of changes and minimise any risk
 - ensure appropriate expertise is brought to bear on the consideration of a change
 - ensure that defined changes are costed and proposed changes are negotiated, agreed and documented
 - ensure the correct level of management approval for changes
 - ensure the prioritisation of changes

- ensure that all necessary groups are aware of a proposed change
- record changes and maintain comprehensive historical records
- contribute to the provision of the overall project plan
- ensure availability of resources.

7.6 Quality and gateway reviews

7.6.1 Quality

154. Quality management is the process of ensuring that the quality expected by the customer is achieved. It encompasses all the project management activities that determine and implement the project's quality plan. The various elements of an organisation's quality management are as follows:

- A quality system
- Quality assurance
- Quality planning
- Quality control.

155. The product description defines the deliverable, the standards to be used in its creation, and the quality criteria to be applied to ensure it is fit for its purpose. Not only is this information essential for the creator, but the product description also forms the initial checklist for checking the quality of the finished product. Product descriptions must be approved by the Project Board before work begins.

7.6.2 Quality reviews

156. A quality review is the primary technique to ensure a product's completeness and adherence to standards by a review procedure. A quality review should involve all those with a vested interest in the product and with a specialist knowledge that can contribute to monitoring quality.

157. Each of the programme teams will ensure that each product goes through a formal quality review (a milestone on the programme plan) and that quality reports are completed appropriately.

7.6.2.1 Objectives

- To produce a product that meets business, user and specialist requirements
- To assess the conformity of a product against set criteria
- To provide a platform for product improvement

- To involve all those who have a vested interest in the product
- To spread ownership of the product
- To obtain commitment from all vested interests in the product
- To provide a mechanism for management control.

7.6.3 Gateway reviews

158. Projects will go through gateway reviews at various stages of their lifecycle. Programmes will go through one or more Gateway 0 Reviews, as appropriate.

159. As part of the gateway review process, we need to:

- provide liaison with the gateway team
- ensure that reviews are scheduled into programme and project plans with sufficient time to book Office of Government Commerce resources
- arrange the initial planning day
- schedule interviews as required
- co-ordinate the delivery of appropriate documents to the gateway team
- book in advance appropriate facilities (rooms, refreshments, etc).

7.7 Reporting

7.7.1 Periodic highlight reporting

160. Each project and programme will report on an agreed periodic basis to its senior responsible officer (SRO)/board using an agreed highlight report format.

161. The highlight report enables the review of project/programme progress and the updating of the key milestone schedule and the risk, issue and change logs, as appropriate.

7.7.2 Consolidate programme-level information

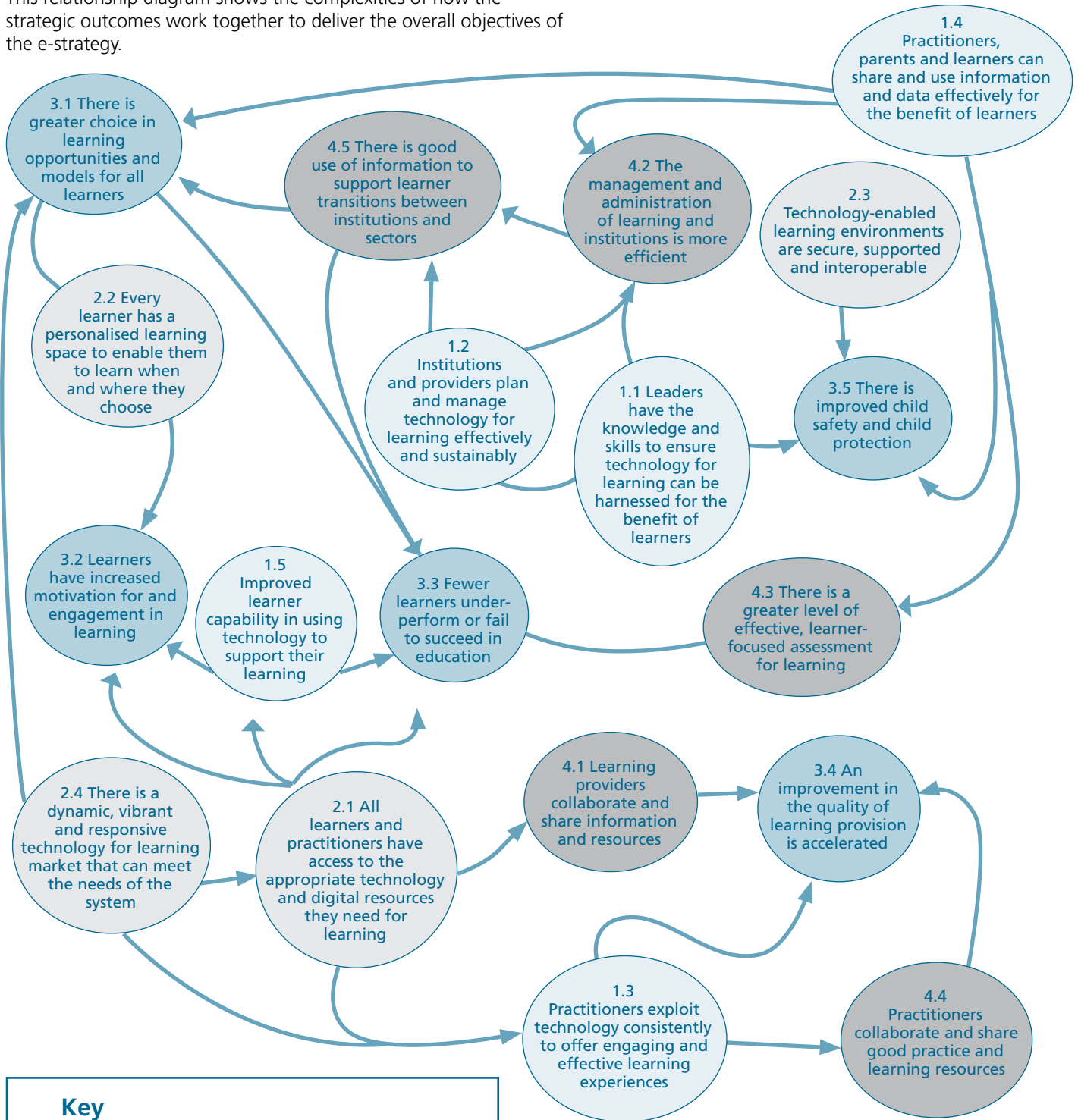
162. Central to ensuring efficient and accurate reporting at programme level is the consolidation of project information into a programme-wide view. This enables the programme information to be analysed – focusing on latest highlight reports, milestone schedules, risk and issue logs and action logs – in order to update the appropriate theme- or programme-level products.

Appendices

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Appendix A Strategic outcome inter-relationships

This relationship diagram shows the complexities of how the strategic outcomes work together to deliver the overall objectives of the e-strategy.



Key

- Capability and capacity of the workforce, providers and learners
- Fit for purpose technology and systems
- Outcomes and benefits for learners and children
- Efficiency, effectiveness and value for money across the system

Appendix B Intermediate aims

163. The list of the intermediate aims, and the way that they relate to *Harnessing technology* and the four themes, can be shown as:

Description	Harnessing technology objectives					Harnessing technology priorities						Themes			
	Transform Teaching & Learning	Engage Hard-to-Reach Learners	Build an Open & Accessible System	Achieve Greater Efficiency & Effectiveness		P1	P2	P3	P4	P5	P6	PC	ST	KA	EM
I-01: Accessibility and usability of the system interface is improved for all children, learners, parents, practitioners (including hard-to-reach or disadvantaged groups)		•				•					•		•	•	
I-02: Learners can support their learning through a personalised online learning space			•				•						•		
I-03: Commonality of 'fit for purpose' specifications and standards across education and children's services that fully adhere to international standards				•				•			•	•	•	•	
I-04: Learners have access to their own e-portfolio to support their personalised learning and enable seamless transition between institutions and learning providers, throughout life			•				•							•	
I-05: Improved management and increased sharing of digital learning materials, data and Information services between institutions, learning providers and agencies			•				•							•	
I-06: Coherent approach to collect data once and use many times				•							•		•	•	
I-07: Learners have the capability to assess their own development needs and choose their individual pathway as learners			•				•							•	•
I-08: Frameworks exists to support institutions and learning provides develop and improve their ICT capabilities				•						•					•
I-09: High quality of support capability exists to support assist the delivery of transformational change in institutions				•						•					•
I-10: Practitioners and learners can exploit technologies to enable improved personalised learning experiences	•			•				•	•			•			•
I-11: Practitioners can exploit technology for use in assessment to enable and improve learning outcomes and progression			•				•						•	•	
I-12: Practitioners and institutions able to obtain better value for money through national procurement arrangements				•							•		•		
I-13: Every child and learner recognised as unique by the system			•				•							•	
I-14: More appropriate spectrum of suppliers in the content and digital software market working better to understand and support more personalised ways of working enabled by ICT	•							•				•			
I-15: The use of technology to develop and exploit the collaboration between learners and practitioners is enabled	•	•						•				•		•	
I-16: Practitioners can successfully find, access, use and share resources to support teaching and learning with increased opportunities for greater collaboration	•			•				•	•			•	•		•
I-17: Children and learners better supported by practitioners and professionals through improved and appropriate information sharing across authorities			•				•				•		•	•	
I-18: Wider physical access to ICT and digital (including online) resources for learners, parents and practitioners			•					•			•	•	•		
I-19: Improved opportunities for learners, practitioners, parents and carers to work together to support improved learner attainment			•				•						•	•	
I-20: Safety and security for children and learners enabled across the system with users aware of the issues, risks and the need for due diligence			•				•				•		•	•	
I-21: Improved access to services, support and resources related to education and children's services is provided to citizens through integrated channels						•									
I-22: Personalised learning is enabled and supported through a learner-centred knowledge architecture			•				•							•	
I-23: Expert advice and support for institutions and workforce is available from capable organisations	•														
I-24: A common systems framework for e-learning and services provided to citizens, with interoperable components				•				•			•	•	•		

164. Work has been undertaken by Becta that demonstrates clearly how the intermediate aims map onto the elements of the e-strategy balanced scorecard: capability, capacity and performance. Thus the case has been made that, by adopting the scorecard as the overarching vehicle for

analysis, we can be confident that these outcomes are covered and that the approach will be inclusive.

165. The matrix that maps intermediate aims to the capacity and capability outcomes can be shown as:

	I-01	I-02	I-03	I-04	I-05	I-06	I-07	I-08	I-09	I-10	I-11	I-12	I-13	I-14	I-15	I-16	I-17	I-18	I-19	I-20	I-21	I-22	I-23	I-24
Capability and capacity of the workforce, providers and learners																								
1.1					•				•								•			•				•
1.2					•			•	•								•							•
1.3						•				•	•				•	•	•		•					•
1.4				•			•			•					•	•	•		•		•			
1.5		•					•			•					•				•		•			
Fit for purpose technology & systems																								
2.1	•	•	•	•	•		•							•	•	•		•	•		•		•	•
2.2		•	•				•																•	
2.3	•		•	•		•	•		•				•				•		•	•	•	•	•	•
2.4					•				•			•		•				•			•		•	•

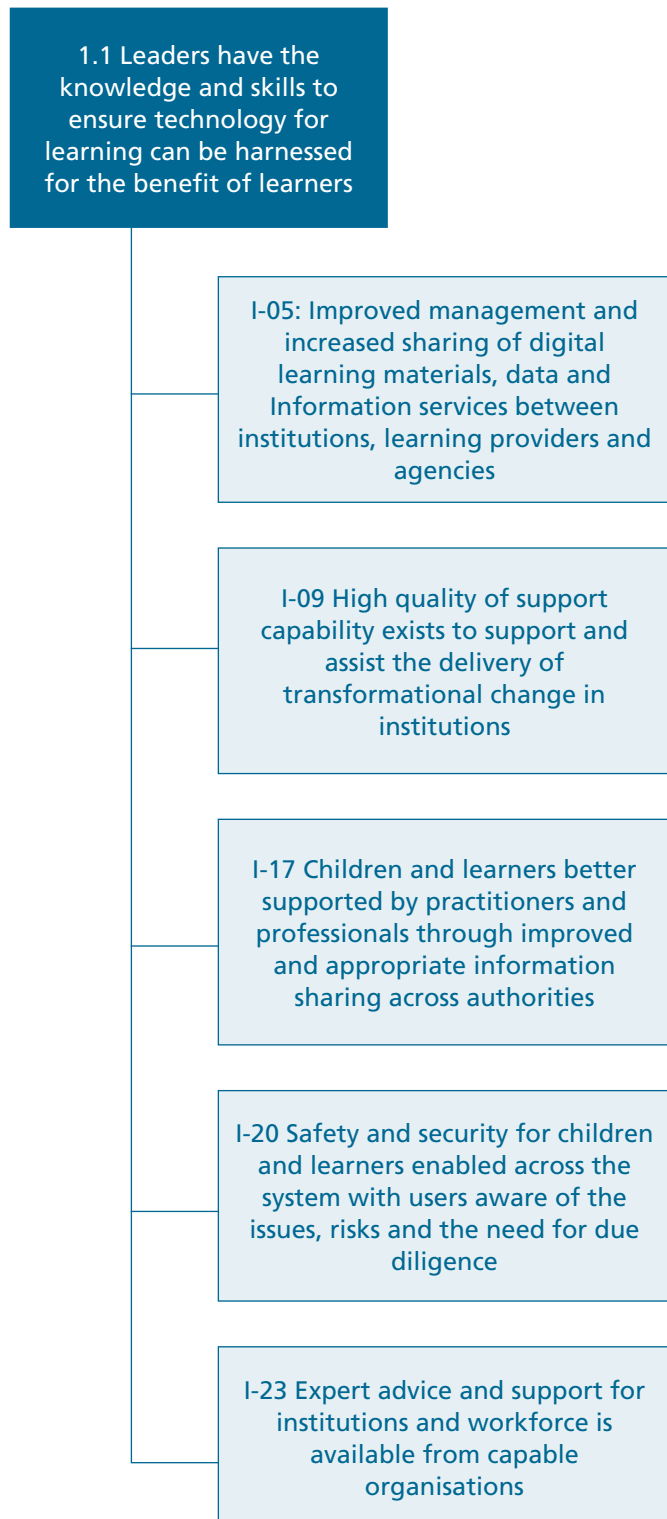
166. The intermediate aims, while they offer strong support for the capacity and capability outcomes, can only be shown to be supportive of the performance outcomes. This is because additional work in embedding the technology within the

education system will need to take place in order that the increased capacity and capability have a substantial effect. An additional matrix that maps the intermediate aims against the performance outcomes can be shown as:

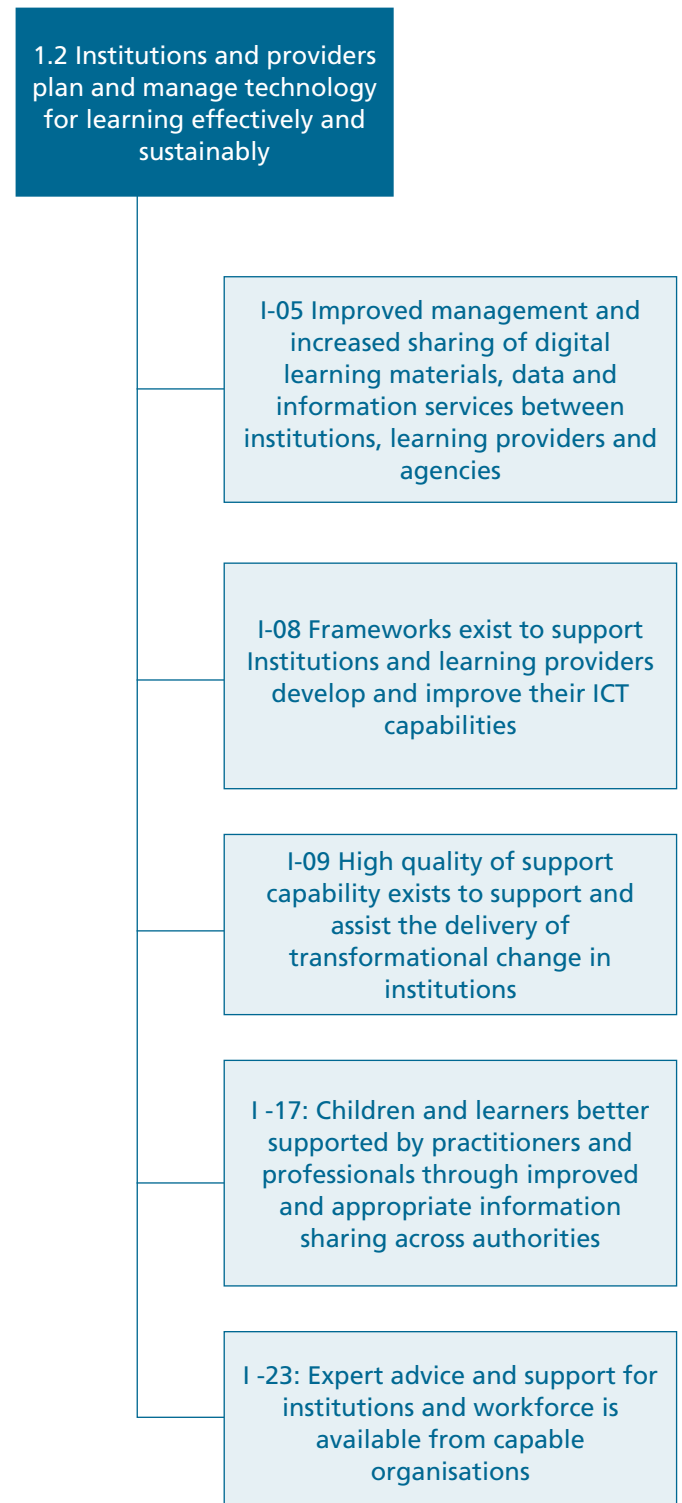
	I-01	I-02	I-03	I-04	I-05	I-06	I-07	I-08	I-09	I-10	I-11	I-12	I-13	I-14	I-15	I-16	I-17	I-18	I-19	I-20	I-21	I-22	I-23	I-24
Outcomes and benefits for learners and children																								
3.1	•	•	•				•			•				•	•			•	•		•	•		•
3.2		•		•			•			•				•	•			•	•		•			
3.3	•			•			•			•	•			•		•		•	•					
3.4			•		•	•		•	•			•		•			•					•	•	
3.5			•	•	•	•							•								•		•	
Efficiency, effectiveness & value for money across the system																								
4.1			•	•	•	•		•	•								•					•	•	•
4.2			•	•	•	•		•	•			•	•									•	•	
4.3			•	•	•	•				•	•		•									•		
4.4			•			•				•	•				•	•	•	•	•			•	•	•
4.5	•	•	•				•			•						•						•		•

Appendix C Outcome delivery chains

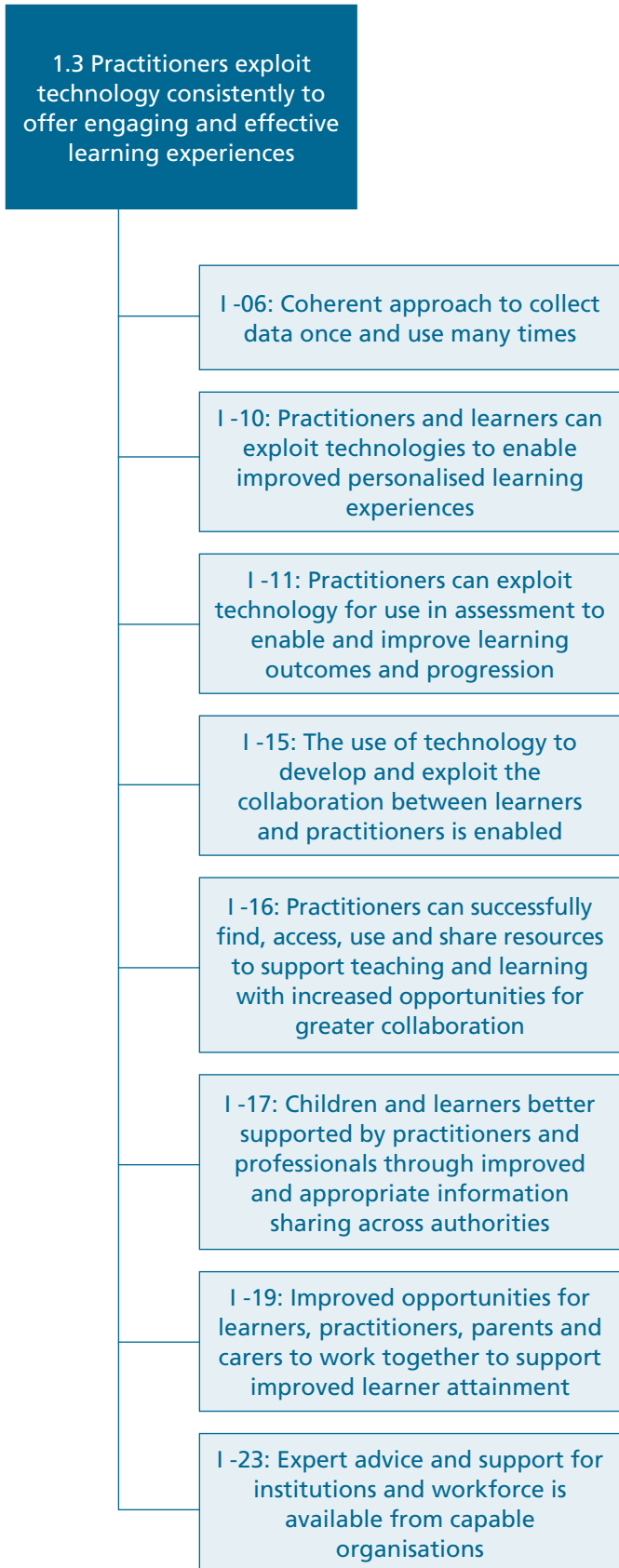
C.1 Leaders have the knowledge and skills to ensure technology for learning can be harnessed for the benefit of learners



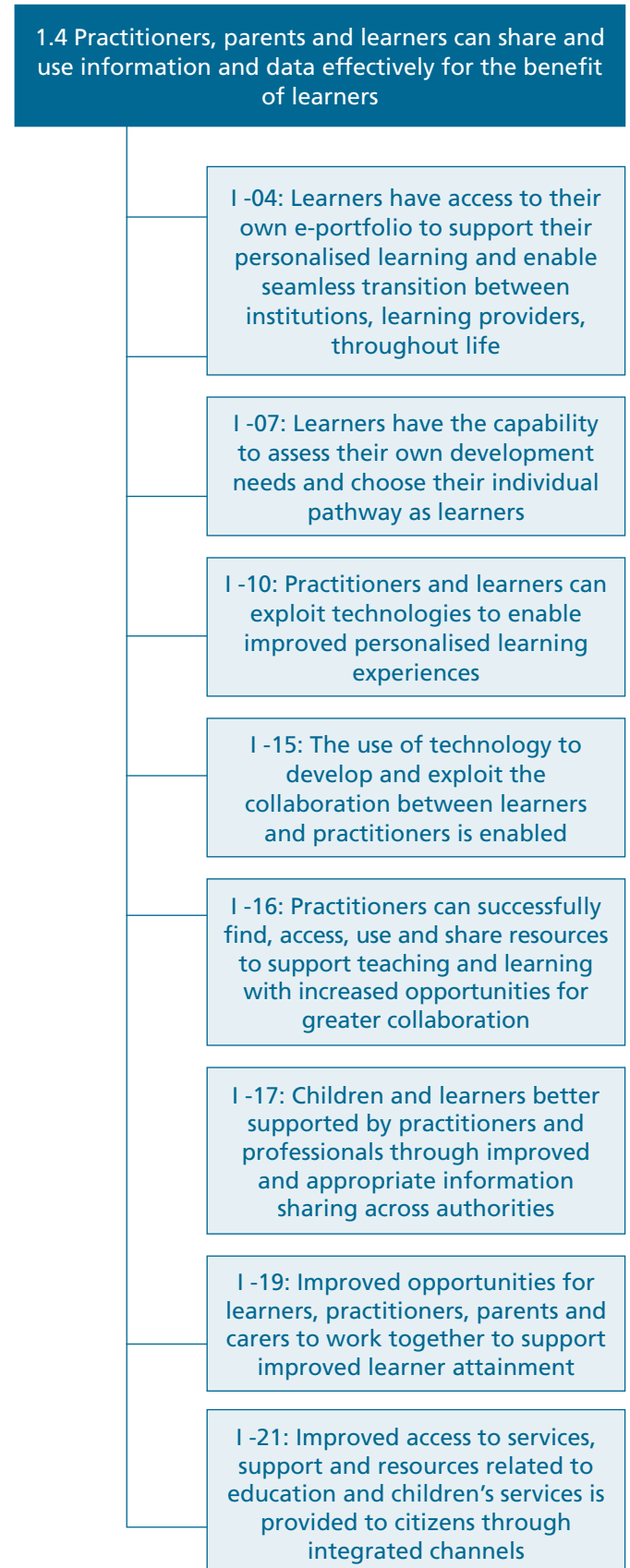
C.2 Institutions and providers plan and manage technology for learning effectively and sustainably



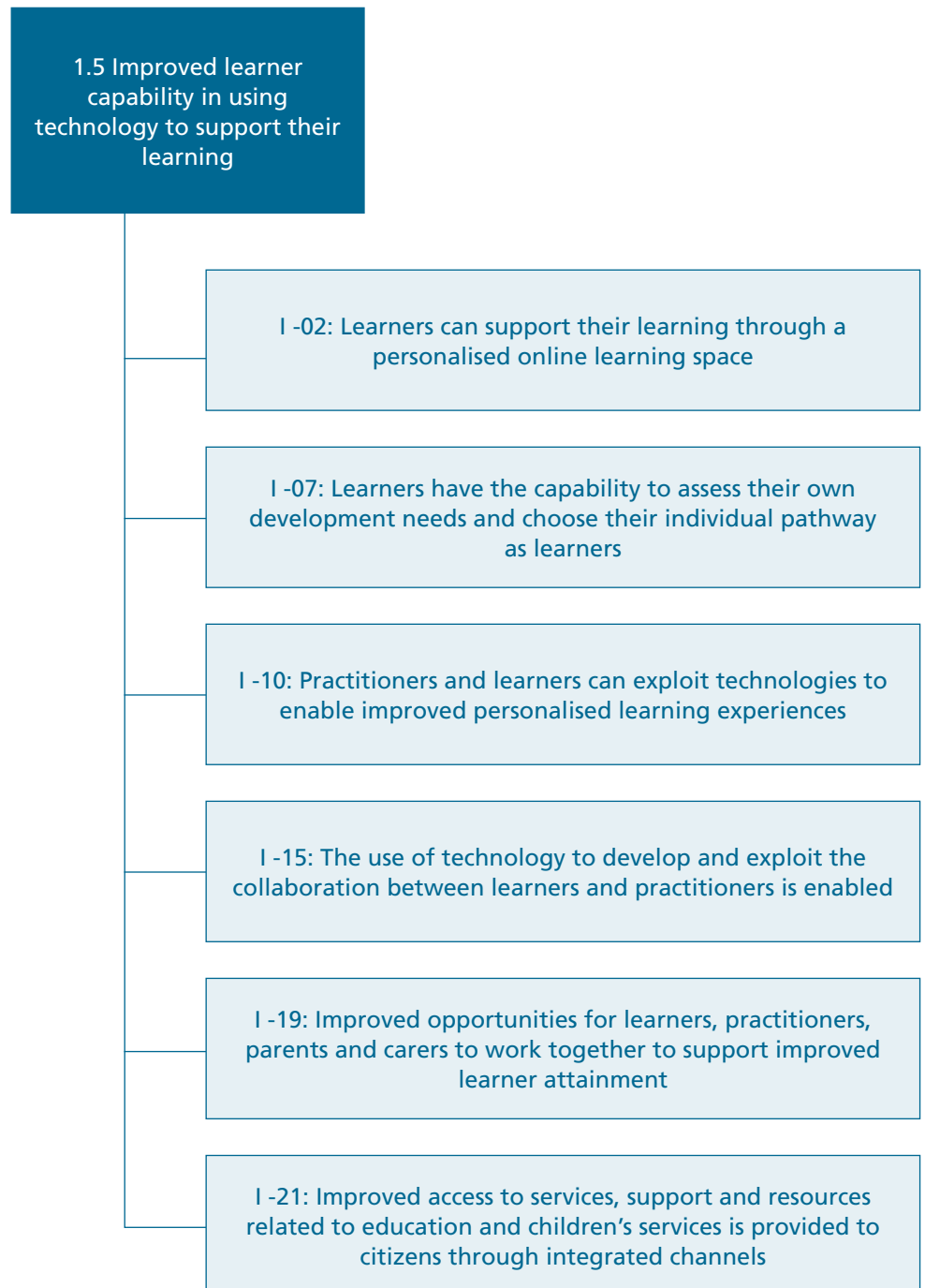
C.3 Practitioners exploit technology consistently to offer engaging and effective learning experiences



C.4 Practitioners, parents and learners can share and use information and data effectively for the benefit of learners



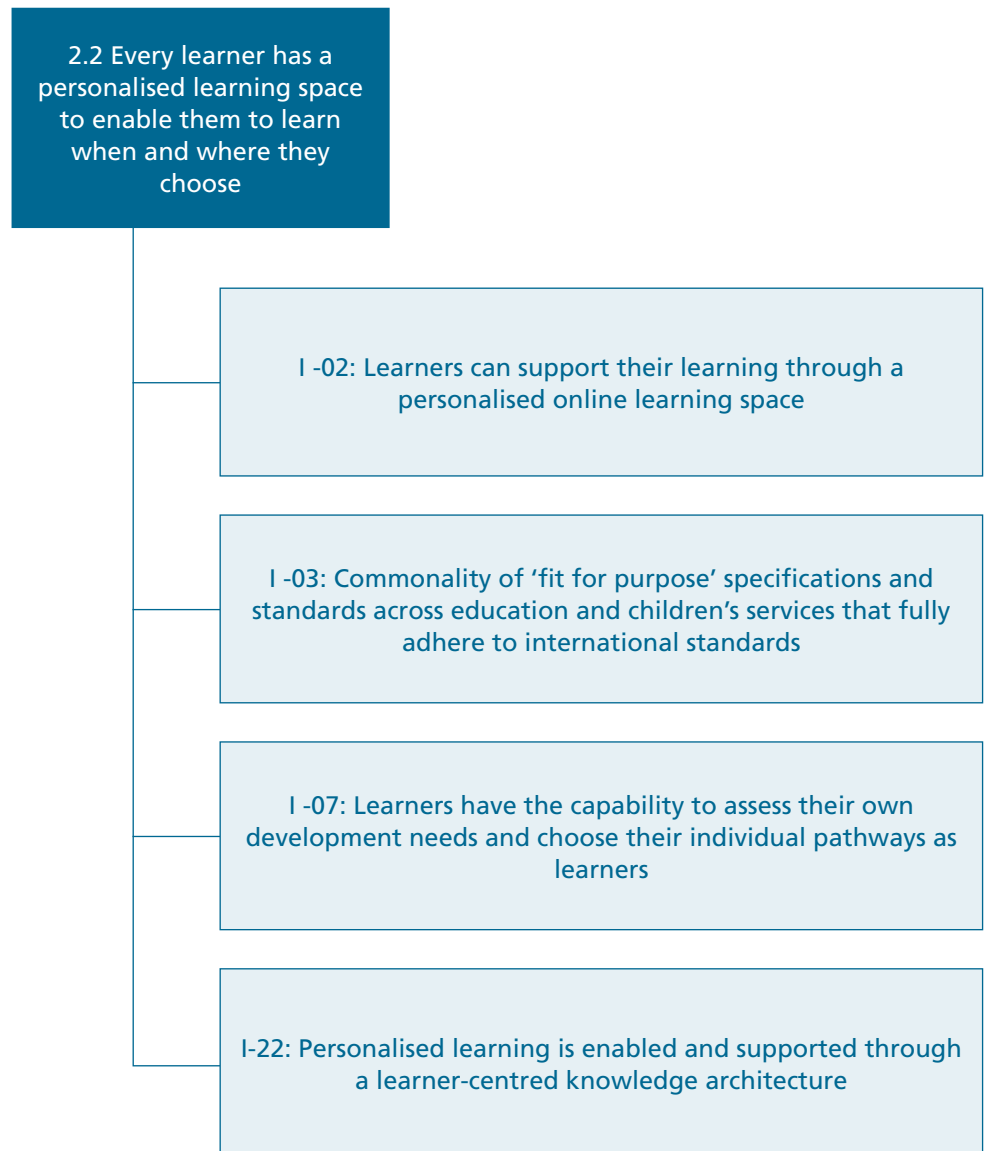
C.5 Improved learner capability in using technology to support their learning



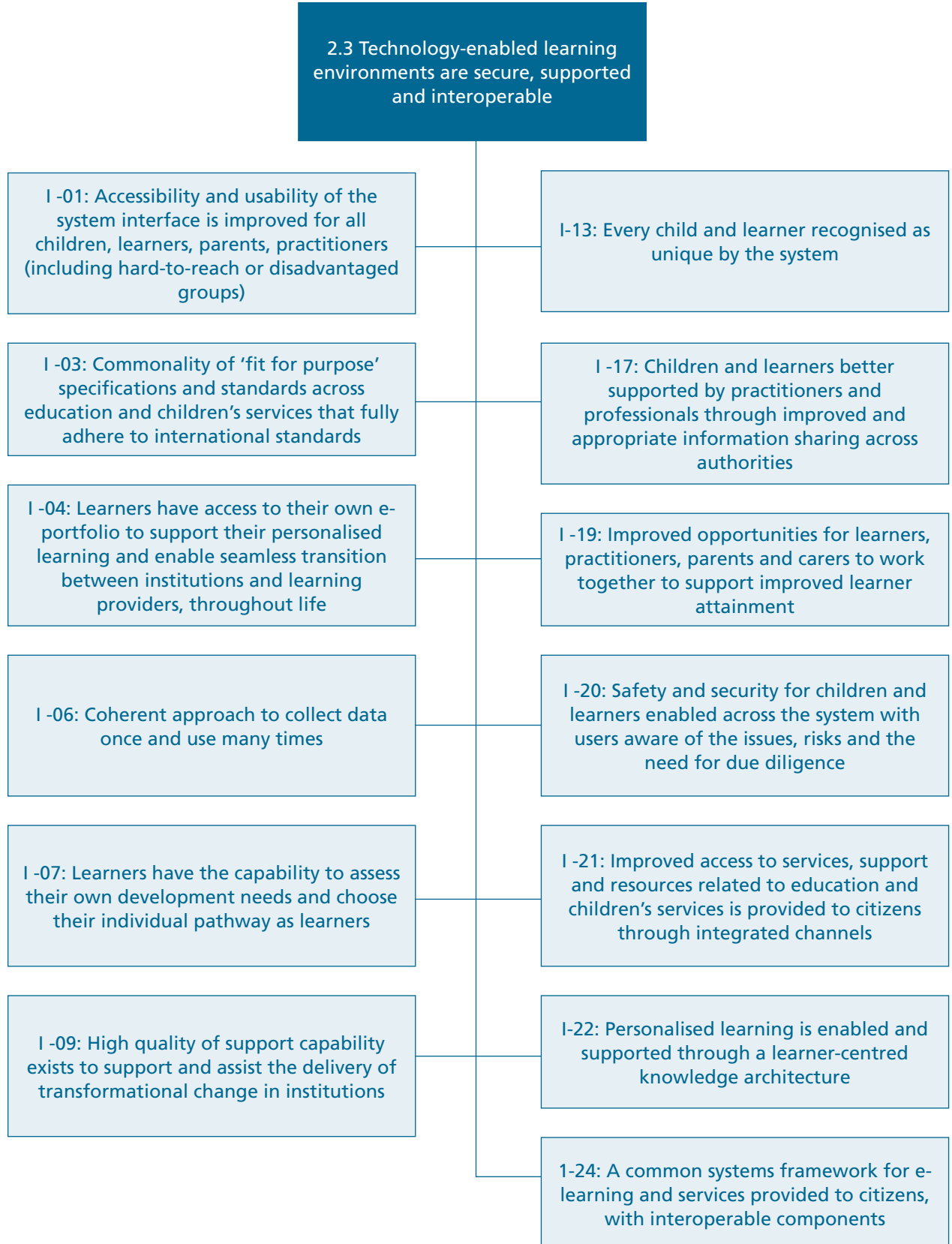
C.6 All learners and practitioners have access to the appropriate technology and digital resources they need for learning



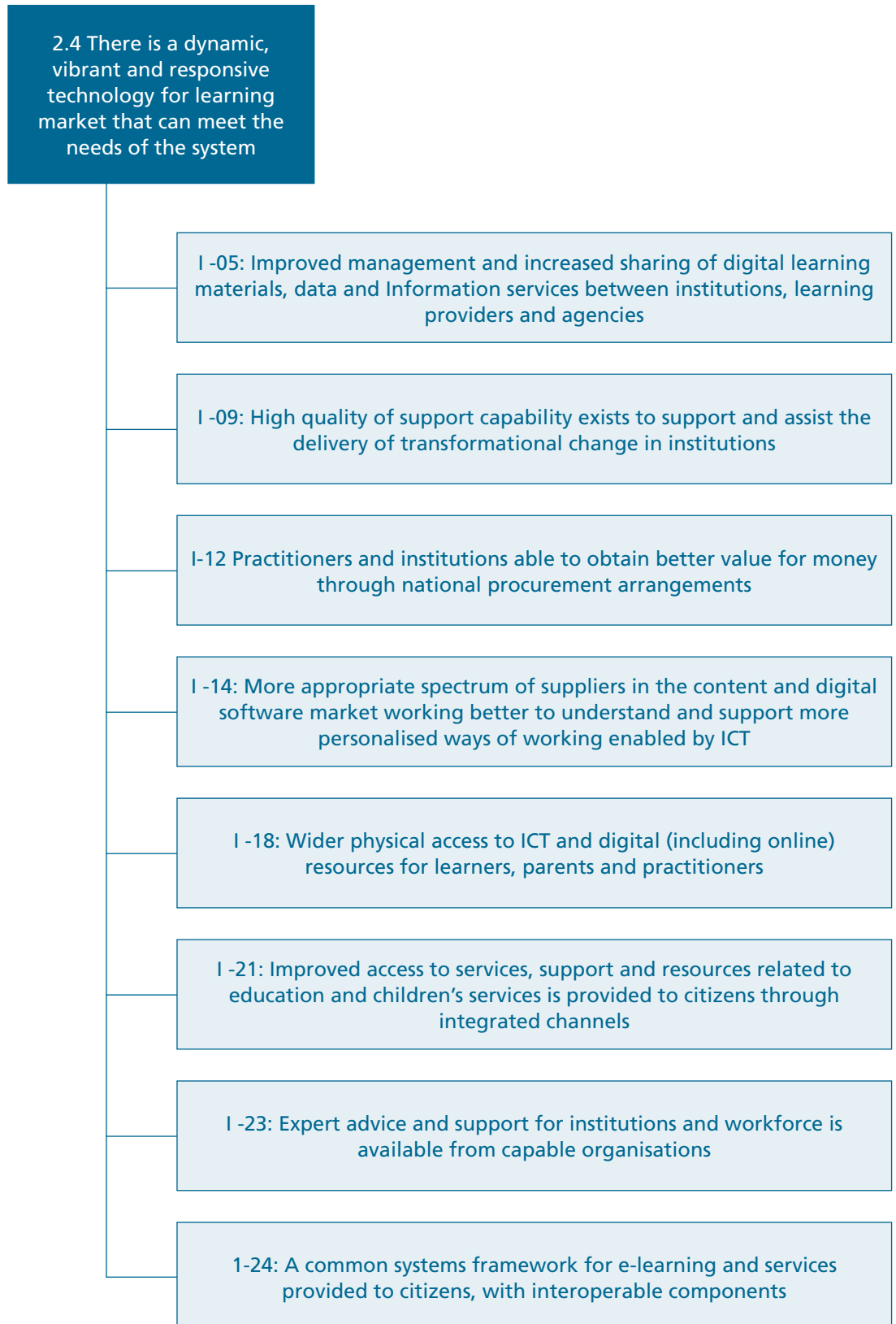
C.7 Every learner has a personalised learning space to enable them to learn when and where they choose



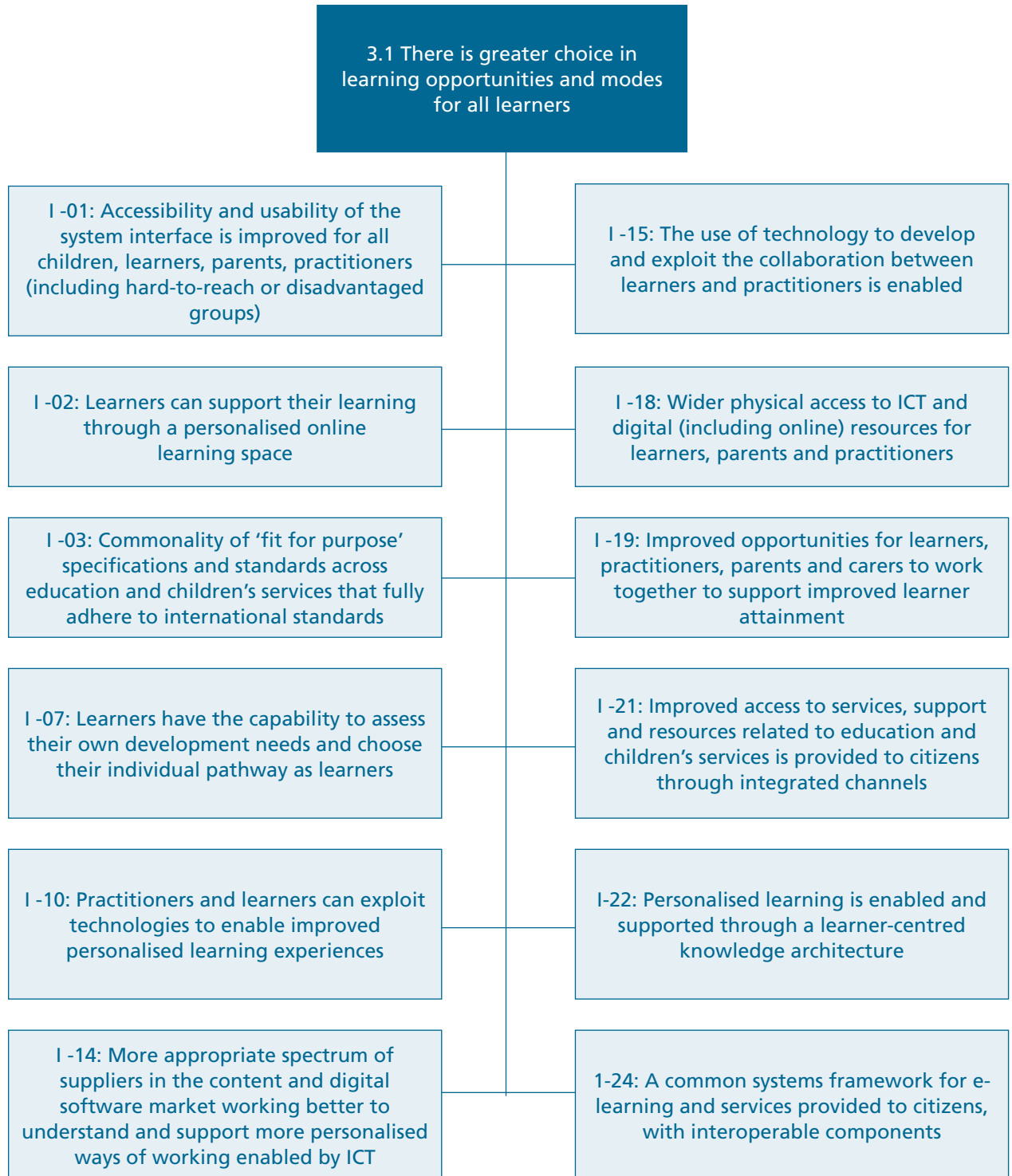
C.8 Technology-enabled learning environments are secure, supported and interoperable



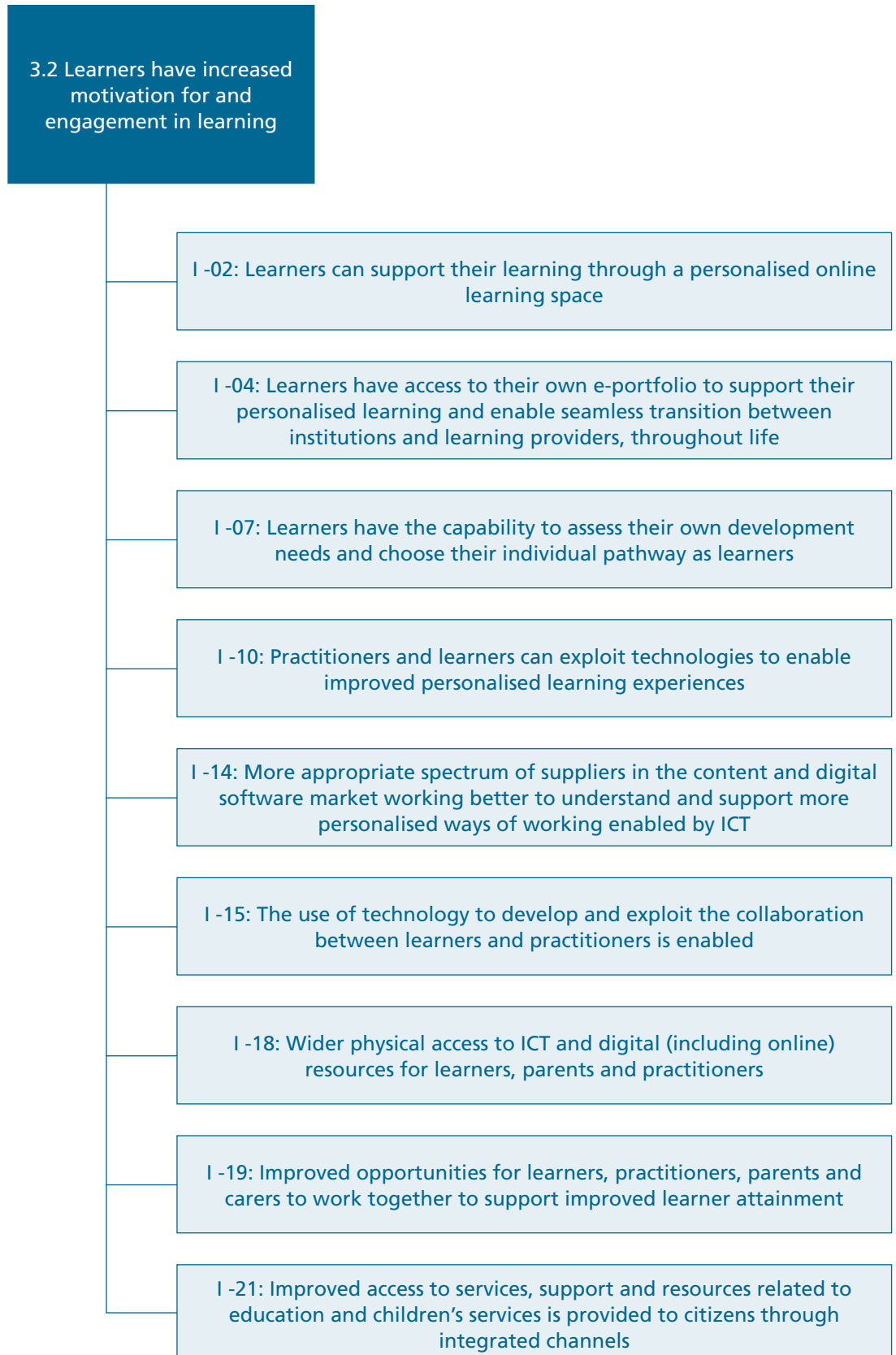
C.9 There is a dynamic, vibrant and responsive technology for learning market that can meet the needs of the system



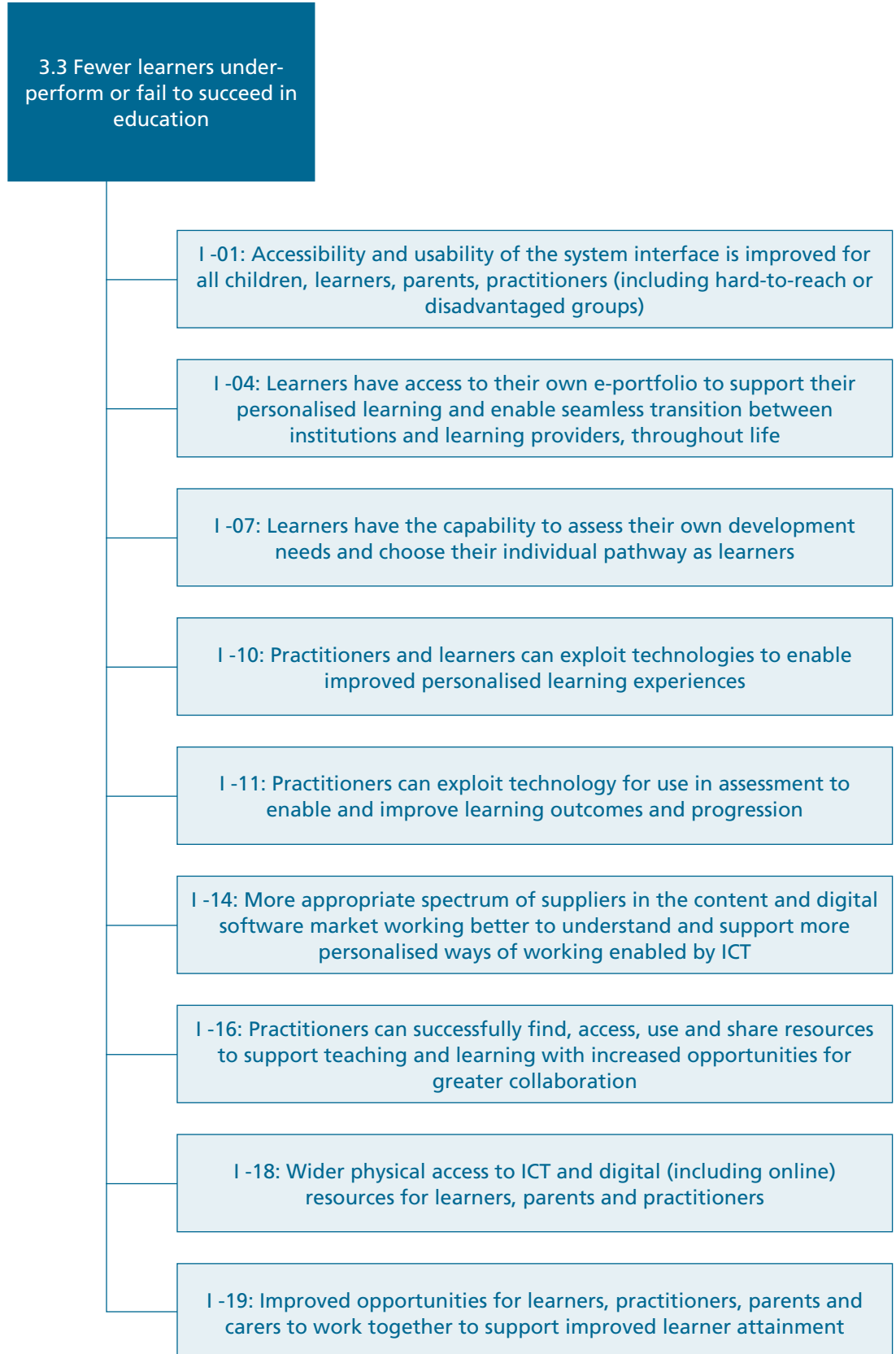
C.10 There is greater choice in learning opportunities and modes for all learners



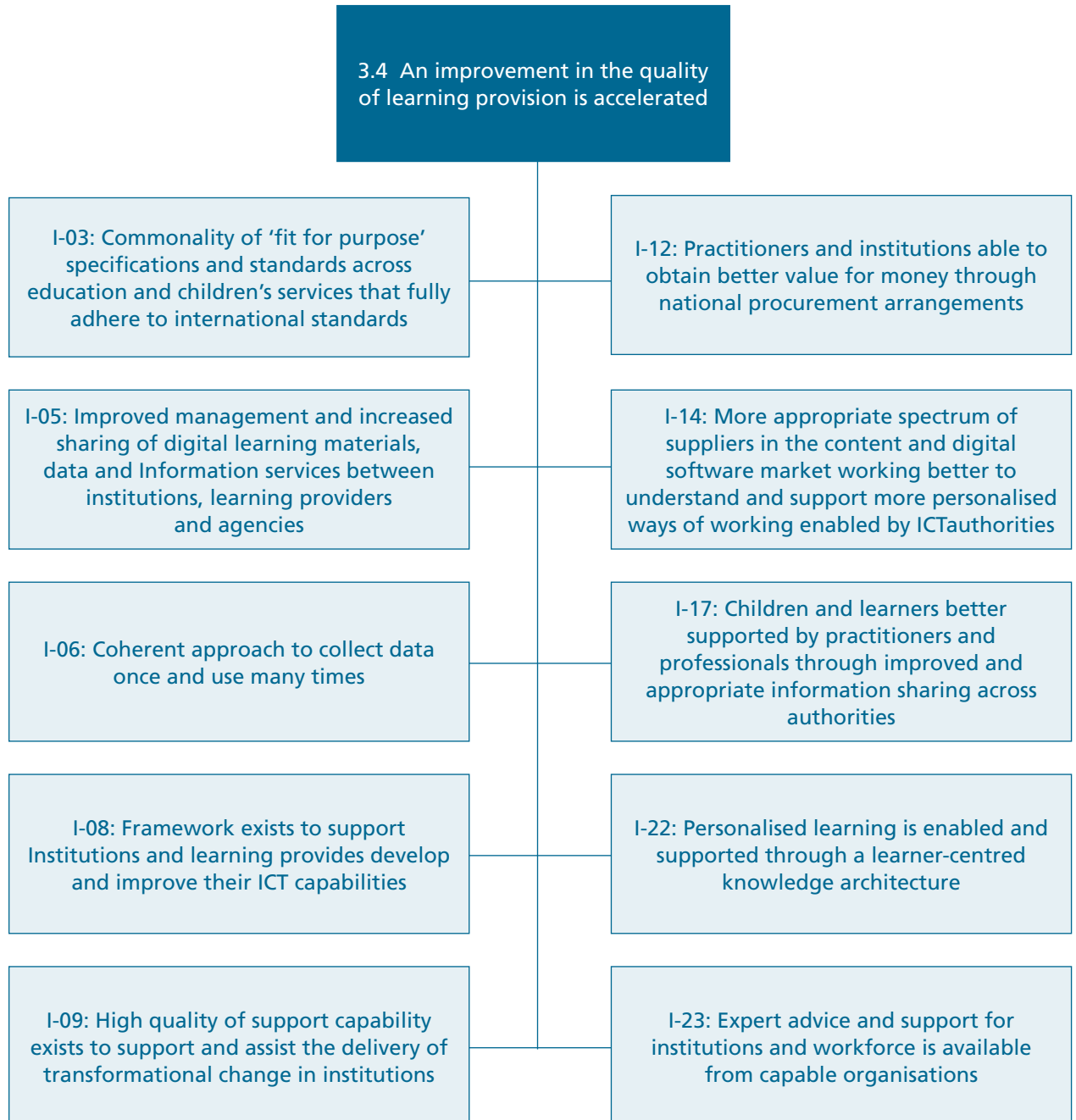
C.11 Learners have increased motivation for and engagement in learning



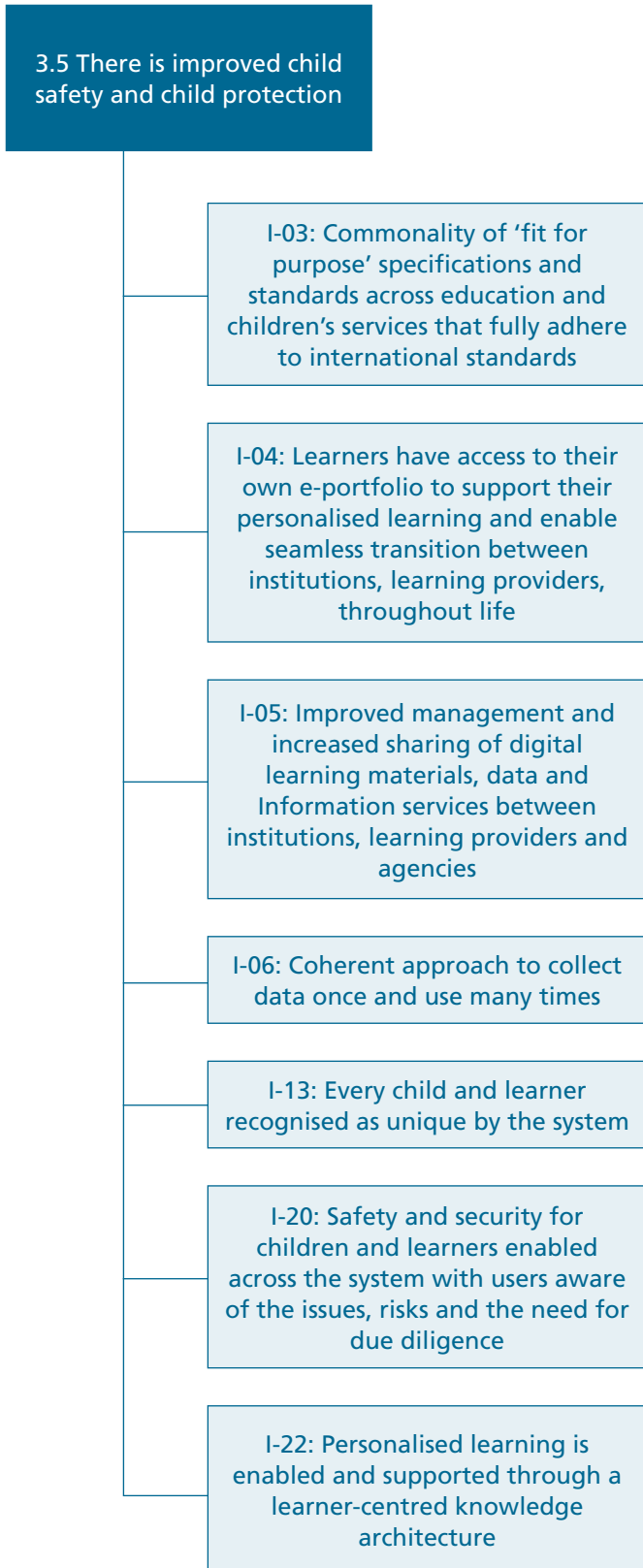
C.12 Fewer learners under-perform or fail to succeed in education



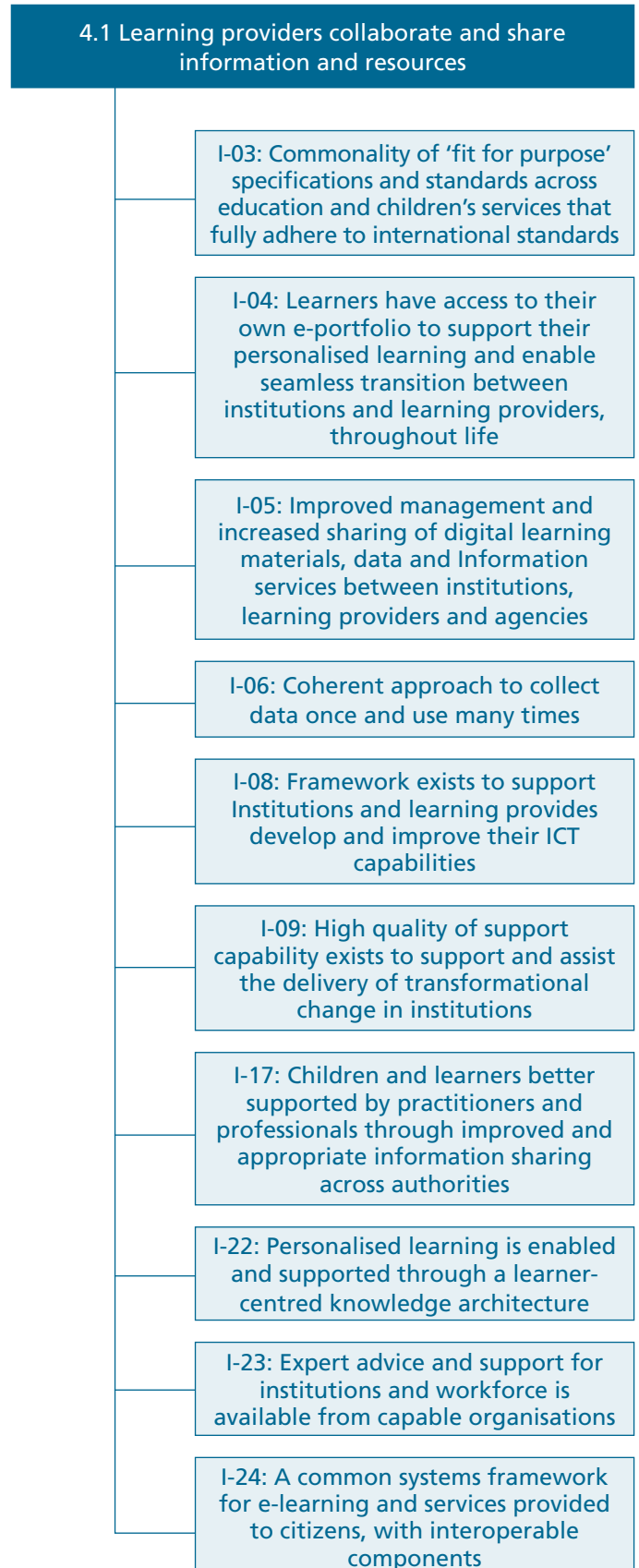
C.13 An improvement in the quality of learning provision is accelerated



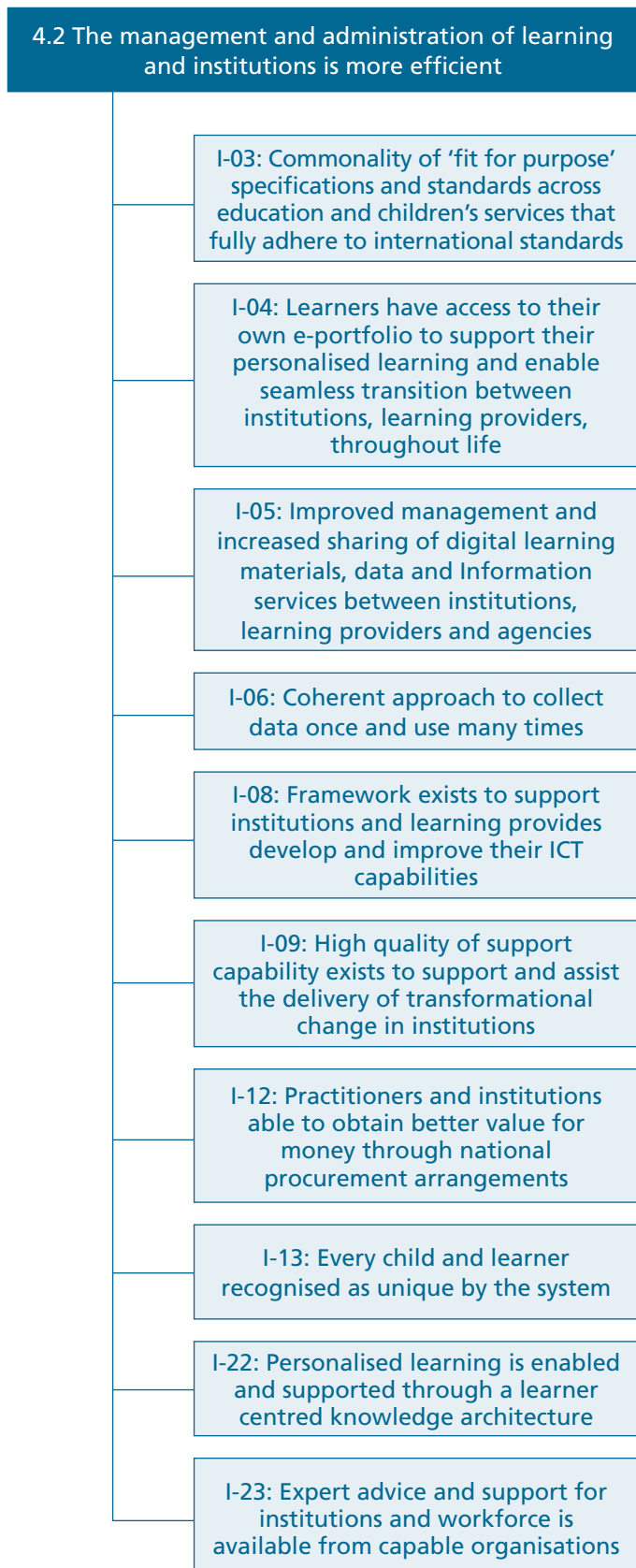
C.14 There is improved child safety and child protection



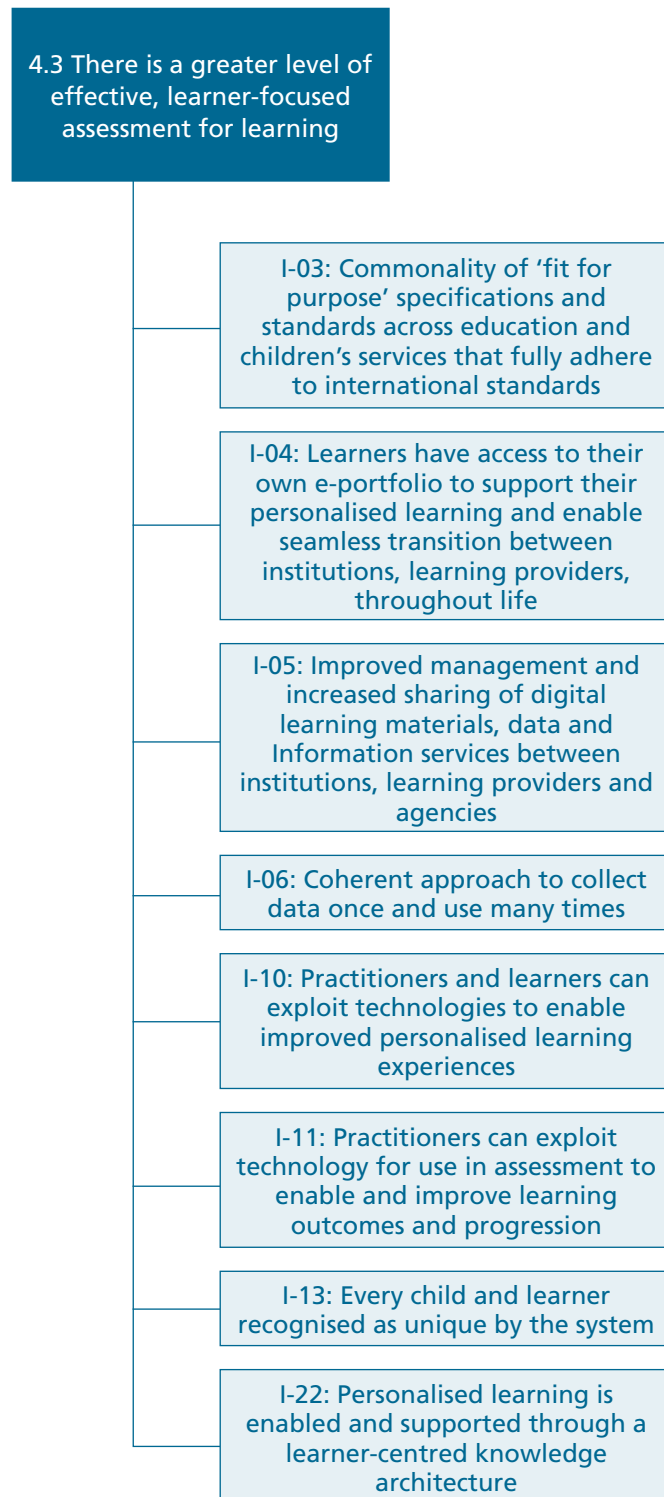
C.15 Learning providers collaborate and share information and resources



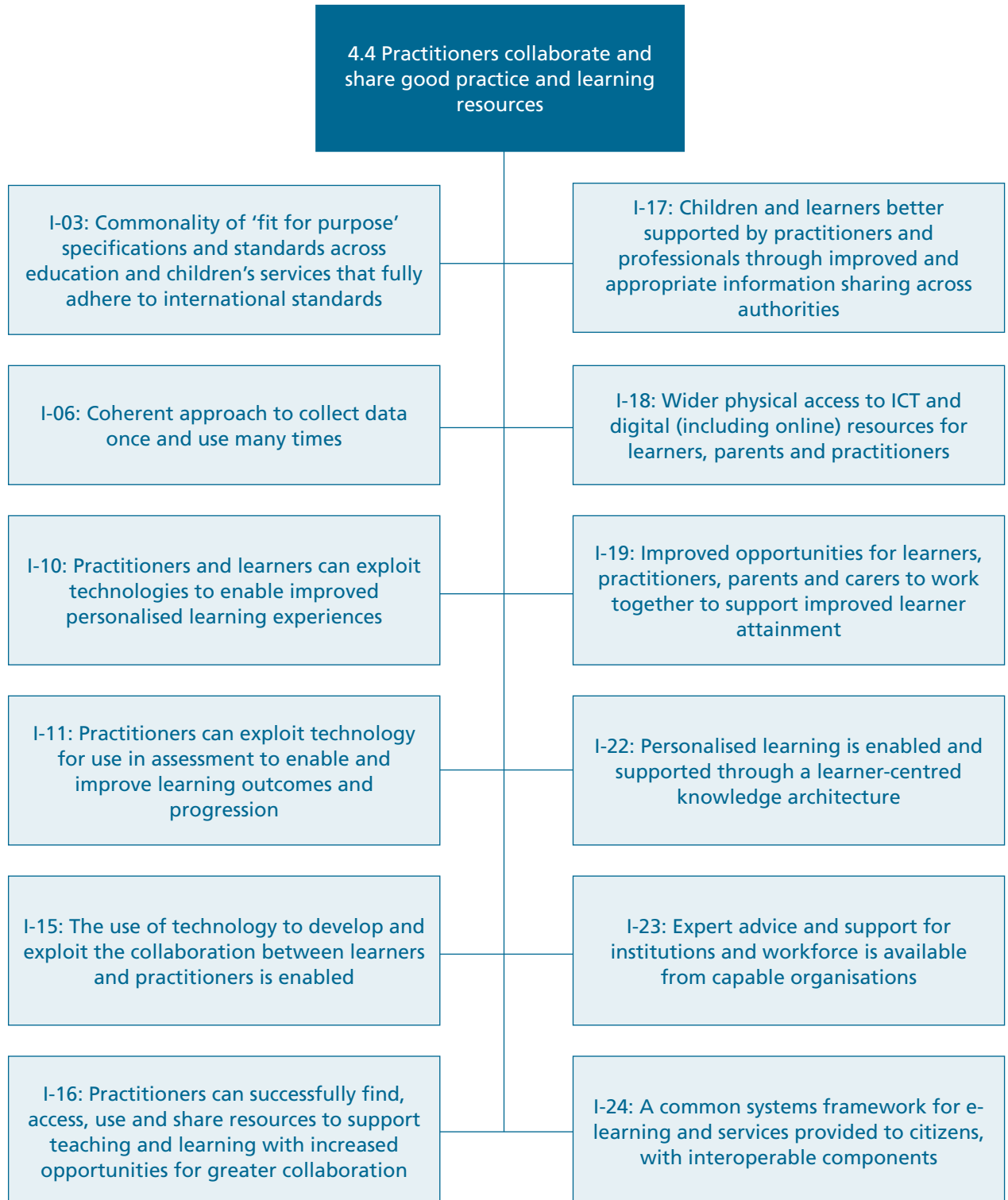
C.16 The management and administration of learning and institutions is more efficient



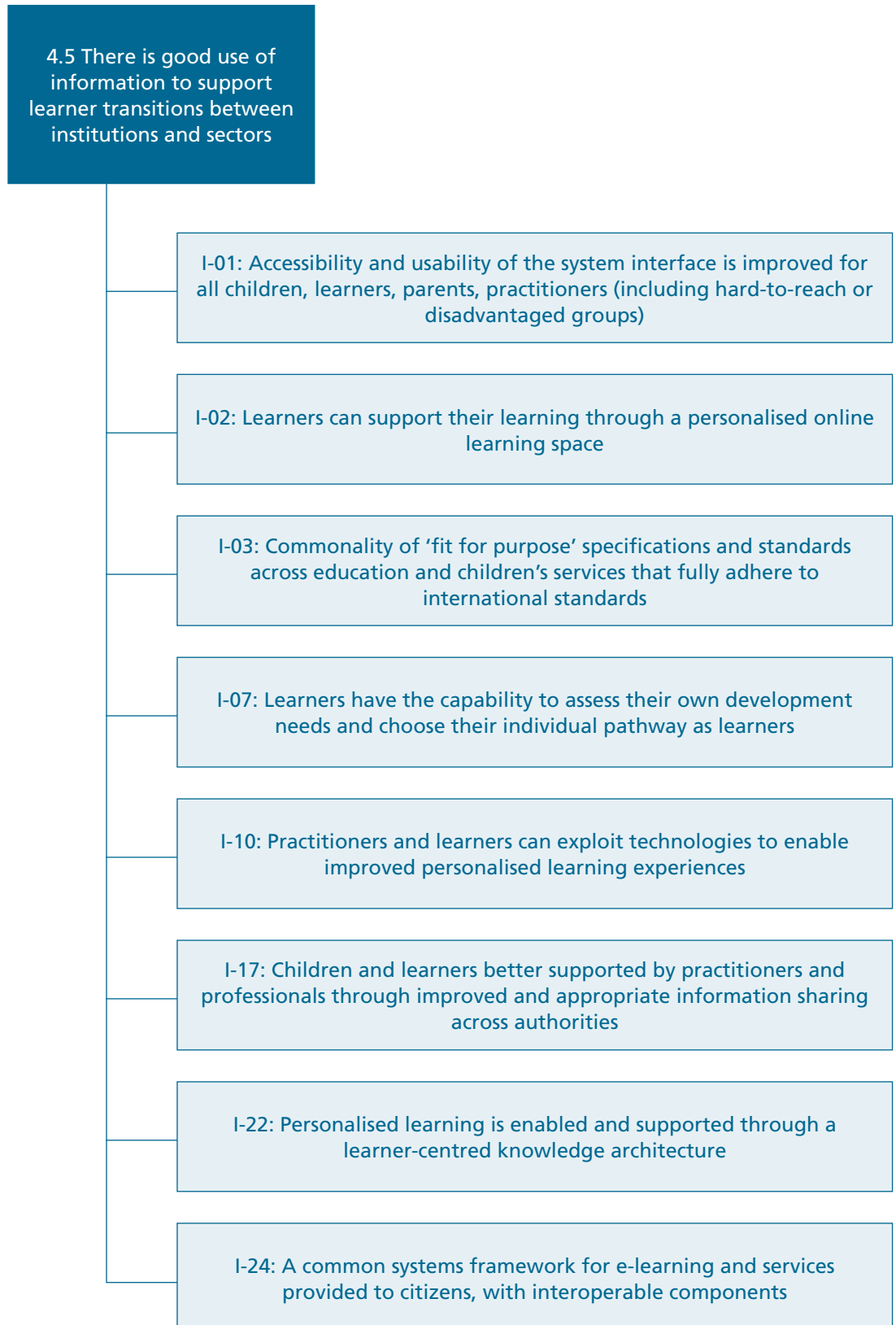
C.17 There is a greater level of effective, learner-focused, assessment for learning



C.18 Practitioners collaborate and share good practice and learning resources



C.19 There is good use of information to support learner transitions between institutions and sectors



Appendix D E-maturity theme summary

D.1 Theme objectives

167. The programme builds on the e-strategy priorities to ensure that all educational organisations, children's services and the system as a whole have the capability (including leadership and skills) to mature in their use of ICT to drive and support effective learning, teaching and organisational development, supporting the DfES's five-year strategy and the priorities set out in Every Child Matters. In essence, this theme is to enable all educational institutions to take maximum advantage of the potential offered by ICT to transform the experience and outcomes for the learner. All those involved in services for children and learners to understand the way in which ICT can contribute to the effective delivery of their business outcomes and that the majority of organisations are demonstrating the characteristics necessary to make the most effective use of ICT to support sustainable improvement by 2010. The core objective is to increase the number of educational organisations making strategic and effective use of ICT in order to improve educational outcomes by creating models of maturity in the use of ICT so that all those involved in services for children and learners understand the way in which ICT can contribute to the effective delivery of their business outcomes, promoting the use of these frameworks and associated tools to educational organisations.

D.2 Anticipated impact

168. **Learners at all levels and sectors** can identify what it means to be mature in their use of ICT to raise attainment, can assess their own development and access tools and support to help them progress.
169. **Each member of the workforce (at all levels and sectors)** can identify what it means to be mature in their use of ICT to drive improvements in teaching and learning, can assess their own development and access tools and support to help them progress
170. **Leaders at every level in organisations supporting learners** can identify how ICT can drive improvements and help achieve strategic objectives. They can assess the organisation's stage of development and access tools and support development towards high performance.
171. **Organisations providing advice and support for institutions, the workforce or learners** can identify how ICT has an impact on their role and the nature of their support in order to raise standards.

172. **The system** provides increasing numbers of organisations at the forefront of the innovative use of ICT to drive improvements in attainment and business outcomes across the system (thereby supporting the workforce and learners).

D.3 Key stakeholders and partners

The aim and objective for this area is cross-cutting and is a common agenda for partner organisations including:

- policy leads from the four UK countries
- national agencies and strategies
- representatives of the sectors within education
- suppliers of services to institutions
- the ICT industry.

D.4 Progress to date

Governance

173. Governance and programme management arrangements have been established and are in place. The programme is structured to manage four dimensions:
- Overall programme governance and system-wide connections
 - client groups (learner, workforce, institutions, intermediaries and the system),
 - sector (overall system, children's services, schools, post-16 and higher education)
 - The defined stages within each sector framework (definition or coping, developing standards, providing tools and guidance, support and adoption and accreditation and recognition)
174. Governance and system-wide programme board arrangements have been put in place with terms of reference agreed and governance arrangements approved. A high-level system-wide e-maturity report (PA Consultancy Group) Phase 2(c) report has been considered and presented to Becta's senior leadership team and board. The report affirms the approach Becta has taken to institutional self-review and adds to the model for e-maturity of the institution.
175. Note – the existing governance arrangements will be reviewed in the light of the changing remit for Becta and the Governance arrangements for the e-strategy as a whole.

Learner

- Definition stages – activity is underway with system- and sector-wide partners and stakeholders to identify the characteristics of the e-mature learner.

E-mature workforce

- Definition stages – activity is underway with system- and sector-wide partners and stakeholders to identify the characteristics of the e-mature workforce, linking directly to key partners, leading on professional development and reflecting sector-specific needs.
- Developing standards – working closely with key partners (eg TDA, LLUK and e-Skills UK) to contribute to and inform developing frameworks and position e-maturity appropriately.

Institutions

- Schools self-review framework launched and take-up accelerating by schools (approximately 3,000 at October 2006). Adoption programme in place with local authorities, other intermediaries and government agencies and partners. ICT Mark scheme launched with over 620 schools in receipt of the award and 200 assessors trained. Agreement reached to release a modified version for schools in Northern Ireland, and pilot commenced for the framework and ICT Mark for schools in Wales.
- Post-16 discussions with LSC and other key partners including QIA. Project specification for approach for the post-16 sector signed off and contracted by LSC.

Support providers

- Schools – clear support and adoption strategy in place with 22 key interventions identified. Programme of activity to support local authorities and commercial providers around the self-review framework in place. Meetings held with local authority representatives to review their state of e-maturity have established a demand for a modified version of the self-review tool and development of local authority and regional broadband consortium self-review frameworks – development of these is underway.

D.5 Strategy for delivery

176. Becta will improve institutions' use of ICT to further their educational priorities by:

- **developing a self-review framework** for the e-enabled organisation that sets out the stages of maturity in an organisation's uses of ICT for its educational priorities, encouraging continuous improvement towards an organisation's clearly defined aspirations, allowing it to chart outcomes, benchmark, and track impact over time.

- complementing the framework with a coherent and **complete set of self-assessment tools to aid action planning**, identifying next steps and sources of further support
- **developing the right partnerships** to ensure this work complements other national initiatives, achieves key stakeholder endorsement, and brings coherence to the support on offer
- **providing support for the framework** through a national programme of Continuing Professional Development and a focus on leading and managing ICT along with a network of leaders and intermediaries
- **developing an optional accreditation** based on rigorous external evaluation and verification together with an element of celebration and public recognition
- **communicating to organisations**, motivating and enthusing them to participate, without imposing unrealistic burdens.

D.6 Key milestones

- ✓ The first 200 schools achieve the ICT Mark. January 2006
- ✓ Launch the self-review framework for schools and the ICT Mark. March 2006
- ✓ 10,000 school leaders to be given leadership training. April 2006
- ✓ Develop tools and guidance for schools for self assessment. May 2006
- Develop definitions of maturity for all learners, practitioners, leaders, institutions, support services and the national system with measures for judging progress. April 2007
- Develop Frameworks and tools for improvement for learners, practitioners, leaders, institutions, support services and the national system. April 2008
- Models of support in place for individuals at all levels. April 2008
- Eighty per cent of schools using tools and progressing through maturity framework. April 2008
- Develop qualifications framework for all those working with children. December 2008

Appendix E Knowledge Architecture theme summary

E.1 Theme objectives

177. There is a need to develop a knowledge architecture which meets the needs of our customers (children, parents, learners and citizens) better. 'Knowledge architecture' refers to the overall design of the business processes, information flows and technical standards that is needed to support the services within the formal education system.
178. A key aim is to personalise learning for children and adults, and personalise their interaction with professionals. This means ensuring the support provided:
- as tailored as possible to individuals' needs
 - joined up across different services and providers
 - joined up over time so that it follows the child and learner seamlessly as they move through life and between different forms of learning
 - capable of giving practitioners, parents and employers an integrated view of an individual's development and achievement
 - meeting the system-wide knowledge needs of institutions and bodies that interact with children and learners.
179. Online support has an important role to play, whether that be for online learning, access to information or transactions such as course applications. But this need for personalisation applies to all our forms of support, and all require the right processes and information flows to deliver it.
180. There has been good progress towards integration and personalisation in some areas of the knowledge architecture, for example the IS Index (supporting child protection by better information sharing between practitioners) and Managing Information across Partners (MIAP) programme (joining up information held about post-16 learners). But processes and information flows in our sectors are still largely sector based and oriented around each sector's framework of public bodies and providers, rather than the individual child or learner. This programme builds on existing efforts by developing and agreeing an overall strategic direction for the knowledge architecture for the future. Four key ingredients are currently missing. It is necessary to:
- provide a truly learner-centred approach
 - address children and learning services as a whole, rather than sector-by-sector
 - take a strategic and longer-term view
 - drive transformational change as well as incremental change.

181. A learner-centred architecture ensures that online and other support:
- is joined up over time and follows the child/learner
 - is integrated across different services and providers
 - is tailored to individual needs
 - enables an integrated view of an individual's development (for teachers, parents, employers and, at maturity, the learners themselves).

E.2 Anticipated impact

Knowledge architecture model and roadmap

If Knowledge Architecture is to achieve these objectives, it will need to gather together and standardise data from across the system. Specific areas for this are:

- provides an overview of the current system and a future vision
- creates a blueprint for future development
- develops a roadmap of how to achieve the transformational change.

Identity management

- An agreed future system-wide approach to identity management of children, learners and the workforce (building on MIAP, IS Index, UPN, the Richard enquiry etc) and a plan for how to move towards it
- Revised benefits case for ID cards/National Identity Register (end April 2006 – up to date, strategic and consistent with vision: agreed and signed off with Home Office).

Information standards

- Announcement that setting up system-wide governance ("Information Standards Board (ISB)")
- Working group on standards launched
- Information Standards Board up and running, workplan and remit agreed – clarifying standards priorities ensuring they are being addressed.

E-portfolios

- Evaluation of existing e-portfolio products and services to establish benefits and issues
- Pilot projects in specific sectors to obtain system benefits
- Implement a technical framework in partnership with industry
- Impact study of e-portfolios on learning.

E-assessment

- Map of current initiatives and drivers and likely future developments
- Strategy setting out future direction and plan for building on current pilots.

E.3 Key stakeholders and partners

Becta, JISC, MIAP, QCA and the non-departmental public bodies in the children and learning sectors.

E.4 Progress to date

- Knowledge Architecture Programme Board in place and functioning
- Vision, model and roadmap – specification for work on vision and model of future architecture finalised, tender issued and consultants appointed
- Successful meetings with Home Office Criminal Justice Information Technology architecture team to explore commonalities and lessons learned
- Identity management – project initiation workshop held on 24 April 2006 with wide range of stakeholders from across the system. Presentation to cross-government Identity Strategy Board.
- Milestone alignment with other programmes and e-strategy themes
- Mapping of current information and data flows within schools sector complete
- ID cards – agreed high-level benefits map completed, and work on the profile and cost of each benefit advanced
- Information standards – Information Standards Board launched by letter to key partners and through DfES website at end of April 2006. Mapping of current standards completed. Report and draft standards definition framework and process presented to working group on 28 April 2006.
- E-portfolios – report completed on e-portfolio products/services to establish benefits and issues. National and international scan of e-portfolio products complete. Future direction and approach to market intervention identified.
- E-assessment – Becta-led working group meeting regularly. Initial draft paper on options for e-assessment in specialised diplomas drafted by Becta/DfES for QCA.

- Shared services – participation in Cabinet Office sponsored workshops to scope possible cross-sector shared services initiatives
- Agreed system-wide approach to identity management
- Evaluation of existing e-portfolio products and services
- Proposition of persistent learner ID developed.

E.5 Strategy for delivery

- Embed Knowledge Architecture as a programme – in place at a level of resolution sufficient to guide investment decisions in system ICT infrastructure, with suitable governance in place to steer direction of business-driven programmes
- Involve partners and stakeholders (DfES and outside), for example use existing MIAP stakeholder group (60 organisations – currently quarterly) and extend
- Access expertise (delivery partners, industry, front line). Set up informal knowledge architecture industry panel.

E.6 Key milestones

- Knowledge architecture in place at a level of resolution sufficient to guide investment decisions in system ICT infrastructure and to steer direction of business-driven programmes
- Information Standards Board with defined and agreed responsibilities and steering standards works across the system effectively
- E-portfolio programme scoped and planned, based on shared political vision of what we are trying to achieve
- ID management strategy being put into effect, ie via convergent action across business-led programmes, leading to seamless offer to learners, parents and others
- Vision for e-assessment is shared across the system and by ministers
- Data sharing is commonplace, based on government-wide and system wide understanding of the law and effective handling of communications.

Appendix F Personalised content theme summary

F.1 Theme objectives

182. This programme of work aims to help build a world where:
- learners can take control of their learning – selecting, accessing and using appropriate engaging and challenging digital media with tools which support the creative development and use of digital assets
 - parents can better support their children's learning by understanding how to do that in a digital environment
 - practitioners can tailor learning materials and experiences to better support the individual needs of each learner irrespective of age, stage and ability
 - providers design content, tools and services that better meet the individual needs of learners irrespective of age, stage and ability.

F.2 Ambition

183. The aim of the personalised content agenda is for the exploitation of digital content, tools and services to enable:
- learners to build their individual capacity and capability as effective learners as they move through the education system, into the workforce and beyond
 - practitioners to better design and support an increasingly tailored approach to education for the learner.
184. The successful achievement of such a vision depends, in part, on supporting and developing practitioners' and learners' understanding of how high-quality digital content, tools and services can have a positive impact on learning experiences, achievements and the facilitation of personalisation and learner autonomy. Key to this will be the priority and focus given by the supporting education agencies and intermediaries and the clarity of the messages they provide through their leadership and continuing professional development programmes. This, in turn, requires that content producers, in both public and private sectors, are helped and supported by Government and its agencies to understand the ambitions and requirements for learners, as they develop the widest range of fit for purpose products and services.

F.3 Anticipated impact

185. Digital content, tools and services have developed enormously during the last 10–15 years; however, the absence of a specific vision has resulted in uneven understanding and exploitation of the potential. Initial analysis has identified a range of high-level outcomes for the programme:
- A system which values, recognises and explicitly supports the vision for personalised learning supported by digital content, tools and services
 - Content producers who understand what constitute appropriate, flexible, high quality, innovative digital content, tools and services for personalisation
 - Systems, channels and networks that enable learners and practitioners to easily select and access appropriate contextualised content, tools and services
 - Leaders, practitioners and learners who value the vision for personalised education with ICT and have the capacity and capability to innovate and exploit ICT content, tools and services
 - Underpinning intellectual, technological, procurement and legal systems to facilitate the vision.

F.4 Key stakeholders and partners

Strategic stakeholders:

- DfES Technology Group and programme leads for strategic technologies, e-maturity and knowledge architecture themes
- Ofsted inspection, self-review and reflective practice agenda
- QCA e-Futures and e-Assessment agendas

Strategic delivery stakeholders and partners:

- Becta (Content Directorate, Evidence and Evaluation Directorate), TDA, JISC, LSC

Programme delivery stakeholders and partners:

- BESA, Wolverhampton Learning2Go project, National Strategies, e-skills, MLA, HEFCE, HEA

F.5 Strategy for delivery

186. Successful achievement of the vision and transformation in education requires the development of a robust strategic direction underpinned by evidence-based policy and decision-making.
187. The personalised content policy is seeking to achieve:
 - a system-wide policy articulating concepts and approaches required for personalising learning with content and tools
 - co-ordination of improved discovery and management of contextualised and personalised digital content, tools and services
 - strategic leadership to ensure content and tools can be made available sustainably for example through effective procurement and with suitable licensing and copyright to support fair use
 - the levers in place to ensure widespread availability of tools and support for practitioners and learners to create, adapt, re-use and share quality digital resources.
188. As a result of what we are seeking to achieve as laid out above, it is important to develop the strategy through a more detailed and evidence-based review of the arena while progressing established activity that can be leveraged for system-wide application or for demonstrating impact in a specific sector.
189. The strategy will be guided, informed and developed alongside the review of personalisation which will be led by Christine Gilbert.
192. The Personalised Content Group has been launched and five specialist sub-groups have been established covering the following areas: intellectual property rights, copyright and licensing; educational use of archives; flexible design tools; resource discovery and learner modelling and diagnostics. Each group has now met once; the next round of meetings started in September 2006.
193. A range of evidence-gathering activities has been commissioned, including a cross-sector evidence-mapping project, which has been tendered and initiated.
194. The Personalised Content Programme Board has met once.

F.6 Key milestones

- Initial scoping for strategy development – late September 2006
- Cross-sector evidence mapping project complete – November 2006
- Mapping strategic plan complete – December 2006
- Implementation plan – February 2007
- Further milestones to be agreed.

F.7 Progress to date

190. The strategy development process has been initiated.
191. Support has been provided for the Gilbert Review, which aims to set out a vision for how teaching and learning should develop between now and 2020.

Appendix G Strategic technologies theme summary

G.1 Theme objectives

195. The main objective of this theme is to design, develop and create the essential underpinning national digital infrastructure for the children's and learners' system, supporting the objectives of Every Child Matters and *Connecting the UK – the Digital Strategy*. The theme will also help the DfES to reach the objectives set out in its five-year strategy for children and learners, namely personalisation, opening up services, providing freedom for headteachers, staff development, partnerships and secondary reforms.

G.2 Anticipated impact

196. Strategic technologies will change fundamentally the way in which technology services are specified, procured and delivered. Every institution will ultimately have easy access to an appropriate range of reliable, coherent, affordable and sustainable technology services. These will be compliant with a national digital infrastructure underpinned by national standards and specifications. Local administrative procurement burdens will be minimised and value for money optimised through national framework agreements and collaborative purchasing arrangements. Creating and embedding a national digital infrastructure encompassing integrated and complementary services is central to this theme.

G.3 Key stakeholders and partners

197. A number of stakeholders will be involved in the development, delivery and implementation of the theme:
- Schools sector: all those working in or with schools who interact with ICT directly within a classroom situation, those responsible for the decision-making in schools, and those who directly support and influence the use of ICT in schools

- Learning and skills sector: colleges, specialist colleges, school sixth forms and sixth-form colleges, adult and community education centres and places of work-based learning
- Industry and developers: national and international ICT providers of infrastructure, services and content
- Government and strategic partners: all those who make policy decisions and form strategy surrounding the use of ICT in the education sector.

G.4 Progress to date

198. Put simply, progress through this theme is based on a three-stage process. Standards and specifications are developed and agreed, procurement frameworks are set up and a process of stakeholder engagement and implementation follows. This process is followed for each element of the national digital infrastructure. Specifications are now agreed for connectivity, institutional infrastructure and learning services, with data services under development. A framework agreement for institutional infrastructure was made available from August 2006, and for learning services from January 2007. Stakeholder engagement and implementation projects continue across the country, with a particular focus in the London area.

G.5 Strategy for delivery

199. The delivery strategy is now being led by Becta. Governance processes are being developed which ensure that stakeholders are represented as the theme is taken forward.

G.6 Key milestones

Issue invitation to tender for infrastructure managed services

February 2006

Learning services Official Journal of the European Union (OJEU) contract notice published

All 2,584 London schools connected with high-speed broadband and other regions

March 2006

Agree with suppliers implementation management information system interoperability

April 2006

Commercial framework for school management information systems and invitations to tender issued

Learning services OJEU tender

Recommendations on strands to spread the lessons learned in schools to other sectors, exploit opportunities for system-wide quick wins and develop a system-wide model for the future

Recommendations on widening universal access

June 2006

National framework agreement for infrastructure managed services for schools and other institutions (compatible with building schools for the future requirements)

London Grid for Learning runs mini-competitions using national framework agreement to provide infrastructure managed services for London schools (scope of coverage to be agreed)

July 2006

London-wide managed learning environment (learning platform) supplier contract awarded

All 23,000+ schools connected with high-speed broadband (85% January 2006) – Prime Minister's target met

All schools connected to the national education network through SuperJANET 5

National Shibboleth (single sign-on protocol) federation goes live and regularises pilot covering 1 million London pupils

December 2006

Every school learner provided with a personalised online learning space that can encompass a personal portfolio

December 2008

Appendix H Roles and responsibilities

H.1 E-strategy roles

E-strategy Senior Responsible Officer

200. Becta's Chief Executive will be the Senior Responsible Officer (SRO) for this programme and will hold overall accountability for the e-strategy, as a change programme, and will take personal responsibility for ensuring that it meets its objectives and realises the expected benefits.
201. The SRO will promote and support the changes introduced by the programme and champion the implementation of the new capabilities delivered to ensure that the expected benefits are realised and the desired strategic outcomes achieved. The SRO will promote the programme internally, across sectors and to external audiences.
202. As owner of the business change, the SRO also chairs the E-strategy Board.
203. Specifically, the E-strategy SRO will be accountable for:
 - the strategic outcomes of the programme, shown in the balanced scorecard
 - the governance arrangements, by ensuring that the programme (including its investment) is established and managed according to appropriate requirements and quality
 - the programme having the necessary resource, capacity and capability to fulfil its agreed remit.
204. And the E-strategy SRO will be responsible for:
 - owning the vision for the programme and providing clear direction and leadership for its delivery and implementation
 - securing the resource required to support the running of the programme such that the benefits can be realised
 - maintaining the strategic relationships with the DfES and key partners
 - ensuring that technology-based policy is agreed with DfES directorates
 - commissioning and chairing reviews.

e-Strategy Programme Director

205. The E-strategy Programme Director will provide real-time support to the E-strategy SRO and will promote and support the changes introduced by the e-strategy, as a change programme, and champion the implementation of the new capabilities delivered by it to ensure that the expected benefits are realised and

the desired outcomes achieved. The Programme Director will promote the programme internally, across sectors and to external audiences.

206. The role also provides the bridge between the e-strategy and the wider educational environment. The Programme Director represents the SRO's interests in the final outcome of the programme, in terms of measurable improvements in business performance.
207. Specific responsibilities include:
 - high-level planning and overall management of the programme
 - high-level management of the programme resource and assets
 - defining the programme's governance framework
 - high-level management of programme communications, risks and issues
 - assurance of the programme's alignment to policy and its overall integrity and coherence in the wider DfES and government policy context.
208. The E-Strategy Programme Director will chair the National Strategic Group and the National Delivery Group and is a member of the E-strategy Board.

E-strategy Programme Manager

209. The E-strategy Programme Manager is responsible for the overall planning, co-ordination and monitoring of the portfolio of programmes and projects for successful delivery of the e-strategy within the timeframes required to achieve the expected benefits. The Programme Manager will proactively manage interdependencies between the programmes and regularly affirm that they continue to meet the strategic outcomes in an effective, efficient and value-for-money way. The Programme Manager will promote the programme internally, across sectors and to external audiences.
210. Specific responsibilities include:
 - planning and designing the programmes of work and proactively monitoring overall progress, resolving issues and initiating corrective action as appropriate
 - ensuring the integrity of the programme, focusing inwardly on the internal consistency of the programme's outcomes
 - ensuring that programmes of work meet requirements and are to the appropriate quality, on time and to budget
 - ensuring alignment of individual programmes to the strategic outcomes
 - monitoring programme interdependencies

- managing programme communications with appropriate stakeholders and stakeholder groups
- overseeing the E-strategy Programme Support Office
- creating and maintaining key programme information, including the delivery plan
- managing the interface with key senior stakeholders
- managing key strategic risks faced by the programme.

211. The Programme Manager reports to the E-strategy Programme Director and supports the E-strategy Board. Additionally, the Programme Manager chairs the Quality and Management Board.

E-strategy Programme Support Office

212. The E-strategy Programme Support Office will act as the information hub for the programme and co-ordinate all information, communication, monitoring and control activities. It will also provide support to the Programme Manager for day-to-day programme governance activities. It will manage programme information on behalf of the SRO, E-strategy Board, Programme Director and Programme Manager.

213. Specific responsibilities include the creation and ongoing running of processes for:

- overall status tracking and reporting
- information management
- financial accounting
- overall risk, issue and change management.

H.2 Programme roles

Programme Senior Responsible Officer

214. Appointed by the E-strategy SRO, the Programme SRO holds overall accountability for the programme and will take personal responsibility for ensuring that the programme meets its objectives and realises the expected benefits.

215. The Programme SRO will promote and support the changes introduced by the programme and champion the implementation of the new capabilities delivered by the programme to ensure that the expected benefits are realised and the desired outcomes achieved. The Programme SRO will promote the programme internally, across sectors and to external audiences.

216. As owner of the business change, the Programme SRO also chairs the Programme Board and is a member of the E-strategy Board.

217. Specifically, the Programme SRO will be accountable for:

- the outcomes of the programme

- the programme's governance arrangements, by ensuring that the programme (including its investment) is established and managed according to appropriate requirements and quality standards
- the programme having the necessary resource, capacity and capability to fulfil its agreed remit.

218. And the Programme SRO will be responsible for:

- owning the vision for the programme and providing clear direction and leadership for its delivery and implementation
- securing the resource required to support the running of the programme such that the benefits can be realised
- creating and maintaining key programme information, including the programme brief and the business case
- managing the interface with key senior stakeholders
- managing key strategic risks faced by the programme
- maintaining alignment of the programme to the strategic outcomes of the balanced scorecard
- commissioning and chairing reviews.

Programme Manager

219. This role will provide real-time support to the SRO at the programme level and will promote and support the changes introduced by the programme and champion the implementation of the new capabilities delivered by the programme, to ensure that the expected benefits are realised and the desired outcomes achieved. The Programme Manager will promote the programme internally, across sectors and to external audiences.

220. Additionally, the Programme Manager is responsible for the detailed planning, co-ordination and monitoring of the portfolio of projects for the successful delivery of the programme of work, required to achieve the expected benefits. The Programme Manager will proactively manage interdependencies between the projects and regularly affirm that projects continue to meet the programme's objectives in an effective, efficient and value-for-money way.

221. Specific responsibilities include:

- planning and designing the programme's projects in conjunction with the Change Manager and proactively monitoring overall progress, resolving issues and initiating corrective action, as appropriate
- designing the programme's governance framework, within the overall e-strategy governance framework, for approval by the Programme Board
- ensuring the integrity of the programme, focusing inwardly on the internal consistency of the programme's deliverables
- ensuring that project deliverables meet requirements

and are to the appropriate quality, on time and to budget

- ensuring alignment of individual project deliverables to the overall programme objectives
- monitoring project interdependencies
- overseeing the work of the Programme Support Office
- managing programme communications with appropriate stakeholders and stakeholder groups
- managing risks to the programme's successful outcome
- reporting the progress of the programme to the Programme SRO.

Change Manager

222. The Change Manager is responsible for benefits definition, realisation and achieving measured improvements. The role is key to providing the bridge between the programme and business operations – that is the educational environment that exists today. The Change Manager represents the programme SRO's interests in the final outcome of the programme, in terms of measurable improvements in business performance.
223. Specific responsibilities include:
- ensuring that delivery of new capability is compatible with realisation of the benefits
 - planning and designing any business change activities in conjunction with the Programme Manager, and proactively monitoring overall progress, resolving issues and initiating corrective action as appropriate
 - identifying and implementing improvements to business support and operations as projects deliver their products and services into operational use
 - establishing and implementing the mechanisms by which benefits can be realised and measured, and comparing them with those detailed in the programme's business case
 - working with the relevant DfES directorate to optimise the timing of the release of project deliverables into the existing educational environment
 - managing communications with appropriate stakeholders and stakeholder groups
 - reporting business change progress to the Programme SRO.

Programme Support Office

224. The Programme Support Office will act as the information hub for the programme and co-ordinate all information, communication, monitoring and control activities for the programme. It will also provide support (possibly via a pool of resource) for the Programme Board and any related project boards, and for the Programme Manager and Change Manager for day-to-day programme governance activities. It will manage programme information on behalf of the Programme SRO, Programme Board, Programme Manager and Change Manager.
225. Specific responsibilities include the creation and ongoing running of processes for:
- programme status tracking and reporting
 - programme information management
 - programme financial accounting
 - programme risk, issue and change management
 - programme quality control
 - arranging and supporting gateway reviews.

H.3 Project roles

Project SRO

226. The Project SRO has overall responsibility for ensuring alignment of the project to the overall programme objectives and direction. This role is appointed by the Programme SRO and reports to that role via the Programme Board.
227. Specifically, the Project SRO will be accountable for:
- the overall quality of the project deliverables
 - the project's governance arrangements, within the programme's overall governance arrangements
 - the project having the necessary resource, capacity and capability to fulfil its agreed mandate.
228. And the Project SRO will be responsible for:
- owning the vision for the project and providing clear direction and leadership for its delivery and implementation
 - securing the resource required to support the running of the project such that the targets can be met
 - creating and maintaining key project information, including the project brief and the business case
 - managing the interface with key senior stakeholders
 - managing key strategic risks faced by the project
 - maintaining alignment of the deliverables to the agreed programme outcomes
 - commissioning and chairing reviews.

229. Decisions relating to programme direction will be referred to the Programme Manager and Programme Change Manager, with ultimate decisions being made by the Programme SRO.

Project Manager

230. The Project Manager will be accountable to the Project SRO for the creation of the deliverables that will achieve the objectives defined and agreed for that project to quality, timeframe and budget.

231. Specific responsibilities include:

- ensuring alignment of the project and its deliverables to the programme timeframes and objectives
- ensuring that the project completes on time and within the agreed budget
- reporting progress to the programme, via the Programme Manager, in a timely manner
- managing project-level risks, issues or changes assigned, within the timeframes agreed
- liaising with the Change Manager to ensure a consistent approach to delivery and transition is achieved
- to convene periodic team meetings (at least monthly) to discuss progress, review project risks and issues, and review plans.

Appendix I Board and meeting outline remits

I.1 E-strategy Board

232. The e-Strategy Board acts as the executive body for the delivery of the strategic outcomes and for co-ordinating the ongoing development of policy advice. The board will provide active strategic management commitment to promoting and supporting the e-strategy and ensure that the outcomes are realised.
233. Specifically the board will:
- support and advise the SRO for the e-strategy
 - approve the progress of the change programme against strategic outcomes
 - approve all changes to the strategic outcomes
 - provide visible leadership and commitment to the e-strategy at communication events
 - provide management and decision-making on strategic risks and issues
 - agree the future direction of policy advice
 - approve the appointment of all SROs.
234. The board will act as the executive body for all activity carried out as a part of the delivery of the strategy and, therefore, will have representation from all bodies that support it, that is:
- Programme Board SROs
 - Delivery Director.
235. The e-Strategy Board will be chaired by the E-strategy SRO. The frequency of the board meetings should be agreed when the terms of reference are established. The E-strategy Programme Manager and representation with responsibility for innovation, evaluation and communications will attend the board, but will not be full members.

I.2 Quality and Management Group

236. The Quality and Management Group acts as the co-ordinating body for the standards and quality processes adopted for the delivery of the strategic outcomes. The board will provide support to the E-strategy Board and ensure that there is a common approach to the management of e-strategy delivery.
237. Programme managers of each of the programmes of work are expected to be represented on the group.
238. Partner organisations that have significant areas of e-strategy work but are not a formal part of the governance structure may, if they wish, attend meetings of the Quality and Management Group, but will need to agree to support the group's decisions if they are to be full members.

239. The Quality and Management Board will be chaired by the E-strategy Programme Manager. The frequency of the group meetings should be agreed when the terms of reference are established.

I.3 Programme Board

240. Each Programme Board acts as the executive body for its programme of work. The Programme Board will provide active continuing senior management commitment to promoting and supporting the changes introduced by the programme, and will champion the implementation of the new capabilities delivered by the programme to ensure that the expected benefits are realised and the desired outcomes achieved.
241. Specific responsibilities for the Programme Board are to:
- support the investment decision
 - support and advise the Programme SRO
 - approve the progress of the programme against e-strategy outcomes and wider government targets
 - approve the inclusion into the programme of projects recommended by the Programme Manager
 - provide visible leadership and commitment to the programme at communication events
 - provide management and decision-making on key risks and issues
 - confirm successful delivery and sign-off at programme closure
 - find solutions to programme-level challenges and problems
 - review project effectiveness and recommend corrective action, where appropriate.
242. Expected functions to be represented on the Programme Board are:
- project SROs
 - chairs of programme advisory boards
 - a representative from programme assurance.

243. The Programme Board will be chaired by the Programme SRO. The Programme Manager and Change Manager will also form part of the board. The frequency of the board meetings should be agreed when the terms of reference are established.

I.4 Programme stakeholder and user advisory groups

244. The set-up and co-ordination of these groups will be the responsibility of the Programme Manager, on behalf of the Programme SRO, and in consultation with the Change Manager. The Programme SRO will appoint a chair for each group, who will act as a member of the Programme Board.

245. There will be a number of different groups to act as advisers to the programme, both in the design and delivery stages. They will be consulted on a regular basis by members of the programme to seek advice or input or validation of the proposed approach. Their role is not to determine the course and function of the programme.

I.5 Project Board

246. The Project Board acts as the executive body for the project. The Project Board will provide active continuing senior management commitment to delivering and supporting the project's mandate and to monitoring and challenging progress.

247. Specific responsibilities for the Programme Board are to:

- support and advise the SRO
- approve the progress of the project against the targets agreed in the project mandate
- provide visible leadership and commitment to the project at communication events
- provide management and decision-making on key risks and issues
- confirm successful delivery and sign-off at project closure
- find solutions to project-level challenges and problems
- review project effectiveness and recommend corrective action, where appropriate.

248. Expected functions to be represented on the Project Board are:

- key stakeholders
- chairs of project advisory boards
- Programme Manager and Change Manager (as project assurance).

249. The Project Board will be chaired by the Project SRO. The Project Manager will also form part of the board.

I.6 Project stakeholder and user advisory groups

250. The set-up and co-ordination of these groups will be the responsibility of the Project Manager, on behalf of the Project SRO, and in consultation with the Programme Manager and Change Manager. The Project SRO will appoint a chair for each group, who will act as a member of the Project Board.

251. There may be a number of different groups to act as advisers to the project, both in the design and delivery stages. They will be consulted on a regular basis by members of the project to seek advice or input or validation of the proposed approach. Their role is not to determine the course and function of the project.

Appendix J Post-16 intermediate outcomes

252. The vision for post-16 is to establish a higher common denominator for the effective use of technology, setting challenging targets to accelerate progress across the sector. In order to achieve this, new post-16 outcomes have been developed to support the delivery of the further education white paper and Agenda for Change.

253. Outcomes have been developed for learners, practitioners, senior managers, providers and employers. These elements can be defined as follows:

- Learners include all those engaged in formal or informal learning to develop skills, expertise or knowledge, including any who may have to overcome barriers resulting from disabilities, learning difficulties, social, economic or other factors.

- Practitioners include all teachers, lecturers and trainers who deliver learning and teaching to learners.
- Senior managers include all managers in the senior management team of an organisation that provides learning and teaching, who can influence the adoption and implementation of ICT and e-learning.
- Providers include all organisations that deliver teaching and learning to post-16 learners, including school sixth forms, further education colleges, adult and community training providers, work-based learning providers and private training providers.
- Employers include all public and private sector organisations that are in receipt of, or are planning to receive, learning and teaching for their employees.

No	Learners' outcomes	Mapping to old outcomes	Mapping to balanced scorecard
L1	% of learners have a personalised learning experience that makes use of ICT and e-learning by 2010.		1.2 2.2 2.4
L2	% of learners have access to the technology and digital resources they need for their learning experience by 2010.	2.3.1 3.3.1	1.2 2.2
L3	% of learners have access to a safe and secure personal learning space to support their learning needs, where they can also maintain a personal e-portfolio by 2010.	2.3.3	3.1
L4	% of learners have the skills to benefit from personalised learning approaches that make use of ICT and e-learning and to be able to work and learn safely online by 2010.	7.3.1	3.1 3.3
No	Practitioners' outcomes		
P1	% of practitioners have access to the technology and digital resources they need for teaching and assessment by 2010.	1.3.1 3.3.1 4.3.2	1.1 1.2 2.1 2.2 2.3
P2	% of practitioners collaborate effectively with other practitioners and employers, both in the building of e-learning resources as well as in the sharing of resources and best practice and experiences with new technologies by 2010.	1.3.2 4.3.2	1.3 2.2 4.1 4.4
P3	% of practitioners have the technical and pedagogical skills to be able to exploit the technology to offer engaging, effective, creative, innovative, personalised and high-quality learning experiences by 2010.	4.3.1	1.1 1.2 3.2 3.3
P4	% of practitioners have access to a personal learning space to maintain an e-portfolio of continuing professional development that provides evidence of the effective application of e-learning technologies by 2010.	2.3.3	2.2 2.3 2.4

No	Managers' outcomes		
M1	% of senior managers make effective use of data and information to set and measure strategic targets by 2010.	5.3.1 5.3.2	4.2
M2	% of senior managers are confident and competent e-leaders and are able to monitor and measure their own levels of professional progress, quality and improvement, based on self-assessment and benchmarking tools, by 2010.	5.3.1 5.3.2	1.1
No	Providers' outcomes		
C1	% of providers collaborate with employers and other agencies to design and deliver training for all learners in flexible ways using ICT and e-learning to overcome learning barriers by 2010.	5.3.3	1.2 2.1 3.2 3.3 3.4
C2	% of providers have an efficient and learner-focused technology-based delivery system that includes portability of assessment for learners by 2010.	2.3.2	1.3 2.3 3.1
C3	% of providers have a robust, secure, interoperable system that integrates business, student tracking, e-assessment and pastoral data, as well as individuals' learning records, and which is able to share data seamlessly with other providers and the LSC by 2010.	6.3.1 6.3.2	2.3 3.1 4.1 4.2 4.3
C4	% of providers establish effective collaborations and partnerships with other providers for developing and sharing practitioner and manager skills, resources and delivery by 2010.	6.3.1	4.1 4.4
C5	% of providers take advantage of national, regional and local ICT procurement frameworks by 2010.	6.3.1	4.1
No	Employers' outcomes		
E1	% of employers collaborate with providers and other agencies to design and deliver training for all learners in flexible ways, using ICT and e-learning to overcome learning barriers, by 2010.	3.3.2 4.3.3	2.1 3.2 3.4 4.1 4.3 4.4
E2	% of employers collaborate with practitioners to explore, build and share quality and appropriate e-learning resources and provide opportunities for exchange of experiences and expertise by 2010.	3.3.1 3.3.2 4.3.3	2.1 3.4 4.1 4.4
	Old outcome with no direct mapping to new outcomes		
	Ensure that the whole post-16 sector has access to effective and coherent local, regional and national support. By December 2007, 85% of the post-16 community are satisfied with their access to regional and local support.	6.3.3	2.1 2.2 2.3

Appendix K

HEFCE e-learning strategy

K.1 Introduction

We are committed to working with partners on plans to embed e-learning in higher education in a full and sustainable way within the next 10 years, as announced in the Government's white paper 'The future of higher education'.

We consulted on our draft strategy for e-learning in August 2003 (Circular Letter 21/2003), in parallel with the consultation on the Government's e-learning strategy for all levels of education (www.dfes.gov.uk/consultations). Responses were made by 1 December 2003.

We have been working with UK eUniversities Worldwide Ltd (UKeU) on a restructuring of the e-University project. In July 2004, we announced final changes to the project, with the transfer of major activities in support of e-learning from UKeU to the Higher Education Academy and individual higher education institutions (HEIs). We noted then that we intended to focus our e-learning strategy on support for the chosen missions and partnerships of individual institutions, including distributing the residual grant originally allocated for the e-University project. We have delayed finalising our strategy so that we could take account of conclusions on the UKeU, and also to link with development of the Government's strategy (www.dfes.gov.uk/elearningstrategy).

K.2 Results of consultation

We received 114 responses to our consultation, and a summary of the responses to the Government's e-learning consultation that were relevant to higher education.

We published a summary of responses, prepared by independent consultants, in May 2004 (available at www.hefce.ac.uk under Publications–R&D reports). Some of the key points from this summary are given in more detail below.

A comment made by a significant number of respondents was that HEFCE's strategy should focus more on e-learning in the HE sector. The emphasis in the document on the roles of the Higher Education Academy and the Joint Information Systems Committee (JISC) was welcomed, but it was felt that this should be balanced by an analysis of e-learning developments within the sector. In particular, respondents emphasised the importance of benchmarking the present state of e-learning in the HE sector.

Many respondents thought that the strategy should provide a definition and vision of e learning, so that

there is greater clarity about how the sector is placed, as well as about the potential aspirations and development of e-learning in HE. Many argued for a definition that did not place so much emphasis on distance learning, but instead embraced the use of ICT more widely in learning and teaching on the campus.

While the strands of the strategy and many of the specific activities within them were supported, many respondents asked for an e-learning strategy that took a 'whole institution' view and brought together a number of strategies, for example, those for learning and teaching and human resources. Respondents also stressed the importance of a cross-sectoral approach linked with the DfES e-learning strategy.

K.3 Our strategy

Why have an e-learning strategy?

Over the past few years, education has been affected by rapid developments in the use of ICT. It is timely to consider the need to support the sector further in taking best advantage of these developments as it moves to:

- meet the greater diversity of student needs
- increase flexibility of provision
- enhance the capacity for integrating study with work and leisure through work-based and home-based learning
- develop approaches to individualised support for planning and recording achievements.

Although there has been rapid development in HE, our evidence base and responses to our consultation suggest that institutions are still struggling to 'normalise' e-learning as part of HE processes. Much research and many initiatives have been undertaken over the past 10 years, and as a result we now know much more about what the opportunities are and where difficulties lie. As our draft strategy identified, the early concentration on infrastructure has given way to a focus on pedagogy and on connecting electronic communications with other processes in a new blend of approaches to learning and teaching. Distance learning is now seen as one end of a continuum where e-learning offers opportunities across all programmes and all education sectors.

E-learning has been criticised for being technology led, with a focus on providing materials, but has relatively recently focused more on the learner and enabling students and other users to develop more independence in learning and to share resources. This change matches the developments in pedagogy and the increasing need to support diversity and flexibility in HE.

Our consultation responses tell us that there remain challenges for institutions that want to:

- manage change in approaches to learning
- make investment decisions on e-learning
- access the knowledge and experience of others in pursuing their own aspirations and benchmarking progress.

Our primary rationale for producing an e-learning strategy is to help institutions and practitioners explore the possibilities of transforming the future learning experience. However, e-learning can also advance the flexibility and personalisation of learning to support progression and lifelong learning. It provides opportunities to advance workplace learning and hence the relevance of learning to employers and employees. So although our strategy focuses on the learner and the learning experience, we need to make broader connections to other aspects of policy, which then need to be reflected in our strategy.

Definition of e-learning and scope of our strategy

Our initial strategy and responses to the consultation reflect that there are a great diversity of uses of ICT. We agree with respondents that our strategy should not focus solely or even primarily on the use of technologies in distance learning. (Nevertheless, creating a wholly e-based learning experience remains an interesting challenge, which may open up understanding of the full potential of the technology.) New technologies clearly provide exciting opportunities for enhancement and innovation in learning opportunities on the campus or within the workplace or home. The definition of e-learning should be sufficiently broad to encompass the many uses of ICT that individual universities and colleges decide to adopt in their learning and teaching missions. Our strategy should promote and support this diversity.

Similarly, there are clearly a range of aspirations and aims for the full use of ICT in learning, and institutions are at different stages in defining those aspirations and aims, and then moving towards them. Responses to our consultation showed that individual institutions were concerned to clarify their aspirations and to benchmark their progress towards embedding the full use of ICT. There is a danger that if we adopt too narrow a definition in our strategy of what we mean by 'embedding', we may reduce the diversity of approaches of individual HEIs. Also, there is a danger that we might impede exploration of the full potential of e-learning, because new understanding of the possibilities for using the technology may lead to new aspirations about what full embedding might mean.

We have debated whether we need to adopt a specific definition of e-learning at all, since it might curb

exploration and restrict diversity. However, we believe we should limit the scope of our strategy, in order to be sufficiently focused, to the use of technologies in learning opportunities. The government e-learning strategy defines e-learning as any learning that uses ICT. In embedding this strategy, we want to ensure that there is confident use of the full range of pedagogic opportunities provided by ICT. For HE, this will encompass flexible learning as well as distance learning, and the use of ICT as a communications and delivery tool between individuals and groups, to support students and improve the management of learning.

Aims, objectives and principles of our strategy

E-learning will develop and become embedded in HE, through the efforts of universities and colleges, their senior managers, individual practitioners, subject and practice communities, and students themselves. In the light of our rationale and definition for our e-learning strategy, we therefore **aim to support the HE sector as it moves towards embedding e-learning appropriately, using technology to transform HE into a more student-focused and flexible system, as part of lifelong learning for all who can benefit.**

The highest priority objective of our strategy is to **enable institutions to meet the needs of learners and their own aspirations for development.** We will achieve this by ensuring that our strategy is not prescriptive about the particular form or use that e-learning is put to in institutions, but supports institutions' own chosen e-learning missions. Linked to this, we will encourage and support institutions in setting their own e-learning goals, appropriate to their missions and state of embedding, and in measuring their own progress, by providing tools for benchmarking.

To ensure that e-learning is integral to institutions' broader strategies for learning and teaching, and to work with a whole-institution approach to embedding e-learning, we will not ask HEIs to develop specific e-learning strategies of their own in response to ours. We will, however, consider the embedding of e-learning within our own learning and teaching strategy when we review it in 2005, and consult the sector on new proposals for learning and teaching strategies thereafter. (We also aim to encompass a variety of approaches to learning such as workplace and flexible learning within our learning and teaching strategy.) We will draw together opportunities to support and enhance e-learning from our other strategic initiatives – including learning and teaching and human resources strategies – project capital and JISC.

We will seek to support institutions in the strategic planning, change management and process

development that are necessary to underpin their development and embedding of e-learning. This will include strategic approaches to sustainable funding, infrastructure investment and the development of teaching quality and technological standards. In particular, we will support the establishment within institutions of processes and structures that are appropriate for the development and delivery of high-quality education underpinned by technology. We recognise that the embedding and scaling of e-learning will affect all aspects of institutions and are drivers for change to meet the need to be flexible, responsive and cost-effective. We will encourage and help institutions to design effective processes and structures, for both people and technology, to align strategies and to develop and deliver quality in services.

We aim to promote learning research, innovation and development that begins with a focus on student learning rather than on developments in technology *per se*, enabling students to learn through and be supported by technology. We will achieve this by working closely with our partners, the Higher Education Academy and JISC, to support and disseminate innovation in e-learning. We are providing funding through the Higher Education Academy and JISC for pathfinder projects, with a linked advice and support service. Through our strategy we will address support to institutions and their practitioners for developing staff capacity for e-learning, including approaches to curriculum design and pedagogy and human resources practices and procedures. We will also address learning resource and quality considerations.

Finally, we will seek, through our strategy, to support lifelong learning by joining up our strategy with those of other sectors of education, enabling connections between academic learning and experiential learning in the workplace and other aspects of life. We will do this by adopting a partnership approach to implementation and review, and by providing support for approaches to collaboration, progression and student support that can help embed e-learning in broader policies and activities, joined up across sectors within and outside education. We will also be informed by good practice and collaborate as appropriate across the UK and in Europe.

A number of principles underlie our approach. We will:

- implement our strategy through a partnership approach and will not set up new organisations. We already fund JISC and the Higher Education Academy to further e-learning, and we will draw upon their networks to work with wider partners within and outside the HE sector
- build upon our investments in learning and teaching, and use additional funds to enhance these, rather than setting up separate programmes
- review the success of our strategy in the context of

our wider integrated learning and teaching strategy, which will include considering flexible learning and workplace learning.

K.4 Implementation

Annex A sets out the implementation plan for our e-learning strategy, which has been devised jointly with the Higher Education Academy and JISC. This plan reflects the aims, objectives and principles identified above, as well as detailed points made in consultation. It contains the following strands:

- **Strand 1:** Pedagogy, curriculum design and development
- **Strand 2:** Learning resources and networked learning
- **Strand 3:** Student support, progression and collaboration
- **Strand 4:** Strategic management, human resources and capacity development
- **Strand 5:** Quality
- **Strand 6:** Research and evaluation
- **Strand 7:** Infrastructure and technical standards.

Additional funding for e-learning

We have made it a principle of our strategy that we should address e-learning in the context of our existing strategic investments in HE, rather than support stand-alone projects. However, we have said that we will make available any residual funding from the e-University project to support e-learning in the sector. We will allocate residual capital grant through our current capital funding process, and will send a circular letter to institutions shortly with further information on this. We have also agreed with the Higher Education Academy and JISC to provide funds to help embed e-learning in HEIs and to disseminate case studies and models across the sector. These will complement insights to be disseminated by the Higher Education Academy from HEFCE's Centres for Excellence in Teaching and Learning (CETLs) initiative. Further details on funding for embedding e-learning will be available in due course via the websites of the Higher Education Academy and JISC.

The programme will be supported by the Higher Education Academy and JISC through a virtual national e-learning advisory and support centre. This centre will co-ordinate activities and provide leadership, with the overall objective of embedding e-learning in HE. It will draw in a range of partners, including the Leadership Foundation and the Association for Learning Technology. Among other activities, the centre will manage a national dissemination programme involving nominated e-learning champions from HEIs and further education (FE) colleges, and create and supply online resources for staff development.

How will we know we have achieved our goal?

We agree with the respondents to our consultation that we should know more about the present state of all forms of e-learning in HE. This is essential to provide a baseline against which to judge the success of this strategy. However, understanding HE e-learning is not just a matter for the HEFCE. Possibly more important is for us to help individual institutions understand their own positions on e-learning, to set their aspirations and goals for embedding e-learning, and then to benchmark themselves and their progress against institutions with similar goals and across the sector. We have therefore asked JISC and the Higher Education Academy to take forward a project with a view to identifying a benchmarking tool for HEIs. This tool may also then provide information, at a sector-wide anonymised level, to help us and our partners draw conclusions on the state of e-learning, progress towards embedding it, and the impact of our strategy.

We intend to evaluate our strategy every three years in conjunction with JISC and the Higher Education Academy, and in the context of our broader learning and teaching strategy. Our review will be informed by the research and evaluation strand of our implementation plan, by the benchmarking proposed above, and by reviews of our investments to enhance the learning experience more generally. The implementation process will include continuous review and refinement.

We have said that we should adopt broad definitions of 'e-learning' and 'embedding' that expand rather than reduce possibilities. For these reasons, we do not think it is appropriate to set hard targets for our strategy, which would require very precise definitions. We therefore propose to adopt the broad measures of success listed below, which we believe will tell us when the HE sector has fully embedded e-learning.

We will assess progress towards these measures of success for embedding e-learning with our partners as part of our strategic reviews.

We look forward to working with JISC and the Higher Education Academy – and through them with wider partners within and outside education – and with individual institutions, to take forward this strategy for e-learning.

8.1.2 Measures of success

We will consider the HE sector to have embedded e-learning when:

- a. ICT is commonly accepted into all aspects of the student experience of HE, with innovation for enhancement and flexible learning, connecting areas of HE with other aspects of life and work.
- b. Due to more coherence and collaboration, technical issues have been addressed to give better value for money.
- c. Students are able to access information, tutor support, expertise and guidance, and communicate with each other effectively wherever they are. They are able to check and record their achievement in a form designed for multiple uses to enable personal and professional development.
- d. Tutors have tools for course design to enable better communication between them and their students, giving feedback and targeted support. Individual teachers have access to information about the materials available, and support for continuous improvement of them.
- e. Subject communities are able to share materials in ways that enhance their ability to produce customised high-quality courses. They are supported to work collaboratively in designing materials, which are effectively quality assured and widely disseminated. They have access to research information to inform curriculum development and research-based teaching.
- f. Institutions are able to build appropriate infrastructure and resources support for integrating registration and learning functions. They have links with regional networks of institutions to support progression and community involvement.
- g. Lifelong learning networks support connectivity between institutions to provide seamless access for students and staff.
- h. Staff are supported at all stages to develop appropriate skills in e-learning, and these skills are recognised in their roles and responsibilities and in reward structures. They have access to accreditation for their level of skills and professional practice in linking learning technology with teaching.

Annex A

Joint implementation plan for embedding e-learning in HE

The implementation of the HEFCE's e-learning strategy will be undertaken in partnership with JISC and the Higher Education Academy.

The strategy covers a 10-year period, but we expect to keep it under review, especially in terms of the activities in the implementation plan, as we expect these to change during the lifetime of the strategy. A partnership board, whose membership includes representatives from HEFCE, JISC and the Higher Education Academy, will oversee the activities.

The aim of the strategy is 'to support the HE sector as it moves towards embedding e-learning, appropriately, using technology to transform higher education into a

more student-focused and flexible system, as part of lifelong learning for all who can benefit'. Measures set out in the implementation plan are intended to help institutions to achieve this through addressing seven strands of activity.

This plan outlines the activities that the Higher Education Academy and JISC currently provide or will implement, and the activities that they will jointly manage, such as the new e-learning centre. It builds upon a history of collaboration between the two organisations, including:

- the development of the learning and teaching web portal, Connect
- the successful collaboration between the subject centres of the Learning and Teaching Support Network and the Resource Discovery Networks
- the current distributed e-learning programme.

Strand 1 Pedagogy, curriculum design and development		
	Objectives	Actions
1.1	Reward excellence and promote and encourage innovation in e-learning.	<ul style="list-style-type: none"> • HEFCE to identify and fund 74 CETLs. The Higher Education Academy to disseminate e-learning experience from CETLs and the Fund for the Development of Teaching and Learning (FDTL) across the HE sector. • JISC and the academy to advise the HEFCE on what type of projects an e-learning innovation fund could support.
1.2	Encourage the design of technology for students to manage their own individual and shared learning.	<ul style="list-style-type: none"> • The academy and the HEFCE to build upon the work of the expanded National Teaching Fellowship scheme, including awards for all experts contributing to the learning experience (to reward individuals for innovation in e-learning).
1.3	Encourage the use of technology to enable electronic assessment.	<ul style="list-style-type: none"> • JISC and the Higher Education Academy to build upon the work with HEIs in identifying and developing models of recognition and reward, and disseminate these across the sector (for example, could reward institutions/departments/units for embedding e-learning into an institution).
1.4	Produce and disseminate models of good e learning practice, including assessment.	<ul style="list-style-type: none"> • JISC and the Higher Education Academy to co-ordinate initiatives and align priorities to provide a national support infrastructure comprising e-learning tools, pedagogical and technical advice, and examples of innovative practice in the design and provision of e-learning opportunities (advisory and support centre). The existing eChina project is one example. Phase 2 of the eChina project will probe many issues of pedagogy, curriculum design and development further. • The academy to identify measures to support curriculum innovation and collaborative team-based e-learning development in institutions. The academy also to identify measures to support the evaluation of student experiences of e-learning and the impact of e-learning on student performance. Allow access to research outputs to facilitate curriculum development and design.

1.5	Encourage the effective use of technology to enable work-based learning.	<ul style="list-style-type: none"> • HEFCE to support and encourage vocational and work-based learning through targeted strategic development funds, such as for lifelong learning networks. • Concordat to be developed between the Higher Education Academy, Universities UK/the Standing Conference of Principals and Lifelong Learning and other sector skills councils to assist in articulating employers' perspectives on e-learning needs in the curriculum, including delivery options and e-skills. • The academy and JISC to explore the effectiveness of tools to support innovative curriculum design for different learning contexts, including internationally.
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Strand 2 Learning resources and networked learning

	Objectives	Actions
2.1	Develop a comprehensive and coherent approach to the development and use of resources for learning and teaching, including digital resources and discovery tools.	<ul style="list-style-type: none"> • JISC and the Higher Education Academy to develop a strategy for learning resources for learning and teaching, based on the model of the Research Libraries Network. The strategy should build upon JISC's role in digital information provision and discovery, and the research and observatory function of the academy, and take account of activity in the FE and schools sectors. • JISC to support strategic agreements with publishers and content providers.
2.2	Enhance the quality of digital resources and tools for learners provided by JISC, and sources for teaching, learning, research and innovation.	<ul style="list-style-type: none"> • JISC and the Higher Education Academy to continue the development of tools for sharing resources – eg X4L, JORUM, Reload – and build upon JISC's role in digital information provision and discovery learning. • JISC and the academy to provide copyright, intellectual property rights (IPR) and licensing advice, and authentication services. • JISC and the academy to take forward development and implementation of frameworks and tools for the development and management (acquiring, adding, finding and delivering) of shareable resources and networked learning. • The academy, through CETLs and FDTL, to explore issues of developing and sharing learning resources within discipline groups and between institutions.
2.3	Promote the sharing of learning technology and resources across the HE sector and between sectors.	<ul style="list-style-type: none"> • JISC and the Higher Education Academy to provide a range of programmes that enable HE staff to create digital resources, populate resource banks and identify issues associated with the sharing of digital resources. • JISC to provide technical advice on hosting and managing online learning resources, practical metadata systems, searchable databases and repositories, and developing user interfaces. • JISC to provide practical guidelines for re-purposing, and examples, simulations, modelling tools and case studies for embedding resources in the curriculum, taking account of cultural issues and issues relating to accessibility and the Disability Discrimination Act. • JISC and the academy to encourage use of outputs of the JISC/National Science Foundation Digital Libraries and Classroom Programme, National Learning Network materials, industry-based content and international sources of learning materials.

Strand 3 Student support, progression and collaboration

	Objectives	Actions
3.1	Develop integrated learning environments for lifelong learning.	<ul style="list-style-type: none"> • JISC to work to encourage standards-based development of interoperable systems to facilitate integration, and access to virtual learning environments across schools, FE and HE. • JISC to provide information and guidance on the development of specifications and standards for interoperable systems. • HEFCE/JISC to support regional and international developments in distributed e-learning. • JISC to provide unified learner support through regional pilot projects in distributed e-learning.
3.2	Utilise e-learning for delivery and support of foundation degrees.	<ul style="list-style-type: none"> • HEFCE to explore issues around e-delivery of foundation degrees through evaluations and quality reviews. • HEFCE and the Higher Education Academy to explore and review, with Foundation Degree Forward and others, experiences of e-based delivery across FE and HE, as part of ongoing evaluation of foundation degrees. • JISC and the academy to encourage current and new programmes to develop tools and resources for using e-learning to deliver foundation degrees, and help the HE community and FE partners to develop appropriate delivery methods and student support models.
3.3	Develop lifelong learning networks on a regional and national basis.	<ul style="list-style-type: none"> • HEFCE to encourage collaboration among institutions, including measures to support postgraduate and post-experience learning and links with regional development agencies, with specific measures to address the balance of collaboration and competition.
3.4	Encourage e-based systems of describing learning achievement and personal development planning (PDP).	<ul style="list-style-type: none"> • JISC and the Higher Education Academy to continue to investigate the use of e-portfolios and other systems to support learner achievement and progression, and to promote and disseminate good practice in the development of new approaches for the use of e-portfolios and PDP. • JISC to continue with the development of technical tools to support the use of e-portfolios across institutions and sectors. • HEFCE to encourage the Europe Unit to support collaboration with European partners on the European Diploma Supplement. • JISC and the academy to promote links with agencies such as the Universities and Colleges Admissions Service, the Qualifications and Curriculum Authority and the British Standards Institution in developing e-based systems for PDP.

Strand 4 Strategic management, human resources and capacity development

	Objectives	Actions
4.1	Seek to promote organisational change and technological risk management at a strategic level in the sector.	<ul style="list-style-type: none"> • HEFCE to encourage strategic alliances between the Leadership Foundation, the Higher Education Academy and JISC on leadership in innovation in learning and teaching and technological risk, including international dimensions. • The academy, Leadership Foundation and JISC to scope strategic requirements for organisational change and risk management, addressing high-level issues regarding the pedagogy of e-learning, strategic e-management, and the cultural challenges of change.
4.2	Encourage co-ordinated strategic management approaches to the development of e-learning – through joining up learning and teaching, human resources, IT, and estates strategies – to maximise the benefits of technology across all HEI business activities.	<ul style="list-style-type: none"> • JISC to continue to support JISC services (eg JISC infoNet) that provide information and advice on technological risk and organisational change. • JISC and the Higher Education Academy to work with partners including the Leadership Foundation, the Association for Learning Technology and eChina, on actions that facilitate the engagement of practitioners in strategic change management. • HEFCE to investigate costing methodologies/models for developing and delivering e-learning in the context of the review of its teaching funding method.
4.3	Encourage strategic management of IPR in HEIs in order to exploit e learning.	<ul style="list-style-type: none"> • HEFCE to consider how reviews of institutions' corporate plans, annual monitoring statements and strategic processes might help to determine opportunities to increase co-ordinated approaches to the development of e-learning resources (see also action under 2.2 to provide copyright, IPR and licensing advice).
4.4	Address skills, knowledge and competencies for e-learning in training and continuing professional development for learning and teaching staff, including learning technologists.	<ul style="list-style-type: none"> • HEFCE to liaise with the Higher Education Academy and other partners on appropriate implementation of recommendations arising from the national consultation document 'Towards a framework of professional teaching standards'. • The academy and JISC to support the work of the Association for Learning Technology and the Staff and Educational Development Association in developing and implementing a professional framework for learning technologists. • The academy and JISC, with appropriate partners, to look at staff development in the emerging role of the librarian in assisting learners and teachers and supporting delivery.
4.5	Review the human capacity in the HE sector to deliver future e-learning growth.	<ul style="list-style-type: none"> • HEFCE, with the Higher Education Academy and JISC, to identify (through appropriate agencies) staffing profile, competences, development needs and recruitment strategies for the use of technology to support learning, teaching and research. This would link across education sectors and consider international developments and trends. • The academy and JISC to help to articulate professional roles and working practices for e-learning.

Strand 5 Quality		
	Objectives	Actions
5.1	Contribute to understanding of the assurance and enhancement issues for quality and standards, raised by e-learning.	<ul style="list-style-type: none"> • HEFCE to encourage a strategic alliance between the Higher Education Academy and the Quality Assurance Agency (QAA) to include consideration of quality and standards in e-learning. • The academy and the QAA to promote good practice to support quality and standards in e-learning, with specific reference to key issues, such as quality models, evaluation frameworks, metrics and embedding. • The academy and the QAA to encourage collaboration with other organisations, such as the Universities and Colleges Information Systems Association (UCISA) and the Society of College, National and University Libraries (SCONUL). • JISC and the academy to explore kite-marking, legal and insurance issues in the development of resources and delivery of learning experiences through technology. • The academy and the QAA to promote active engagement with and benchmarking against international standards for quality in e-learning.

Strand 6 Research and evaluation		
	Objectives	Actions
6.1	Contribute to the sector's understanding and appreciation of the wider issues posed by e-learning.	<ul style="list-style-type: none"> • HEFCE has established an e-learning research centre, based at the Higher Education Academy and the Universities of Manchester and Southampton, to co-ordinate and manage developments, interact with HEIs and ensure wide dissemination of findings across the HE community. • The academy to promote research in gap areas and issues of particular relevance to the sector, including personalised learning and the development of learning communities through the Teaching and Learning Research Programme, the Engineering and Physical Sciences Research Council programme and other initiatives. • The academy and JISC to pursue collaborative programmes that contribute to the research agenda, working with the research councils and other organisations involved in e-learning research, including stakeholders outside HE (such as systems developers, employers and other sectors). • The academy to map existing national and international research into e-learning issues and developments, such as eChina. • HEFCE/the academy to promote the significance of educational research including e-learning, in partnership with research councils.
6.2	Evaluate and disseminate national and international good practice in e-learning.	<ul style="list-style-type: none"> • The academy and JISC to assemble international evidence and resources evaluating national and international good practice, and disseminate programme outputs to the sector.
6.3	Evaluate ongoing relevance of the e-learning strategy to the work of the sector by means of benchmarking.	<ul style="list-style-type: none"> • HEFCE, the academy and JISC to review and communicate the outcomes and recommendations of research and evaluation in reviewing the e-learning strategy and defining its future strategic direction.

Strand 7 Infrastructure and technical standards

	Objectives	Actions
7.1	Increase capacity and usage of the network to support high-quality e-learning programmes and applications.	<ul style="list-style-type: none"> • JISC technical developments in SuperJANET 4 to provide network support for applications in learning, teaching and research. • JISC to review SuperJANET 5 requirements, analysis and procurement, with a focus on flexible use of the network. • JISC and organisations such as UCISA to work together to ensure that IT staff are aware of the infrastructure requirements for the support of e-learning. • JISC to review the needs of the sector in the light of plans for future growth. • JISC to secure commitment to working with government and infrastructure providers with a view to improving bandwidth, access and purchasing schemes for learners.
7.2	Provide capital to sustain and develop virtual learning environments (VLEs) and managed learning environments (MLEs).	<ul style="list-style-type: none"> • HEFCE, with JISC, to consider bids for project capital from 2004 for teaching infrastructure, which includes supporting development and implementation of MLEs. • JISC to develop a flexible technical framework to support the development of MLEs. • JISC infoNet to advise HEIs on the design and implementation of systems. • JISC to review the needs of the sector in the light of plans for future growth. • JISC to explore development of personal learning environments that allow learners registered at multiple institutions to have a common interface to their courses.
7.3	Increase opportunities for interoperability of materials through common standards, to promote sharing and progression.	<ul style="list-style-type: none"> • JISC to support programmes that develop specifications for interoperable systems; JISC and the Centre for Educational Technology Interoperability Standards to ensure that UK views and experiences inform international standards development. • JISC to encourage and support the development of open source software that can be integrated to create custom-built solutions for institutions, and peer-to-peer technology that enables individual computers to share data and system resources with minimal involvement of centrally managed servers.



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