

Rt Hon Michael Gove MP
Secretary of State for Education
Department for Education

06 June 2011

Re: Computer Science At School

Enabling the
information society

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Chief Executive

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This letter is sent on behalf of

- Mr Matt Brittin, Managing Director UK & Ireland Operations Google UK
- Dr Hermann Hauser Hon-CBE FREng, Venture Capitalist and co-Founder of Amadeus Capital Partners (appointed by the Prime Minister to the Council for Science and Technology)
- Dr Andrew Herbert OBE FREng, Chairman Microsoft Research EMEA
- Mr Ian Livingstone OBE, Life President Eidos and Chair Computer Games Skills Council
- Mr Keith Williams FBCS, Managing Director Altran Praxis, Global Executive Director - Embedded & Critical Systems Altran
- Mr Alex Hope, Managing Director Double Negative, Board Director of the UK Screen Association (Double Negative won the 2011 Oscar for best Visual Effects)
- Mr Andy Mulholland, Corporate Vice President & Global Chief Technology Officer Capgemini Group
- Mr John Lazar, Chairman Metaswitch (four times winner of the Queen's Award for Enterprise, including the Queen's Award for Technology Innovation in 2010)
- Mr David Docherty, Chief Executive of the Council For Industry and Higher Education, and Chairman of the Digital Television Group
- Mr Hasan Bakhshi, Director Creative Industries National Endowment for Science, Technology and the Arts
- Mr John Higgins CBE, Director General Intellect
- Mr David Clarke MBE FBCS, Chief Executive BCS

Dear Mr Gove,

We believe it is of strategic national importance that all children have the option to study Computing in school between the ages of eleven and sixteen. There are many companies and organisations across the country willing to use their own resources to get Computing taught in schools, through direct support for computing teachers and by supporting a national network of extra-curricula enrichment activities. For these to succeed however, schools need to believe the Government treats Computing as a subject equal to Maths or Physics.

Computing is a rigorous, intellectually demanding and exciting discipline that gives children the ability to shape the digital world they live in, as well as being a practical and applied Science much valued by our industry and commerce. Currently we teach ICT, which does not involve any Computing and in most cases has become solely teaching children functional IT user skills, which makes them passive consumers of technology.

The digital revolution is gathering pace, not slowing down. It is a vital contributor to economic growth. According to the Royal Society¹ *"The 'digital revolution' over the past two decades has fundamentally changed the way many services are delivered and consumed (through the enablement of disruptive business models), as well as the internal processes of firms themselves. Computing, communications, IT, the internet, the worldwide web, massive distributed databases, large scale*

¹ Hidden wealth: the contribution of science to service sector innovation, RS Policy document 09/09, Issued: July 2009 RS1496

computer modelling and deep numerate analysis are fundamental STEM underpinnings to many areas of service innovation.”

New disruptive digital business models have led to an e-commerce market in the UK of over £100bn in 2010². For example, in 2010 tesco.com alone had sales of £2bn. Companies such as Rolls Royce Aerospace rely on computer-aided design and manufacturing systems to remain at the cutting edge of aerospace technology. Global corporations use advanced software to optimise and control production workflows for their worldwide supply chains, directly improving profitability and competitiveness. The finance sector is entirely dependent on computing and communications. Computing also has a profound impact on our science base and our ability to meet humanity's greatest challenges: Fundamental improvements to human health arising from sequencing of the human genome, the ability to increase agricultural production to feed the burgeoning human population, the understanding of climate change and the design, production and operation of low carbon technologies, are all only possible because of automated collection and processing of vast amounts of information using groundbreaking software and hardware.

The same digital revolution also means that online attacks are constantly developing in sophistication and severity. The Cabinet Office estimates³ that cyber attacks cost the UK economy £27bn per year, and this figure is growing rapidly. For an advanced economy such as the UK, we must ensure that competitiveness is not undermined by information theft, that the public has confidence in transacting online with British business, and that our national security needs can be met.

Our economic competitors in *India* and *China* recognize that it is advances in Computing that are powering innovation and growth. In the *US*, Congress is worried that their shortage of IT professionals gives other countries a competitive advantage that threatens their security and technology leadership. According to the European Commission⁴ the UK will need half a million additional IT professionals by 2015.

So if the UK is to compete successfully, now and in the future, we need professionals who can invent new digital technologies, professionals who can integrate those inventions into technology platforms, and professionals who can build software applications that address business needs. We also need professionals capable of protecting our information, our digital infrastructure and our intellectual property. The path to this professionalism can only begin in schools.

But there is currently no educational route from KS3 leading to any of the above important professional roles. We all know functional skills are essential basic skills, but they alone are utterly incapable of providing a progression route into the IT profession and the many industries that require a workforce with a sound understanding of the underpinning principles of Computing.

² <http://www.guardian.co.uk/technology/2010/oct/28/net-worth-100bn-uk>

³ “The Cost of Cyber Crime” March 2011, OCSIA Cabinet Office and Detica.

⁴ Evaluation of the implementation of the communication of the European Commission E-Skills for the 21st Century, Tobias Hüsing Werner B. Korte, European Commission Oct 2010

We need Computing in schools as part of the National Curriculum. This is recommended by the Livingstone-Hope Skills Review of Video Games and Visual Effects Industries⁵ called for by Ed Vaizey, also recommended by E4E⁶ who represent the collective view of 36 professional bodies, the Engineering Council and the Royal Academy of Engineering, and by Intellect⁷ who represent more than 780 companies ranging from SMEs to multinationals including BAE Systems, BT, HP, IBM, Intel, Logica, Microsoft, Motorola, Nokia, Philips, SAP and Sony.

We believe that we can help, and we would welcome an opportunity to discuss with you these issues and how we can work together to address them.

Yours sincerely



David Clarke MBE
Chief Executive, BCS

⁵ www.nesta.org.uk/library/documents/NextGenv32.pdf

⁶ www.educationforengineering.org.uk/policy/pdfs/E4E_NC_Review.pdf

⁷ http://www.intellectuk.org/component/docman/doc_download/5127-intellect-response-to-national-curriculum-review-april-2011