

Consultation on the development of a Digital Learning and Teaching Strategy for Scotland

Supporting school years education

September 2015

A Message from the Cabinet Secretary

Excellence in education is vital to delivering a successful, prosperous Scotland. We must do all we can to ensure all our children and young people are given opportunities to develop the skills and attributes that will enable them to become successful learners, confident individuals, effective contributors and responsible citizens.

We want to ensure that we raise attainment for every child in every school in the country. In particular, we want to close the attainment gap between the most and least disadvantaged children in Scotland. The new National Improvement Framework sets out our clear priorities and will ensure that there is work underway in a number of areas to help us achieve this.

Today, digital technology is increasingly embedded in every area of our society and our economy, reshaping our lives in countless ways. Digital devices, services and resources also present a wealth of opportunities for education, to enhance and enrich learning experiences across all areas of the curriculum.

The rapid pace of change in today's world also means that it is more crucial than ever that our young people develop the skills and attributes necessary to be digitally literate. Scotland's education system must ensure that learners gain a sound understanding of how to use digital technology and how it works.

Curriculum for Excellence puts us on a strong footing to achieve this. It provides teachers with more flexibility and offers learners a broader and richer education. However, the curriculum is only one part of the solution and we must build on the progress made by Curriculum for Excellence moving forward. Other essential components include improved access to digital technology and services; confident and skilled teachers; and education leaders who are empowered to get the best out of technology for our children and young people.

We are launching this consultation because we want to tap into the rich expertise that exists across the education sector and beyond. This proposal for a *Digital Learning and Teaching Strategy for Scotland* sets out our vision and the areas we think we need to focus on to ensure we deliver an education that is relevant for modern life. This is your opportunity to contribute your views and help make sure we get this right for all our children and young people.

This is not something government can do alone. We all need to work together to create the conditions that support the best learning experience for our children and young people in a digital world.



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September 2015

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Consultation questions are set out in green boxes throughout this consultation document.

All the questions are also listed in Annex B, alongside more information about the consultation and details of how you can participate.

1. Why is the importance of digital learning and teaching growing?

Digital technology has huge potential to enrich learning and enhance teaching across the curriculum

Digital technology is embedded in all aspects of modern life. Outside of schools, children, young people, and adults alike have access to technologies today that are transforming how they connect, share, work and play in innovative and exciting new ways.

From the rapid growth of the internet, online services and social networks, to the development of a wide variety of mobile devices and applications, digital technologies also offer tremendous opportunities for education. For example:

- **Learners** can access a vast range of digital tools, resources, and environments that support learning; they can collaborate with others learners and experts far and wide; learn in a personalised style and at a pace that best suits their individual needs; and learn at the most convenient time and place. Such opportunities exist throughout the journey of lifelong learners, from early learning and childcare settings, through the school years, further and higher education and beyond.
- **Teachers** and other practitioners can access a broad range of valuable information and resources; network with fellow professionals; share approaches to practice; collaborate and co-create; and personalise teaching strategies and methodologies to match specific learner needs.
- **Parents and carers** can access information about their child's school and the curriculum, and can more easily communicate with teachers and support their child's learning.
- In the **wider community**, those with an interest in education can provide resources and direct support to learners and teachers via a wide variety of technologies.

Digital skills are essential for learning, life and work

Scotland's learners live in a world that is changing at a rapid pace. The economy becomes more digitised by the day, and it is estimated that 90% of jobs across the UK today already require the skills to use digital technologies confidently in a wide variety of ways, with over half requiring more advanced skills.¹

The digital economy is vital to Scotland's prosperity. Today, 84,400 people work in digital jobs in Scotland.² The digital sector alone contributes £4.5 billion value added to Scotland's economy,³ and in the five years to 2013, the number of digital businesses in Scotland increased almost twice as fast as across the UK as a whole.⁴

¹ UK Digital Skills Taskforce (2014) *Digital Skills For Tomorrow's World Interim Report* (<http://policy.bcs.org/sites/policy.bcs.org/files/Interim%20report.pdf>)

² Annual Population Survey, Jan 2014 – Dec 2014

³ Scottish Annual Business Statistics, 2013

⁴ The Tech Partnership (formerly e-Skills UK) (2015) *Tech Insights: The Digital Economy* (https://www.thetechpartnership.com/globalassets/pdfs/research-2015/techinsights_report_mar15.pdf)

We know that many of our children and young people will be employed in jobs that do not exist yet, and that the need for digital skills will only become more pronounced in the future. Key steps to address this need have already been set out in the *Digital Skills Investment Plan*, published in 2014.⁵ Work to embed digital technologies in learning and teaching across the curriculum also has an important role to play, alongside that plan, in ensuring that all Scotland's learners are able to develop the skills they will need to flourish in the 21st century.

Digital technology

The term digital technology is used to describe those digital applications, services and resources that are used to find, analyse, create, communicate, and use information in a digital context.

Digital learning

Learning which is supported and enhanced by a range of digital technologies and approaches.

Digital teaching

Educators providing and supporting enhanced learning opportunities through the use of digital technologies.

⁵ Skills Development Scotland (2014) *Skills Investment Plan for Scotland's ICT & Digital Technologies Sector* (https://www.ourskillsforce.co.uk/media/463298/sds_ict_sip.pdf)

2. Why do we need a digital learning and teaching strategy?

Whilst significant progress has already been made in Scotland, there is still work to be done and challenges to be overcome to unlock the full potential of digital learning and teaching in all our schools. A strategy will allow all the various aspects to be considered and will help to deliver a coherent approach.

The work to date

Over the past decade, a national programme of work to support the use of information and communications technologies (ICT) for learning in schools has been advanced by the Scottish Government.

In 2007, Scotland launched the first national online learning environment in the world, now known as Glow. The Glow offering was significantly redeveloped in 2014 and continues to evolve. It provides access to a wide variety of up-to-date digital tools and resources, made available to all schools in Scotland at no cost. Glow supports learning and teaching across all areas of Curriculum for Excellence; for example, it enables learners across Scotland to create Glow Blogs to capture and share learning journeys; it hosts a growing range of online Professional Learning Communities supporting collaborative approaches to professional learning for all practitioners; and it offers access to innovative online learning spaces, such as the National Numeracy and Mathematics Hub. These are just some examples of its use.

The Scottish Government has also funded the roll-out of high speed broadband to local authorities via the Scottish Wide Area Network (SWAN) that has helped enable improvements in internet connectivity for schools. In addition, a national procurement framework has been established offering opportunities for all local authorities and schools to achieve significant savings on devices to support learning and teaching.⁶

This programme of work is delivered in close partnership with Education Scotland, local authorities and other key stakeholders: Views and contributions provided via seconded local authority staff, Glow Key Contacts, the National Digital Learning Forum, and the Digital Learning Community for Scotland have proved invaluable.

The programme has recently been reshaped into the Digital Learning and Teaching Programme. Whilst approaches to date have often focused primarily on providing access to technologies, this move places stronger emphasis on a wider range of factors that contribute to the delivery of effective digital learning and teaching.

The challenge ahead

In March 2015, Education Scotland published *Building Society*, a report on learners' experiences and outcomes in the technologies area of Curriculum for Excellence.⁷ The report concluded that consistency in terms of access and approaches to the use of digital technology across the education sector in Scotland is uneven.

In assessing the future role of digital technology in learning, the report said:

This review confirms beyond doubt that our children and young people need digital skills and technologies to be given an absolutely central role in the learning process – no longer an enhancement or 'bolt-on', but a foundation and a primary consideration for any planned learning.

⁶ More details on support for digital learning and teaching provided by the Scottish Government are available at Appendix A.

⁷ Education Scotland (2015) *Building Society: Young people's experiences and outcomes in the technologies* (http://www.educationscotland.gov.uk/resources/0to9/genericresource_tcm4850865.asp)

This inconsistency seems to be reflected on an international level. A recent OECD study⁸ revealed that only 40% of teachers used digital technology as a regular part of their teaching strategies.

There is an obvious disconnect between the widespread use of digital technology we see in everyday life, and how well it is embedded in formal education contexts. Clearly, it cannot be assumed that the potential of digital technology to improve outcomes for our children and young people will be unlocked automatically.

By placing digital technology at the heart of learning, the strategy we develop will make a strong contribution to our vision for education outlined in the *National Improvement Framework*.

This strategy will have an important role to play in supporting the delivery of key programmes of work across Scottish education, including:

The Scottish Attainment Challenge, which brings a greater sense of urgency and priority for everyone involved in Scottish education to relentlessly focus efforts on narrowing the attainment gap, at all levels and in all sectors.

<http://www.gov.scot/Topics/Education/Schools/Raisingeducationalattainment>

The National Improvement Framework, which will bring together a range of key performance information to improve outcomes for every child in Scotland and promote consistency, transparency and robustness in work across the country.

<http://www.gov.scot/Publications/2015/09/7802>

The National Improvement Hub, which will be a portal for education practitioners providing agile, accessible content and tools to improve practice and increase the quality of learner experiences and outcomes. The hub, the content and the tools will be determined and developed through a collaborative process.

Developing the Young Workforce, a seven-year programme that aims to better prepare children and young people from 3–18 for the world of work. The programme builds on the foundations already in place as part of Curriculum for Excellence. Its headline aim is to reduce youth unemployment by 40% by 2021.

<http://www.educationscotland.gov.uk/learningandteaching/thecurriculum/dyw>

Teaching Scotland's Future, the national programme to deliver improvements in teacher professional learning. It is led by the national organisations involved in teacher education in Scotland.

<http://www.teachingscotlandsfuture.org.uk>

The strategy will also contribute to the aims of the **iRights** initiative, which recognises that digital technologies are a fundamental part of children and young people's lives, and believes they must be empowered to access the digital world creatively, knowledgeably and fearlessly. First Minister Nicola Sturgeon has signed up the Scottish Government as an official supporter of the iRights coalition.

<http://irights.uk/>

⁸ OECD (2015) *Teaching with technology* (<http://dx.doi.org/10.1787/5jrxnhpp6p8v-en>)

3. What is our vision and aim?

Our vision

The Scottish Government's vision for digital learning and teaching is:

Scotland's educators, learners and parents take full advantage of the opportunities offered by digital technology in order to raise attainment, ambition and opportunities for all.

This is clearly aligned with our vision for education set out in the *National Improvement Framework*, centred on *Excellence through raising attainment* and *Achieving equity*.

The vision for digital learning and teaching builds on a number of key National Outcomes in the Scottish Government's National Performance Framework:

- Our children have the best start in life and are ready to succeed.
- Our young people are successful learners, confident individuals, effective contributors and responsible citizens.
- We are better educated, more skilled and more successful, renowned for our research and innovation.
- We have tackled the significant inequalities in Scottish society.
- We live in well-designed, sustainable places where we are able to access the services we need.

<http://www.gov.scot/About/Performance/scotPerforms/outcome>

Our aim

The aim of this strategy is to set out the Scottish Government's approach to digital learning and teaching, in order to create the conditions to realise our vision and unlock the full potential of digital technology in our schools.

This strategy:

- Acknowledges and builds on important **work delivered to date** across Scotland to support digital learning and teaching.
- Sets out its intended **audience** and underpinning **principles**.
- Summarises **evidence** from research and consultation about the impact of digital technology on educational priorities.
- Identifies **key themes** and proposed **priorities for action** that the Scottish Government and its partners will focus on to realise our vision and support positive outcomes for all.
- Highlights that partnership working with key stakeholders will be at the heart of successful **implementation** of the approach.

This strategy is the first of its kind in Scotland. It builds on wider work by the Scottish Government and its partners to ensure that Scotland takes full advantage of the opportunities offered by the digital age, including:

Scotland's Digital Future, which sets out the Scottish public sector's plans for digitising public services.

<http://www.gov.scot/Publications/2011/03/04162416/0>

Digital Participation: A National Framework for Local Action, which describes activity to enhance digital skills and promote digital access to ensure everyone can play a part in a Digital Scotland.

<http://www.gov.scot/Publications/2014/04/6821>

The Digital Skills Investment Plan, which describes plans to increase the supply of high quality digital skills to meet both the short and long term demand across Scotland's economy.

<https://www.ourskillsforce.co.uk/spotlight-on-industry/ict-and-digital-technology/developing-skills-in-ict-and-digital-technologies/>

Safe, Secure, and Prosperous: A Cyber Resilience Strategy for Scotland, which aims to enable individuals, families, and organisations to become more resilient when using online and digital technologies.

4. Who is this strategy for?

Policy makers at local and national level who make key decisions affecting learning and teaching, as well as those responsible for ICT services. This strategy sets out evidence of the impact of digital technologies on learning and teaching, and identifies conditions that need to be in place to maximise this impact. The strategy provides the rationale for investing in digital technologies to ensure that our children and young people are prepared to meet the challenges of the modern world.

Senior leaders at all levels in learning establishments, who are the leaders of change within education. This strategy can be used to guide their plans for developing and supporting approaches to digital learning and teaching that facilitate improved learning outcomes for all.

Teachers and other practitioners, who are the facilitators of effective learning and sustained improvement. This strategy can be used to help them understand how digital technology can support improved learning outcomes for all.

Parents and carers whose engagement in learning is key to improving learning outcomes. This strategy can be used to guide and inform their understanding of the ways in which policy makers, senior leaders in schools and teachers are supporting digital learning and teaching.

Stakeholders with an interest in learning and teaching and who support it in a variety of ways. The strategy document will be useful to them as they plan the most appropriate channels for supporting senior leaders, teachers and other practitioners, parents and carers, and learners.

Learners are the primary beneficiaries of this strategy.

Successful realisation of our vision for digital learning and teaching will help to ensure that today's learners have the best possible learning opportunities and are equipped with the confidence and skills to participate fully in a world where mastery of digital technology is essential.

5. What principles is this strategy built on?

Local leadership, national support. Approaches to the development of digital learning and teaching work best where they adapt to the contexts in which they are being applied: local leadership, at an authority and school level, is absolutely key. The Scottish Government collaborates in this process through providing guidance and support.

Partnership working. We all have a role in ensuring that our children and young people are prepared for life beyond school and that they engage in lifelong learning. The complexity of this requires partnership work and the sharing of responsibilities between all stakeholders who have an interest and involvement in learning.

Opportunities for all learners. Approaches to digital learning and teaching must work towards enriching the learning experience and improving outcomes for **all** our children and young people.

Evolution. Digital technology is fast changing, both in terms of the technology itself and in its potential uses for learning and teaching. Approaches to digital learning and teaching will require continual update and refreshment in order to get the best out of new and emerging technologies; to stay relevant to the evolving needs of learners; and to ensure continuous improvement is embedded as a principle for our development.

Integration. Our approach to the design and implementation of new technology should be based on open standards and form part of Scotland's wider public sector digital ecosystem. This will maximise our ability to cooperate on and share common services whilst ensuring that our investment in digital is as efficient and effective as possible.

Consultation Question 1:

Is the strategy founded on the right principles?
Are there other principles that should be considered as we continue to develop the strategy?

6. What does the evidence tell us?

An independent literature review is being carried out on behalf of the Scottish Government, to look at what the international evidence base tells us about the impacts of digital technology on learning and teaching, with a focus on five key priorities for education in Scotland:

- Excellence through raising attainment
- Achieving equity
- Skills for learning, life and work
- Parental engagement
- Improving efficiency

A summary of the findings is presented here, and the full literature review will be made available during the consultation period.

To supplement this broad evidence base and provide a more focused Scottish context for the findings, we have also undertaken a series of well-attended face-to-face stakeholder events, themed around the same five priorities.

Excellence through raising attainment

We have a strong shared commitment across Scotland to raising attainment for all and closing the attainment gap between children and young people who are the most and least disadvantaged. This commitment has been identified as a key priority for this government, and lies at the heart of the Scottish Attainment Challenge.

Findings from the literature review

The literature review identified a substantial body of research examining the impact of digital approaches on children's attainment. The review found that there is 'conclusive' evidence⁹ that digital approaches, where they are implemented effectively, can support improvements in educational attainment. The evidence of improved outcomes is strongest for numeracy and science learning, although there is evidence of positive impacts on literacy too. Additionally, there is evidence to suggest that digital tools and resources can help to reduce attainment gaps in reading and writing.

Examples highlighted by stakeholders

A wide range of digital approaches were identified by stakeholders as having a role in raising attainment in Scottish schools. Collaborative learning environments, for example, such as Glow, that encourage learners to work together and support one another, were highlighted by some stakeholders as contributing to improved attainment. Stakeholders also described positive impacts of mobile devices in extending access to learning resources in the classroom and at home. Online tutoring services (such as SCHOLAR, available via Glow), games-based learning technologies, and innovative approaches to incorporating audio and video resources into learning were also identified as contributing to improved outcomes.

⁹ i.e. from higher level studies, such as meta-analyses or studies that measure change quantitatively against a comparative group

Achieving equity

Removing barriers to learning, ensuring that the diverse needs of all learners are met in an equitable way, and supporting improved outcomes for all are central to Scottish Government education policy. The provisions of the Additional Support for Learning Act (Scotland) 2004, combined with the flexibility and promotion of personalised learning through Curriculum for Excellence, helps to ensure an inclusive 3-18 curriculum for all our learners.

Findings from the literature review

The literature review points to promising evidence that the effective use of digital tools and resources in schools can help to improve some outcomes for lower attaining learners and contribute to reducing gaps in subject attainment. There is also evidence that digital approaches can help learners with additional support needs to improve their skills and competencies in literacy and numeracy.

Examples highlighted by stakeholders

There is extensive use of digital approaches across Scottish schools to support this work. A variety of assistive technologies are used widely to meet very specific learner needs including; apps that support creative writing for children with autism; eye tracking technologies for learners with limited mobility; and Scottish Voice communication aids. CALL Scotland, whose core funding is provided by the Scottish Government, curates and promotes examples of digital approaches that can be accessed and applied by practitioners in all local authorities and establishments.

Skills for learning, life and work

Tackling youth unemployment is another key priority for this government. Curriculum for Excellence is designed to support all children and young people to develop essential skills that they will need throughout their lives, and the Developing the Young Workforce programme aims to drive the creation of a world class vocational education system and better prepare children and young people from 3–18 for the world of work.

Findings from the literature review

The literature review highlights ‘promising’ evidence¹⁰ that the effective use of digital technologies can support secondary age students to develop key skills that are valued by employers and contribute to successful transitions into employment, including skills in collaboration, critical thinking and leadership. There is also promising evidence that digital resources can play a positive role in improving learners’ knowledge and understanding of career pathways and the world of work.

Examples highlighted by stakeholders

Digital learning and teaching is supporting this work in a number of ways in Scotland. Stakeholders highlighted numerous examples of digital approaches that they found had a positive impact on digital literacy and collaborative skills, including the Apps for Good project, the use of Raspberry Pi and similar coding devices, and the introduction of after school coding clubs in some schools. Massive open online courses (MOOCs) focused on skills development were also cited as a valuable tool, and have been used to support the Developing the Young Workforce agenda in some areas. Social media, blogs, and the web in general were highlighted as playing a vital role in enabling learners to connect with employers, and as key sources of careers information and advice, while e-portfolios had offered important opportunities for learners to build and share evidence of skills and achievements.

¹⁰ i.e. from small scale studies

Parental engagement

There is widespread acknowledgement that parental and carer engagement in learning is vital at all levels of education, and Curriculum for Excellence recognises and promotes the key role played by parents. The Scottish Government works with a range of stakeholder groups to ensure that parent and carer voice is heard and taken account of.

Findings from the literature review

Whilst stakeholders highlighted examples of the use of digital technology having positive impacts on parental engagement at school level in Scotland, internationally there is not a great deal of research literature that has measured such impacts. There is some promising evidence, however, that using digital tools can help to improve direct communication between schools and parents – particularly those parents that teachers tend not to see face-to-face – and that this can be beneficial for learners, parents, and schools.

Examples highlighted by stakeholders

Digital approaches are used in Scottish schools to provide information and guidance to parents, to improve two way communication channels and to support involvement in learning. School websites, blogs, journals, e-portfolios, and email were all highlighted as playing a key role in improving parental engagement where they are used well, and a number of authorities have developed effective approaches to using social media as a communication tool as well. Access to mobile devices at home enabling learners to ‘show and tell’ was also cited as having a positive impact in improving discussions between learners and parents around learning.

Improving efficiency

It is essential for Scotland’s learners that teachers are able to focus on teaching. The Curriculum for Excellence Working Group on Tackling Bureaucracy, established by the Scottish Government and partners, has highlighted the need to improve efficiency in several key areas, while *Teaching Scotland’s Future* calls for ‘better alignment, more agility and greater efficiency’ in approaches to professional learning.

Findings from the literature review

The literature review indicates that there is currently only limited academic research in this area. It does, however, point to some evidence suggests the use of digital approaches can have a positive impact in supporting teachers in planning and preparation, assessment, and professional learning. It also suggests that, over time, moving towards ‘blended learning’ (combining digital and traditional pedagogical methods) should lead to time efficiencies for teachers, if implemented effectively.

Examples highlighted by stakeholders

There are a significant number of examples of the efficiencies enabled by digital learning and teaching. These include teacher networks that enable educators to create, share, re-use and adapt classroom resources, saving time and effort; homework services that enable teachers to set, collect and mark online and provide parental support; the use of video conferencing to reduce teacher travel time and enable an increased number of learners to access specific curriculum expertise. The SQA Solar service has also afforded efficiencies through the practice of online assessments with feedback. Glow TV and Glow Meets have supported collaboration between teachers and external experts.

7. What are the key themes that require our focus?

The evidence tells us that there are a variety of ways that digital technology can be used in our education system to positive effect. However, we know from Education Scotland's *Building Society* report that this positive impact on outcomes is not being experienced universally by all of our learners.

Through research and consultation, four key themes are emerging:

- Empowering **leaders** of change to drive innovation and investment in digital technology for learning and teaching
- Improving **access** to digital technology for all learners
- Ensuring **curriculum and assessment** relevance in a digital context
- Extending the skills and confidence of **teachers** in the appropriate and effective use of digital technology

These are the essential foundations that must be in place if we are to fully realise our vision and enable digital learning and teaching to make the strongest possible contribution to the vision for education set out in the *National Improvement Framework*. Crucially, it is the combination of these factors that will create the optimum conditions for the appropriate and effective use of digital technology to support positive learner outcomes.

Beyond formal responses to this consultation (which should be submitted as per the guidelines set out in Annex B), ongoing dialogue and discussion related to these four themes will be facilitated on the new Digital Learning Community for Scotland website at www.digilearn.scot

Consultation Question 2:

Are the four key themes identified the right ones to focus on?
Are there other themes that should be considered?

Empowering **leaders** of change to drive innovation and investment in digital technology for learning and teaching

Sustainable change is most effective when supported by organisational structures and senior leader knowledge of what works best. Leadership is at its most effective when provided with the opportunities to create, share and innovate. Altering organisational models or leadership thinking are important factors in embedding change into systems.

Education leaders at a local authority and establishment level have the biggest single influence on the ethos, culture and direction of travel in our schools. As such, school leadership is recognised as one of the key drivers for improvement in the *National Improvement Framework*. Scotland's education leaders and decision makers at a national, local and school level need to understand how digital technology can support outcomes and help to deliver existing priorities, if they are to make positive decisions about innovation and investment.

One of the key aims of the Scottish College for Educational Leadership (SCEL) is to ensure that schools are research rich organisations, where policy and decision making are based on an extensive data set. SCEL and the General Teaching Council for Scotland (GTCS) are both pivotal in supporting the development of professional networks to enable knowledge exchange. Identifying and sharing evidence from a range of classroom practice can support valid conclusions about the wider impact of digital technology and can be of tremendous value to senior leaders.

The proposed **priorities for action** are to:

- Support senior leader collaboration and networking in identifying what approaches to the use of digital technology work and how to achieve change.
- Ensure that innovative schools collaborate and share their practice for the benefit of the wider community.
- Identify an appropriate approach to sharing research on digital technology in learning in a way that is most accessible to senior leaders and practitioners.
- Ensure that our vision for digital technology use is adequately captured and reflected in school improvement guidance and the approach to school inspections in Scotland.

Improving access to digital technology for all learners

Where learners and teachers have a high level of access to technology and appropriate infrastructure, confidence in the use of technology improves. Where variation in infrastructure and access exists, issues around educational inequality only become more pronounced. Improving access to devices and digital online services in school will help to establish a culture and pattern of use that have implications for school education and lifelong learning.

Local authorities are responsible for the delivery of education and therefore are responsible for providing learners with devices, connectivity and access to relevant online tools and services. The Scottish Government supports local authorities through the delivery of a high speed broadband connection and access to a range of tools and services via Glow for all learners and educators. A national procurement framework provides the opportunity to purchase devices at relatively low cost.

We know that learner access to infrastructure, technology and services that support learning differs from local authority to local authority, from school to school, and within schools. These variations have contributed to inconsistencies in the ways that children and young people across Scotland experience digital learning and teaching. Improved access for all our learners will require collaboration both at a local and national level, along with a strong commitment from all sides.

Alongside improved access, consideration needs to be given to child protection, data protection, content filtering, privacy and network security. Requirements for the specific setting of education are different from those in a corporate context – it is important to balance potential risk with the need for young people to learn to use relevant digital technologies in a real world environment.

The proposed **priorities for action** are to:

- Collaborate with partners, including local authority education and corporate services, to develop standards and guidance around learner access to digital technology in schools.
- Facilitate the sharing across local authorities of approaches to school infrastructure that put users at the heart of the design.
- Continue investment in high speed broadband through the Scottish Wide Area Network (SWAN).
- Consider future arrangements for Glow, ensuring the tools and services remain relevant and useful and continue to meet the requirements of the education system.
- Continue to provide a route to market for schools and local authorities for the procurement of digital devices.
- Explore the potential for other framework agreements that provide access to, for example, digital resources, services and support.
- Work with stakeholders to establish channels through which partnerships can enhance the provision of access to digital technology.

Ensuring curriculum and assessment relevance in a digital context

We know that in the future, many of our children and young people currently in education will be employed in jobs that do not exist yet. The *Digital Skills Investment Plan*, published in 2014, highlighted how important the ICT and digital technologies sector is to the Scottish economy. We need a curriculum that equips all children and young people in Scotland with the attributes, knowledge and skills they will need to flourish in life, learning and work in the 21st century. In a competitive globalised marketplace, those who do not possess these skills will find themselves at a severe disadvantage.

In today's rapidly changing social, economic and technological environment, keeping the curriculum up-to-date and relevant presents both an opportunity and a challenge – but doing so will be crucial to ensuring that digital learning and teaching is embedded in our schools.

Curriculum for Excellence sets out the totality of experiences planned for Scotland's children and young people throughout their education, across eight curriculum areas – expressive arts, health and wellbeing, languages, mathematics, religious and moral education, sciences, social studies, and technologies – as well as in the three areas that are the responsibility of all practitioners: literacy, numeracy, and health and wellbeing.

At present, 'ICT to enhance learning' is positioned as a strand of the technologies curriculum area, distinct from but related to other strands such as Computing Science and Technological Developments in Society. While Curriculum for Excellence guidance indicates that 'all teachers, in all sectors, in all departments and in all settings, have opportunities to apply, reinforce and extend ICT skills within and across curriculum areas', this is not formally a responsibility of all.

<https://www.educationscotland.gov.uk/learningandteaching/thecurriculum/>

Education Scotland's recent report on the technologies area of Curriculum for Excellence, *Building Society*, highlighted the challenge that we face in ensuring the curriculum is kept relevant in the 21st century:

We can be proud of what Scotland's technologies have achieved. However, that pride cannot lead to any sense of complacency when faced with the accelerating progress in the technologies around the world. Scotland's young people and communities need to be able to compete, thrive and provide leadership in that challenging environment.

The report concluded that "ICT has not yet had enough impact on young people's learning" and that "inclusion of advice on ICT with the other technologies, whilst logical in one sense, has diminished its influence and impact across the curriculum." Further, the report found that "developments in the digital technologies have accelerated since the original guidance on ICT was issued for Curriculum for Excellence. These developments have left 'ICT to enhance learning' looking like a dated concept, a product of its time which fails to promote an ambitious, accurate, forward-looking and creative role for the digital technologies."

Across the UK, careful consideration is being given to the position of digital skills within the curriculum. The recent review of the Welsh curriculum by Professor Graham Donaldson (*Successful Futures*, 2015) highlights that 'full participation in modern society and the workplace already demands increasingly high levels of digital competence and that process can only continue into a future that we cannot imagine'. The review calls for the development of a new 'digital competence framework' for Welsh learners, and proposes that 'literacy, numeracy and digital competence should be the responsibility of all teachers ... these are so fundamental to thinking, learning and life that they should be developed and reinforced across the curriculum as a whole'.

Similarly, a recent House of Lords select committee report on digital skills (*Make or Break: the UK's Digital Future*, 2015) stresses that for young people, 'digital literacy is an essential tool that underpins other subjects and almost all jobs', and recommends that 'digital literacy is taught as a core subject alongside numeracy and literacy, embedded across all subjects and throughout the curriculum'.

<http://gov.wales/topics/educationandskills/schoolshome/curriculuminwales/reform/successful-futures/?lang=en>

<http://www.parliament.uk/business/committees/committees-a-z/lords-select/digital-skills-committee/news/report-published/>

In light of Education Scotland's *Building Society* report and other developments within the UK and elsewhere, the question needs to be asked: Are the existing provisions for digital learning within Curriculum for Excellence consistent with our ambitions? And if the answer is 'no', what should be done to redress that?

Like the curriculum, assessment is integral to learning and teaching. It helps to build a picture of young person's progress and achievements, and to identify next steps in learning.

Approaches to assessment can be supported by the use of digital technology in a range of innovative and powerful ways, such as: collecting and submitting evidence in a variety of digital formats; enabling the assessment of valuable skills that are otherwise difficult to capture; or providing opportunities for learners to undertake assessment at times and locations of their choice, thereby helping to personalise learning and widen access. We must ensure that assessment practices make full use of these opportunities to help to deliver positive outcomes for our learners.

The proposed **priorities for action** are to:

- Work with stakeholders to review the aspects of Curriculum for Excellence relating to the use of digital technology, considering their place within the curriculum structure and ensuring that they are relevant, ambitious and forward-looking.
- Work with SQA and other key partners to support, develop and embed approaches to assessment that make full use of digital technology.
- Explore ways in which digital technology can support the individual needs and capabilities of learners, and provide feedback to practitioners that is specific to the individual learner.

Extending the skills and confidence of **teachers** in the appropriate and effective use of digital technology

Excellent teaching is at the heart of improving outcomes for learners; digital technology can support this but it cannot replace it. In order to unlock the full potential of digital technology to enrich learning in Scotland's schools, it is vital to ensure that the teaching profession has the skills and confidence to use digital technology appropriately and effectively across the curriculum.

Teacher professionalism is highlighted as a key driver for improvement in the *National Improvement Framework*, and *Teaching Scotland's Future* aims to improve professional learning for all parts of the teaching profession, from initial teacher education through to senior leadership. It recognises the pivotal importance of digital technology.

Twenty-first century Scots require high levels of skill and resilience if they are to thrive in a highly competitive, technologically sophisticated and interdependent world. Ensuring our education system anticipates and addresses the rapidly changing and variable needs of learners is a central professional and policy concern. The role of educators in preparing learners to engage successfully in this environment is of huge significance.

The GTCS Standards for Registration and for Career Long Professional Learning make clear that teachers must know how to use digital technology competently to support learning. To meet these standards, it is imperative that those entering the profession acquire a solid foundation in the use of digital technology through Initial Teacher Education. *Teaching Scotland's Future* stresses that 'this vital early phase in the development of new teachers must be relevant, coherent and of high quality'. Similarly, there must be learning and development opportunities for teachers at all career stages to ensure their skills remain relevant, appropriate and up-to-date.

Digital technologies hold vast potential not just for enriching learning and teaching, but also for supporting teacher education and professional learning in a variety of ways. Professional dialogue and collaborative learning, for example – both key elements of professional learning – can be enhanced through professional learning communities and collaborative online spaces. Similarly, tools like Insight – the senior phase benchmarking tool made available by the Scottish Government – can support practitioners to identify areas of success and drive improvement. Digital technologies such as these can provide real opportunities for teachers to progress, enrich, develop and enhance their knowledge and practice. This is reflected in the importance placed on data literacy skills for teachers by the *National Improvement Framework*.

The proposed **priorities for action** are to:

- Open a dialogue with Initial Teacher Education (ITE) providers to agree an approach for embedding digital learning and teaching in ITE, in line with the GTCS Standards for Registration.
- Work with key partners to ensure a range of professional learning opportunities are available to teachers at all stages to equip them with the skills and confidence to use technology effectively, in line with the GTCS Standards for Career Long Professional Learning.

- Liaise with relevant stakeholders to promote greater use of national online learning spaces and professional learning communities to support teacher networking and dialogue.
- Ensure there are stronger links with relevant European and global networks to improve the two-way sharing of information, advice and dialogue between educators on a global scale.

Consultation Question 3:

Do you agree with the proposed priorities for action outlined in the 'leaders' theme? Are there other actions that should be considered? (page 16)

Consultation Question 4:

Do you agree with the proposed priorities for action outlined in the 'access' theme? Are there other actions that should be considered? (page 17)

Consultation Question 5:

Do you agree with the proposed priorities for action outlined in the 'curriculum and assessment' theme? Are there other actions that should be considered? (pages 18-19)

Consultation Question 6:

Do you agree with the proposed priorities for action outlined in the 'teachers' theme? Are there other actions that should be considered? (pages 20-21)

8. How will this strategy be used to embed change?

This high level strategy for digital learning and teaching is the overarching driver for change. Such change can only be achieved where all of those with an interest in the future of Scottish education work together.

For each of the four key themes in this strategy, the Scottish Government and its partners will develop action plans detailing the activities that will be delivered. Those partners will include organisations that represent and work with a range of stakeholders from across the education community.

The final strategy will be closely aligned with work being taken forward on the new *National Improvement Framework*.

The action plans will be available in 2016.

9. How will we know if we are succeeding?

We will have access to a body of data from a number of national surveys that will help us to judge progress. These include: the upcoming review of Teaching Scotland's Future; Behaviour in Scottish Schools Research; and the Scottish Survey of Literacy and Numeracy. The content of Education Scotland inspection letters with regard to the use of technology will also be key in understanding any changes in the landscape.

We will know we are succeeding if we are able to see: networking and collaboration underpinning teacher professional learning with evidence of digital technology supporting approaches to learning and teaching; a growing body of research and evidence from within a Scottish context that is accessed by senior leaders and teachers to inform planning and practice; and an improvement in infrastructure and access to the most relevant digital technology in schools.

We want all of Scotland's schools to be places where:

- All learners have equitable access to fast broadband and digital technology in the school.
- Teachers have the knowledge and confidence to apply and justify their own professional approaches to digital learning and teaching.
- The curriculum will constantly evolve.
- Assessment strategies will embed digital practices.
- School structures and organisation ensure the best outcomes from the application of digital technology.
- Research and evidence underpins decisions around approaches to digital learning and teaching.
- Senior leaders and teachers make decisions around the use of digital technology that best reflects their own local contexts and needs.
- We have a clear method to measure the impact of our changes.

Consultation Question 7:

Would you be willing to share your experiences of digital learning and teaching with us?

Consultation Question 8:

Is there anything else you wish to add about the strategy?

Appendix A – Support for digital learning and teaching provided by the Scottish Government

Glow

Glow provides single sign-on access to a wide variety of digital tools and resources designed to support rich learning experiences across all areas of Curriculum for Excellence, accessible anywhere, at any time, on virtually any device. It is supported financially by the Scottish Government and is made available via Education Scotland to all schools at no cost. The core services include the following:

- **Glow Office 365** provides access to a variety of features including email and calendars; word processing, spreadsheet and presentation tools; collaboration spaces; newsfeeds to share ideas, post updates and ask questions; tools to create personal and shared websites; and online storage.
- **Glow Blogs** enable learners to develop and publish personal blogs, helping them to improve communication and presentation skills, as well as supporting them to reflect on, share and discuss personal learning experiences with others.
- **Glow Wikis** enable learners to work collectively with peers to develop and publish educational resources connected to their learning experiences.
- **Glow Meet** is a broadcasting tool that supports learners and teachers to connect with experts and share learning experiences with peers across Scotland via live streaming video that can be recorded, shared and watched at any time.

A broad variety of educational apps are also available via the Glow App Library, with options open to schools and local authorities to add new apps and tailor Glow to suit local contexts. In addition, a new, intuitive authentication service is in place that streamlines account management for schools and local authorities and makes password resets easier.

More information on the purpose of Glow is set out in the [Glow Position Statement](#), and further details about the services and examples of ways these are used in practice are available at the [Glow Connect](#) website.

National Procurement Framework for Tablet and Notebook Devices

This national framework provides a direct route to market for schools and local authorities interested in purchasing tablets and notebooks for education purposes, offering significant savings against the RRP of a wide range of devices. Since its launch in 2013, over 57,000 devices have been purchased through this framework, achieving a total saving for schools and local authorities of over £2.75m. More information is available at the [Scottish Government](#) website.

Scottish Wide Area Network (SWAN)

SWAN is a single public services network available for all public sector organisations in Scotland. To support improved, high speed access to the internet and online learning and teaching services such as Glow, the Scottish Government funds SWAN connectivity of 500MB, to each local authority for education purposes (where local infrastructure permits). Local authorities have the opportunity for further upgrades at their own cost and are themselves responsible for the onward connectivity to individual education establishments. More information is available at the [SWAN](#) website.

Appendix B – Consultation information and questions

The purpose of this consultation

This consultation builds on work across Scotland to create the conditions to unlock the full potential of digital learning and teaching in all our schools to improve outcomes for our children and young people. It seeks the views of all stakeholders with an interest in ensuring that learners today are well-equipped for learning, life and work in the 21st century. This document has been produced by the Scottish Government and been informed by international research as well as input from a wide range of stakeholders.

Responding to this consultation

Responses should reach us by **17 December 2015**. Earlier responses would be welcome.

You can complete your consultation response **online** at:

<https://consult.scotland.gov.uk/learning-directorate/digital-learning>

Alternatively, you can send your response, including the completed Respondent Information Form (see 'Handling your response' below), by **email** to:

DigitalLearning@gov.scot

or by **post** to:

Digital Learning and Teaching Team
Scottish Government
2A South
Victoria Quay
Edinburgh
EH6 6QQ

If you have any queries, please contact the Digital Learning and Teaching Team on 0131 244 4964.

This consultation, and all other Scottish Government consultation exercises, can be viewed online on the consultation web pages of the Scottish Government website at <http://www.scotland.gov.uk/consultations>.

The Scottish Government has an email alert system for consultations <http://register.scotland.gov.uk>. This system allows stakeholders, individuals and organisations to register and receive a weekly email containing details of all new consultations (including web links). It complements, but in no way replaces, SG distribution lists, and is designed to allow stakeholders to keep up to date with all SG consultation activity, and therefore be alerted at the earliest opportunity to those of most interest.

Handling your response

We need to know how you wish your response to be handled and, in particular, whether you are happy for your response to be made public. If you respond by email or post, please include a completed Respondent Information Form, provided at the end of this document. This will ensure that we treat your response appropriately. If you ask for your response not to be published we will regard it as confidential, and we will treat it accordingly. (If you respond online, the Respondent Information Form is built into the survey.)

All respondents should be aware that the Scottish Government are subject to the provisions of the Freedom of Information (Scotland) Act 2002 and would therefore have to consider any request made to it under the Act for information relating to responses made to this consultation exercise.

Next steps in the process

Where respondents have given permission for their response to be made public and after we have checked that they contain no potentially defamatory material, responses will be made available to the public in the Scottish Government Library. These will be made available to the public in the Scottish Government Library by and on the Scottish Government consultation web pages by 20 January 2016. You can make arrangements to view responses by contacting the SG Library on 0131 244 4552. Responses can be copied and sent to you, but a charge may be made for this service.

What happens next?

Following the closing date, all responses will be analysed and considered along with any other available and will inform development of a final strategy, which we aim to publish in Spring 2016.

Impact Assessments

This consultation will allow us to gather information and evidence to inform the development and subsequent publication of required impact assessments.

Comments and complaints

If you have any comments about how this consultation exercise had been conducted, please send them to the contact details above.

Consultation Questions

Specific questions on which the Scottish Government is seeking views are listed below and are also included on the Respondent Information Form (at the end of this document). To aid our analysis, it would be helpful if responses could be structured around these questions. However, we welcome contributions on any aspect of this consultation document, and consultees are free to provide additional comments, suggestions and information which they feel are not covered by this format.

- Q1:** Is the strategy founded on the right principles? Are there other principles that should be considered as we continue to develop the strategy? (Page 11)
- Q2:** Are the four key themes identified the right ones to focus on? Are there other themes that should be considered? (Page 15)
- Q3:** Do you agree with the priorities for action outlined in the 'leaders' theme? Are there other actions that should be considered? (Page 16)
- Q4:** Do you agree with the priorities for action outlined in the 'access' theme? Are there other actions that should be considered? (Page 17)
- Q5:** Do you agree with the priorities for action outlined in the 'curriculum and assessment' theme? Are there other actions that should be considered? (Pages 18-19)
- Q6:** Do you agree with the priorities for action outlined in the 'teachers' theme? Are there other actions that should be considered? (Pages 20-21)
- Q7:** Would you be willing to share your experiences of digital learning and teaching with us?
- Q8:** Is there anything else you wish to add about the strategy?

Consultation on a proposal for a Digital Learning and Teaching Strategy for Scotland



RESPONDENT INFORMATION FORM

Please note that this form **must** be returned with your response to ensure that we handle your response appropriately

1. Name / Organisation

Title Mr Ms Mrs Miss Dr **Please tick as appropriate**

Surname

Forename

Organisation Name

2. Postal Address

<input type="text"/>		
<input type="text"/>		
<input type="text"/>		
<input type="text"/>		
Postcode	Phone	Email

3. Permissions

I am responding as an...

Individual

/

Organisation or Group

Please tick as appropriate

(a) Do you agree to your response being made available to the public (in Scottish Government library and/or on the Scottish Government web site)?

Please tick as appropriate

Yes No

(c) The name and address of your organisation **will be** made available to the public (in the Scottish Government library and/or on the Scottish Government web site).

Are you content for your **response** to be made available?

Please tick as appropriate

Yes No

(b) Where confidentiality is not requested, we will make your responses available to the public on the following basis

Please tick ONE of the following boxes

Yes, make my response, name and address all available

or

Yes, make my response and name available, but not my address

or

Yes, make my response available, but not my name and address

(d) We will share your response internally with other Scottish Government policy teams who may be addressing the issues you discuss. They may wish to contact you again in the future, but we require your permission to do so. Are you content for Scottish Government to contact you again in relation to this consultation exercise?

Please tick as appropriate

Yes

No

Question 1

Is the strategy founded on the right principles? (Page 11)

Yes No

Are there other principles that should be considered?

Question 2

Are the four key themes identified the right ones to focus on? (Page 15)

Yes No

Are there other themes that should be considered?

Question 3

Do you agree with the priorities for action outlined in the 'leaders' theme? (Page 16)

Yes No

Are there other actions that should be considered?

Question 4

Do you agree with the priorities for action outlined in the 'access' theme? (Page 17)

Yes No

Are there other actions that should be considered?

Question 5

Do you agree with the priorities for action outlined in the 'curriculum and assessment' theme? (Pages 18-19)

Yes No

Are there other actions that should be considered?

Question 6

Do you agree with the priorities for action outlined in the 'teachers' theme? (Pages 20-21)

Yes No

Are there other actions that should be considered?

Question 7

Would you be willing to share your experiences of digital learning and teaching with us?

Yes No

If so, please provide the details you would like us to use to contact you (e.g. an email address) in the box below.

Question 8

Is there anything else you wish to add about the strategy?



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This publication is available at www.gov.scot

Any enquiries regarding this publication should be sent to us at
The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

ISBN: 978-1-78544-679-5 (web only)

Published by The Scottish Government, September 2015

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS54549 (09/15)

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