Response to the ICT Steering Group's report to the

Welsh Government

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Ministerial foreword

In January 2013, my predecessor established an independent steering group to explore and consider the future of computer science and ICT in schools in Wales. The membership of the group was comprised of representatives from a cross-section of key stakeholders and was chaired by Stuart Arthur, Box UK, Tom Crick, Cardiff Metropolitan University and Janet Hayward, Cadoxton Primary School. The group was tasked with delivering a report which set out their recommendations on a way forward and which considered, amongst others, the following themes:

- 'ICT' in schools needs to be re-branded, re-engineered and made relevant to now and to the future.
- Digital literacy is the start and not the end point – learners need to be taught to create as well as to consume.
- Computer science should be introduced at primary school and developed over the course of the curriculum so that learners can progress into a career pathway in the sector.
- Skills, such as creative problem-solving, should be reflected in the curriculum.
- Revised qualifications need to be developed in partnership with schools, Higher Education and industry.

The report of the ICT Steering Group, published in October, posed some very significant questions and explored themes that I committed to considering during the next stage of work in our review of curriculum and assessment arrangements in Wales.

On 12 March I announced that Professor Graham Donaldson would be chairing an independent review of these arrangements and would provide recommendations to inform our development of a Curriculum for Wales. The report of the ICT Steering Group will form an important part of the evidence base as Professor Donaldson takes this work forward.

I would like to thank Janet, Stuart, Tom, and members of the ICT Steering Group for all their work in producing the report and its recommendations. I would also like to express my gratitude to everyone who worked alongside them, contributed to their work, and to those who provided responses to the consultation exercise that took place. A range of stakeholders have made a key contribution to the development of this report and we will continue to work with them and other partners as we take this work forward.

The recommendations contained in the report are wide-reaching, and I have set out my initial response to each of them. In doing so, I have grouped those recommendations that relate to the curriculum in the first instance. These will be considered in more detail by Professor Donaldson.

Huw Lewis AM
Minister for Education and Skills

Response to recommendations: the curriculum

Recommendation 1: A new subject named Computing should be created to replace Information and Communications Technology (ICT) from Foundation Phase onwards. This new subject will disaggregate into two main areas: Computer Science (CS); and Information Technology (IT).

Recommendation 2: Computing should be integrated into the curriculum as the fourth science, served by a mandatory Programme of Study, and receive the same status as the other three sciences.

Recommendation 3: A Statutory Digital Literacy (DL) Framework should be implemented to work alongside the Literacy and Numeracy Framework from Foundation Phase through to post-16 education.

Recommendation 5: The revised Computing curriculum should encourage creativity, allow thematic working and develop real world problem-solving. It should be flexible enough to continually evolve to remain current, adopting an Agile ideology and approach to ensure this.

Recommendation 7: Engagement and collaboration between education and industry should be an integral part of the curriculum to embed current practices and skills.

Recommendation 9: A programme of training and professional development to enable the new Computing curriculum should be accessible to new and existing teachers

Recommendation 12: An appropriate body or properly constituted group should oversee the implementation of these recommendations. Its remit would need to be broad enough to encompass this crucial governance role, utilising appropriate expertise and representing key stakeholders.

I have asked Professor Donaldson to consider these important recommendations as part of his independent review of our curriculum and assessment arrangements. Nevertheless, I am pleased to confirm that initial scoping work towards the development of a framework for the teaching and learning of digital literacy skills has already taken place.

Our recent Curriculum for Wales consultation[1] included proposals to include digital literacy as a key theme under 'Wider Skills', with the intention of placing these on a statutory footing in the curriculum in Wales.

The proposed list of Wider Skills acknowledges the importance we place on the setting of learning in real life contexts and the need for a curriculum that encourages creative approaches to exploration, learning and problem solving. They include:

- critical thinking and problem solving
- planning and organising
- creativity and innovation
- personal effectiveness
- digital literacy

These skills would be a central feature of curriculum arrangements from Foundation Phase through to key stage 4 and would ensure alignment with, and progression towards, a revised model for the Welsh Baccalaureate.

There has been overwhelming stakeholder support for the introduction of Wider Skills

and, importantly, a large body of evidence supporting and welcoming the inclusion of digital literacy skills. A summary of responses is available online[2]. The Wider Skills concept will be considered further as part of Professor Donaldson's independent review.

Pending the outcome of this review, further consideration will be given to how any of our curriculum changes are governed and implemented. This will include giving consideration to the need for bespoke training to support their delivery. The Welsh Government is fully committed to training and professional development in order to support our workforce and as tools for maintaining standards of provision.

[1, 2] http://wales.gov.uk/consultations/education/curriculum-for-wales/?status=closed&lang=en

Response to other recommendations

Recommendation 4: Perceptions of Computing education pathways should be changed to recognise the key societal roles of computing and technology, as well as promote the importance and diversity of IT careers.

Science, technology, engineering and mathematics disciplines are vital to a wide range of jobs and to economic growth in Wales. Within this, Computing has an important role to play. Where young people express an interest in Computing or ICT, Careers Wales advisers are well placed to provide them with professional advice and guidance on the sector and the opportunities available. Up to date labour market intelligence, including computing and ICT related career opportunities, is hosted on the Careerwales.com web site in a format that is easily used and understood by clients.

In addition, the British Computer Society (BCS) has been very proactive in providing support materials for schools and highlighting the variety of options in computing careers. The BCS has worked with Careers Wales and other providers to highlight the support available and to link computing employers to schools. The National Science Academy also supports STEM enrichment and promotion, which includes computing, and current projects include the development of practical skills and teaching in computing education.

Looking more broadly at the provision of careers education, the Welsh Government is working with various stakeholders to develop an ESF funded programme to increase school capacity to deliver the Careers and the World of Work framework and improve the quality of its delivery. This will include an examination of provision aimed at ensuring young people have a view of the modern world of work, the skills required and, importantly, the career options available.

Subject to the outcome of Professor Donaldson's independent review, consideration will be given to how we promote subject areas including, where appropriate, Computing within the curriculum.

Computing education pathways are discussed further in the response to recommendation 6 below.

Recommendation 6: A range of engaging and academically rigorous pathways and bilingual qualifications for Computing and Digital Literacy should be devised, encouraging interest and opportunities for deeper learning.

The Welsh Government remains absolutely committed to the provision and take-up of Welsh-medium and bilingual provision in its education system, as evidenced by its Welsh-medium Education Strategy.

In line with this strategy, we will ensure the development of appropriate bilingual pathways for learning to align with, and progress towards, new and revised qualifications being developed in response to the Review of Qualifications.

The Welsh Baccalaureate
Following the outcome of the Review of Qualifications, work is being taken forward on a revised model for the Welsh Baccalaureate that would assess learners' digital literacy skills as part of a new qualification that will be available bilingually. This work is being aligned with the development of wider skills as statutory elements of the curriculum, as proposed in the recent phase one consultation document[3].

GCSEs
Whilst neither ICT nor Computing are included in the first tranche of new GCSEs to be taught in Wales from September 2015, a second tranche is proposed from September 2016. As part of the development of this second tranche, careful consideration will be given to ensure alignment with any proposals that develop during Professor Donaldson's independent review.

A-levels
Beyond Key Stage 4, the Welsh Government intends to introduce revisions to the current AS and A levels in Computing to be taught in Wales from September 2015. During this process, the Welsh Government will work with Awarding Organisations and other stakeholders to ensure that the new AS and A levels meet the needs of our learners.

All the new and revised GCSEs will be available bilingually and each reformed A level subject will also be available bilingually.

[3]http://wales.gov.uk/consultations/education/curriculum-for-wales/?status=closed&lang=en

Recommendation 8: Pathways for Initial Teacher Training (ITT) in Computing should be created to encourage the best talent into the profession. All entrants to the teaching profession should have the skills to deliver the Digital Literacy Framework (DLF).

The Welsh Government recognises the importance of developing pathways for Initial Teacher Training that encourage the best talent into the profession and support entrants to develop the requisite skills to become effective teachers.

Systems are in place to ensure that any changes to the National Curriculum in relation to ICT, Computing or Digital Literacy, would lead automatically to changes in both Qualified Teacher Status (QTS) standards and Initial Teacher Training (ITT)

requirements. Relevant support would then be provided to ITT Centres and employment based teacher training providers to support this change.

In 2013/14 we reintroduced ICT as a priority subject with an emphasis on attracting high quality candidates with computer science or software coding degree specialism. Eligible individuals with a 1st degree classification were able to receive a £15k training incentive on top of student support that they might be entitled to. Following from this, we have announced that In 2014/15 this subject area will still include a high level incentive, depending on degree classification, in order to continue to attract quality graduates with a high level of computer science into teaching.

As stated previously, pending the outcome of Professor Donaldson's review, further consideration will be given to the need for bespoke training to support the delivery of any curriculum changes going forward. The Welsh Government is fully committed to training and professional development in order to support our workforce and as tools for maintaining standards of provision.

Recommendation 10: A National Technology Framework should be devised to create an effective technology infrastructure for education. Welsh Government, local authorities, industry and learning providers should be responsible for its effective implementation and strategic development.

The Welsh Government recognises the benefits of the approach proposed in this recommendation. At the same time, it is important to note that a significant level of variation exists across the system currently. Also that an effective framework would require buy in and commitment from a wide range of stakeholders across Wales in order to be effective. As such, an assessment of the existing infrastructure in schools in Wales is required, alongside a period of stakeholder engagement to determine the appetite for, and commitment towards change, before the Welsh Government can agree to take this recommendation forward in practice.

Welsh Government officials will begin this scoping work over the coming months, which will include an analysis of the additional resources required to deliver this recommendation.

Recommendation 11: Effective monitoring arrangements should be created for Computing and the Digital Literacy Framework. Estyn should consider relevant changes to the Common Inspection Framework in light of all of these recommendations.

We recognise that effective monitoring arrangements for all subject areas are essential in ensuring their effective delivery. However, effective monitoring arrangements are a matter for providers and for local authorities in the first instance. We will consider the need and scope for guidance on such arrangements following the outcome of the independent review.

Estyn is an independent inspectorate and, as such, any changes to the Common Inspection Framework will need to be negotiated with them. However, consideration can be given to remitting Estyn to undertake a thematic review to examine the delivery

and effectiveness of a particular area, including monitoring arrangements put in place. As with previous recommendations, these discussions will be subject to the outcome of the next phase of work.