



# EDUCATION TECHNOLOGY LEADERSHIP BRIEFING PAPER

Impartial Overview of Education Technology  
Implementation and Use in UK Schools  
(January 2016)

## Abstract

This is a briefing paper for school leaders, which aims to provide support for key leadership decisions relating to the purchase, implementation and use of Education Technology.

**Dave Smith and David Whyley**

Dave Smith Senior Vice Chair of Naace/Computing and Online Safety Adviser Havering Education Services  
David Whyley - CEO and Learning Technologies Consultant Whytek Consulting/Naace Board Member

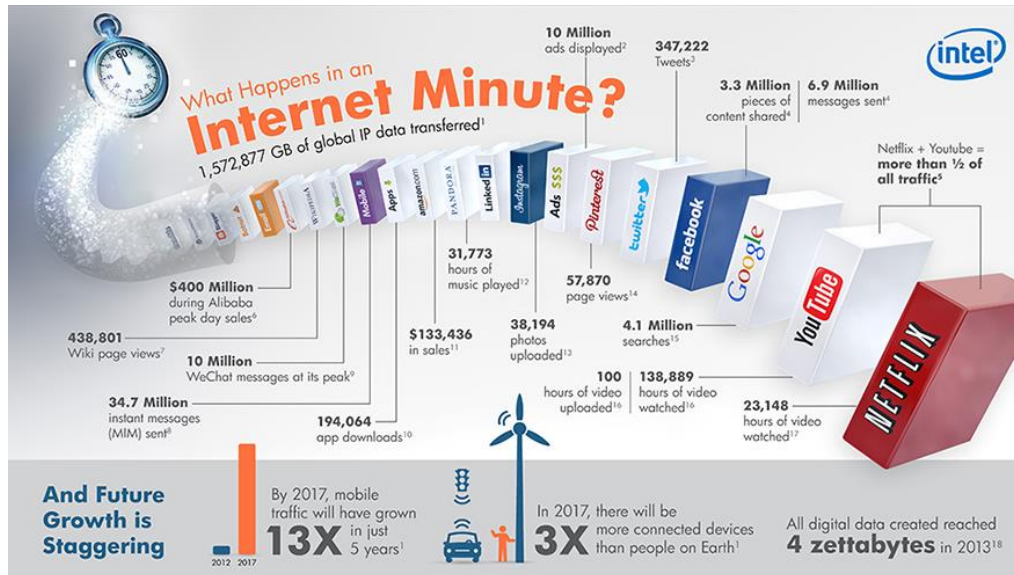
## Contents

Background:.....	2
Main Themes .....	3
Introduction.....	3
Funding and ICT Investment.....	4
ICT Provision .....	5
Access to ICT.....	7
Training.....	9
Time Exposed to ICT .....	10
Quick Audit Tool .....	12
Authors of the Briefing Paper.....	13
About BESA and NAACE.....	14



## Education Technology Implementation and Use in Schools (January 2016)

**Background:** The world of technology is fast changing and it is often difficult to keep pace with new developments in technology, let alone contemplate how they will benefit teaching and learning.



From <http://www.intel.co.uk/content/www/uk/en/communications/internet-minute-infographic.html>

During the authors' visits to schools, school leaders are indicating that they are struggling to find independent advice on the overall state of ICT and the use of technology in schools. They are also highlighting that they need contextual information to inform their key technology decisions.

This is a briefing paper for school leaders, which aims to provide support for key leadership decisions relating to the purchase implementation and use of education technology.

Since the demise of Becta, as well as the cessation of central advice regarding effective use of technology in schools from the Department for Education and Ofsted, there has been little published research into how schools are purchasing and utilising technology for their core functions in England. The BESA Survey provides data each year for its members. Naace is an independent organisation that provides education technology guidance and support to schools and educationalists. Both organisations have collaborated to produce this briefing document for school leaders.

This document has been completed drawing the following sources of information and data:

- BESA Information and Communication Technology in State Schools - Full Report Volume 1 Opinions and Trends – Published September - carried out by C3 Education and NERP
- Naace technology trends from its experience delivering its services to the education community including the Naace Self Review Framework (SRF)

It is the purpose of this briefing paper to: -

- Indicate current trends in technology implementation and use in schools.
- Provide school leaders with a national ICT background context in which to make their decisions at a school level.
- Indicate key leadership questions which might be asked as a result of the key findings of this research

## Main Themes

The main themes emerging are: -

- Theme 1 - Ongoing funding of Education Technology by Schools
- Theme 2 - Trend towards Laptops and Tablets as computing devices
- Theme 3 - Provision of a robust Wi-Fi and Broadband Infrastructure
- Theme 4 - Provision of adequate levels of Education Technology access
- Theme 5 - The need for CPD with the introduction of more laptops and tablets
- Theme 6 - The need for a range of high quality digital content

## Introduction

### Relevance

The need for independent research into UK schools and their Information and Communications Technology (ICT) has been a BESA priority for many years, and the report on which this briefing paper is based forms part of an ongoing programme to investigate the market. The BESA ICT report is the 18th in a series of annual surveys, which aims to identify the provision and use of ICT in UK state schools. The BESA survey provides the data for the contextual background. The key points which indicate the relevance of the data are: -

- A sample size of 719 primary and 485 secondary schools formed the basis of this research.
- The survey is representative of 22000 primary and 4000 secondary schools in the UK
- NERP technology index ensures that is not biased towards more technologically advanced schools
- There is a representative spread across all school sizes and types such as spread from rural (small) to urban (large)
- There is a wide range of responses from across the nine standard English regions in addition to Wales, Scotland and Northern Ireland.

### Key Leadership focuses:

- ✓ The robustness of the data source for this paper
- ✓ The ability to use the findings of this survey to provide a contextual reference for my own school



## Funding and ICT Investment

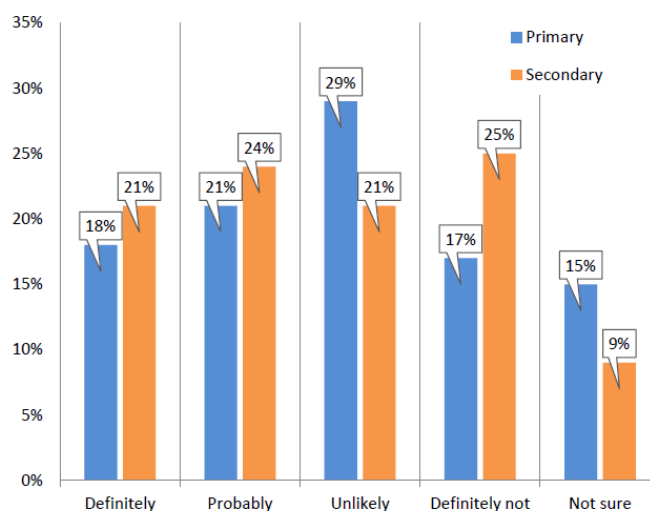
### ICT Investment

This section of the advice paper examines the trends in planned ICT investments and the ability of schools to maintain those investments once their budgets are known. The survey also offers an insight into the possible areas of technology that might be positively and negatively impacted.

Overall, there are a greater number of secondary schools indicating the need to significantly downgrade current ICT investments that were originally planned in 2014. Primary schools continue to have concerns over the ability to follow through with plans for ICT investments.

19% of Primary Schools and 12% of Secondary schools stated that they were significantly downgrading their technology investment expectations in 2015/16 over those planned back in 2014. Looking forward to 2016/17 the number of schools unlikely to maintain ICT investments is increasing (see chart)

**Chart 1.1.3** Do you think that you will be able to maintain your planned ICT investments for 2016/17? – All UK schools



Key points relating to investment in ICT include: -

- 46% of all schools feel unlikely or unable to maintain ICT investments moving forward to 2016/17. Overall, the expectations for securing planned ICT investments into 2016/17 is finely balanced between those that are positive and those which are negative, which comes after several years of bias towards being positive. NB. This is an increase from previous years.
- 19% will be downgrading investments with only 15% investing more than expected. However, 14% (primary) and 15% (secondary) respectively, are expecting to invest more than expected.
- In the primary sector investment in system software content and learning platforms may be downgraded.
- The findings suggest that if budgets are higher than expected, then additional digital content purchases may be made; however, if budgets are lower than planned then digital content provision may be one of the first casualties in spending.
- Across secondary schools there is also pressure on teacher and administrative computer purchasing.
- School leaders may be surprised that there is only a 17% (in both sectors) positive impact on spending on pupil devices.
- Spending is on the increase on assessment systems. Most likely due to changes in National Curriculum – in terms of ‘Assessment without Levels’
- Focus on improving networking is comparatively high.

### Key Leadership Questions:

- ✓ How does my school’s ability to maintain ICT investments compare to the national picture?
- ✓ Do we have a long term (3-5 year) strategic plan for our ICT investments?
- ✓ Has our school budget impacted on our ICT investments (positive or negative)?
- ✓ Are we downgrading investments in system software and learning platforms?
- ✓ Is digital content purchasing a priority for our school? Are we targeting its use effectively? (contd.)

- ✓ Are we feeling under pressure to increase spending on pupil devices? Why?
- ✓ Is spending on assessment systems a priority? Will this need to be sustained over the medium to long term?
- ✓ How robust is our networking infrastructure? Will it be able to cope with increased demands from additional devices?
- ✓ Are we allocating ongoing budget money for underlying infrastructure maintenance and replacement? (e.g. system software, Wi-Fi, administration, display technologies)

## ICT Provision

### Desktop – Laptop – Tablet – Wi-Fi - Broadband - Digital Content

Since the initial BESA research was initiated in 1997, indicators have shown increases in the ICT infrastructure across the majority of schools, however a key issue is to determine whether schools consider that they are well resourced with core technologies and to understand the demand for any new technologies. Overall, whilst ICT provision has been increasing year-on-year, due to changing expectations, it is not always apparent that schools consider there to be a **relative** improvement in provision. Tablets and Wi-Fi are key items where under-resourcing exists. Concerns about broadband connectivity are receding although 30% of primary and 20% of secondary schools are still stating that broadband is under resourced. This may be due to the differing levels of broadband provision in some areas of England where Local Authority and Regional Broadband Consortium providers are no longer operating and schools are having to source their own provision.

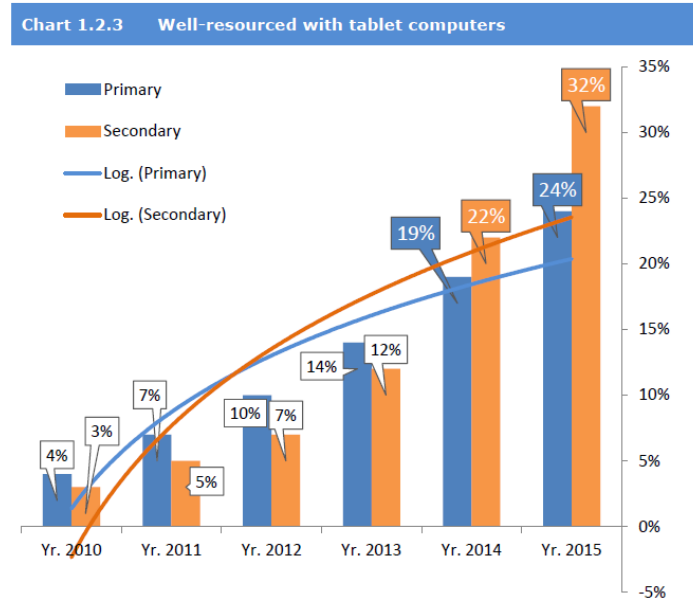
Table 1.2 Under-resourced with ICT by category by 2016		
	Primary	Secondary
Desktop computers	9%	7%
Laptop computers	38%	29%
Tablet computers	68%	59%
Wireless networks (Wi-Fi)	46%	37%
Broadband connectivity	30%	20%
Digital content	32%	45%

Other key points relating to ICT provision include: -

- 42% of all schools feel under resourced in terms of wireless. However, this is a significant improvement from 60% in the previous review and suggests that great efforts have been made over the last year to improve Wi-Fi connectivity in schools.
- Under-resourcing continues to be an issue for digital content, with limited change in outlook over the last few years. However, the development of digital content aligned to curriculum requirements is gathering pace.
- 64% of schools feel under resourced with tablets, which is slightly down from 73% the previous year.
- Secondary schools are still purchasing laptops – indicating the need for an approach which provides students with a range of devices

On specific aspects of ICT equipment: -

- Schools are placing less reliance on desktop computers, although some replacement in computer suites has taken place, perhaps reflecting the need for maintaining provision to deliver aspects of the new National Curriculum for Computing
- 38% of primary schools feel under resourced in terms of laptop computers, although procurement of laptop computers in primary schools is set to expand across 2015.
- Demand for tablets is increasing with two thirds of primary schools stating that they are under resourced in this area.
- Only 55% of secondary and 47% of primary schools perceive that they are well resourced for Wi-Fi.
- 70% of secondary and 68% of primary schools indicate being well resourced for broadband.
- Digital content resourcing is increasing in schools but is still indicating only 50% sufficiency in primary and 64% secondary schools.
- The research does cover the sufficiency of provision of classroom display technology, however in 2012 – 13 83% of primary and 70% of secondary felt well-resourced in this area.



#### Key Leadership Questions:

- ✓ How do the current issues relating to ICT provision in my school match with national trends seen here?
- ✓ Does my school have sufficient provision for core broadband and Wi-Fi Infrastructure?
- ✓ Does my school have a long-term budget plan for updating and maintaining core infrastructure such as broadband, Wi-Fi, servers and display technology?
- ✓ Does my school still need to resource a fixed ICT provision using desktop machines?
- ✓ Does my school provide a variety of learner devices to match the needs of the curriculum?
- ✓ Does my school have a sufficient range of digital content? How is this targeted to support impact on pupil outcomes?



## Access to ICT

### Overall access

The following section relates to access of computers, the Internet and digital content in schools for teachers and pupils. The accompanying table suggests that by 2016 there will remain a significant number of schools that provide what they classify as “Poor” access to computers for pupil use. Results are an improvement on previous expectations.

	Primary	Secondary
Computer access for teachers (poor access)	28%	21%
Computer access for pupils (poor access)	46%	39%
Internet access for teachers (poor access)	19%	12%
Internet access for pupils (poor access)	36%	20%
Digital content access (not always available)	25%	24%

### Key Leadership Questions:

- ✓ Does my school provide an overall appropriate level of access for both teachers and pupils?
- ✓ Is the level of access equitable?

### Computer Access for Teachers and Pupils

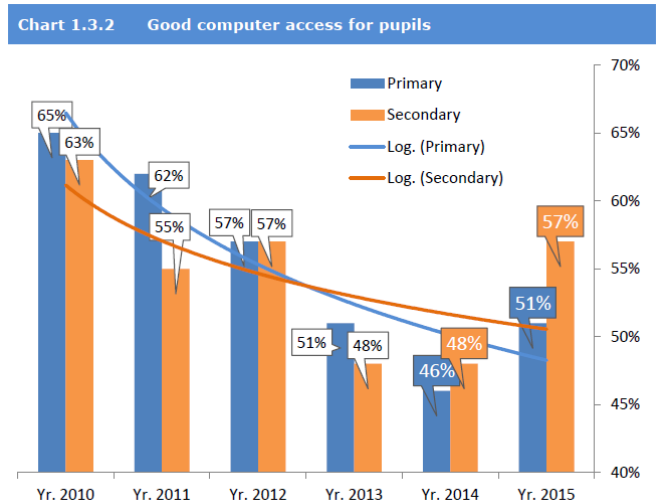
**Teachers** - In terms of access for teachers the majority of secondary schools record good and improving access to devices. Previous research shows that there were rapid improvements up until 2007. The situation appears to be improving again as secondary schools increase provision of tablets. Responses in primary schools are more of an issue comparatively.

- In 2010, 71% of primary schools indicated good teacher access. This percentage declined significantly by 2013.
- Although there have been improvements over the last two years, access for teachers appears to trail that seen in secondary schools.

**Pupils** - Before 2007 there was a steady increase in those schools indicating good computer access for pupils. This growth was in-line with continued expansion in spending.

- Since 2007 there has been a decline in positive views held by ICT leaders and followed significant shrinkage in ICT spending.
- In 2014 only 46% of primary schools indicated good access to computers by pupils
- 2015 sees the first year of a positive uplift in sentiment for good pupil access to computers, which is likely to continue into 2016.
- Computer access for pupils in secondary schools is also improving and again is likely to improve again in 2016.

In both sectors the improvement comes about at a time when significant purchases of laptop and tablet computers is being made





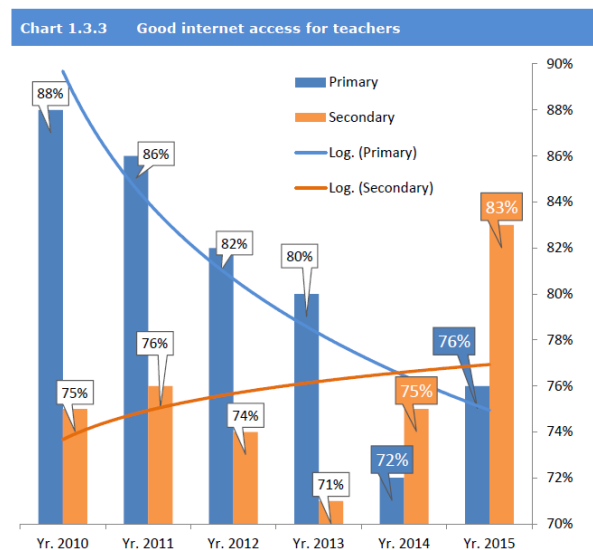
### Key Leadership Questions:

- ✓ Do all of my staff have the appropriate access to computers that they need to fulfil their key functions?
- ✓ Has my school maintained the provision of a teacher device for professional duties?
- ✓ Have the issues surrounding staff - Bring Your Own Device (BYOD) been explored?
- ✓ Do all of my pupils have appropriate access to computers for their learning?
- ✓ What is the level of this access?
- ✓ Do I have a variety of device types available to all pupils?
- ✓ Have I considered which devices are best-suited to the particular curriculum objectives?

### Internet Access for Pupils and Teachers

**Teachers** - Internet access for teachers has been identified as fluctuating in availability when year-on-year increases in broadband availability and bandwidth have been increasing. The reason for the divergence is expectations. In 2010 the need for broadband access for teachers was perceived as a lower priority, but as the use of individual devices assessment systems and digital content delivery has increased, so has the demand for access by teachers.

- Fewer schools than in the past consider broadband access for teachers to be good.
- Since 2014 the numbers have been improving and are expected to improve further in 2016.
- By 2016 it remains likely that a fifth of primary schools will have poor access to the internet for teachers
- The position in secondary is a little better but not universal.



**Pupils** - Across primary schools the availability of good Internet access for pupils has remained relatively static as bandwidth has significantly increased. The reason for continued poor access is due to demand outstripping supply. As more pupils regularly make use of laptops and tablets there is increased strain on bandwidth and the reliability of access. In contrast to secondary schools where the proportion of schools indicating good access for pupils has steadily improved.

- Little indication from the data that the access to the internet by primary pupils is improving.
- It is expected that 38% will continue to have poor access by 2016.
- 20% of secondary pupils will continue to have poor access by 2016.
- Issues limiting access include Wi-Fi connectivity as well as internet bandwidth.

### Key Leadership Questions:

- ✓ Is the level of access to the Internet for my staff fit for purpose?
- ✓ Is there Internet access in all areas of the school and in all departments?
- ✓ Is the speed of the Internet sufficient in all areas?
- ✓ Can all of my pupils access the Internet on demand in all areas of the school?
- ✓ Is fast Internet access enabling or hindering teaching and learning in my school?

## Digital Content Access

This sub section deals with the accessibility of online and server based content by teachers

- Two-thirds of primary schools indicate being well resourced with digital content with 71% of ICT leaders indicating that it was always available.
- 43% of secondary schools indicate that content was always available.
- Demand on reliability of school broadband and networking is increasing.
- Demand on content is increasing with the extension of access to pupil devices.

### Key Leadership Questions:

- ✓ Are my staff and pupils able to access the content that the school currently has?
- ✓ Has the school recently reviewed its content purchases and subscriptions to ensure that it is being used and is value for money and is targeting improvement in pupil outcomes?
- ✓ Is there sufficient content to meet the future needs of the curriculum and pupils' specific learning needs? If not, what else is needed?

## Training

### ICT Usage and Training Requirements

The introduction of tablet and laptop computers has placed additional emphasis on the potential for new ways to teach and learn. This potential along with ongoing curriculum change means many teachers are having to make adjustments and are placing more emphasis on teacher training to use new technologies.

- In the primary sector, there is a shift from whole-class use of ICT to independent and group learning using laptop and tablet computers.
- There is a need in primary schools for training (52%) in tablet and laptop use to support this shift. In secondary schools there is a lower requirement for training in this area (34%).
- Demand for training on effective use of digital content is relatively high across both phases.
- 58% of primary teachers indicated that they require training for the implementation and use of new assessment systems (36% secondary)

### Key Leadership Questions:

- ✓ Have my teachers been sufficiently trained to integrate tablet and laptop technologies into their teaching and learning?
- ✓ How is pupil use of tablets and laptops timetabled and planned for?
- ✓ Have I recently audited my staff ICT capabilities?
- ✓ Do I have a staff ICT training plan?
- ✓ Am I entitled to training with any recent content and assessment systems purchases?

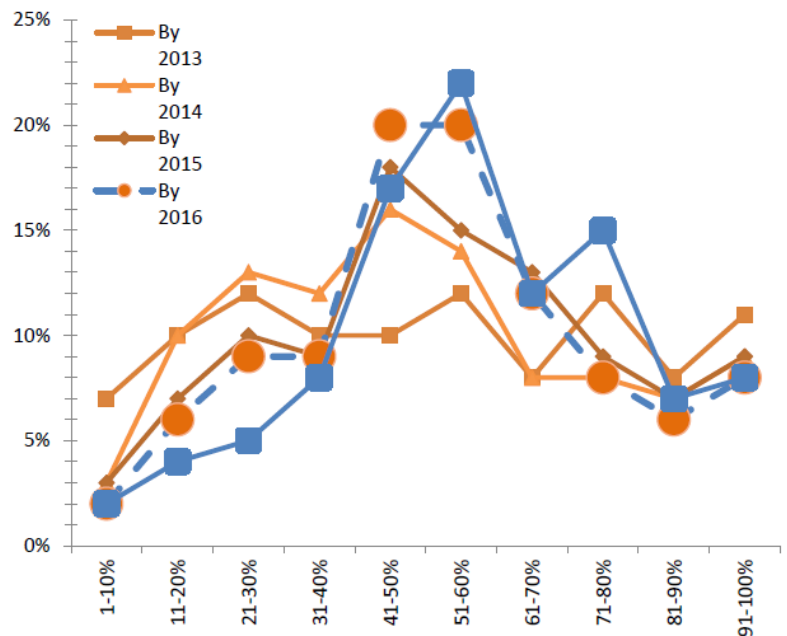
## Time Exposed to ICT

### Primary

Primary ICT leaders were requested to indicate over a usual week, what percentage of pupil-time is likely to be spent exposed to teaching and learning using ICT by 2017. The accompanying chart indicates responses since 2013. The analysis includes IWB-based lessons and 1:1 pupil-time on computers and tablets.

- Between 2013 and expectations for 2016, there has been no significant shift in the average amount of time pupils in primary schools are exposed to ICT.
- By 2017, 45% of Primary schools envisage pupils spending more than half their time being taught using ICT or using themselves in the classroom.
- The movement is generally coming from a greater number of primary schools indicating that around three-quarters of teaching and learning time will involve exposure to ICT.

Chart 1.4.1 Pupil-time exposed to ICT - primary



### Key Leadership Questions:

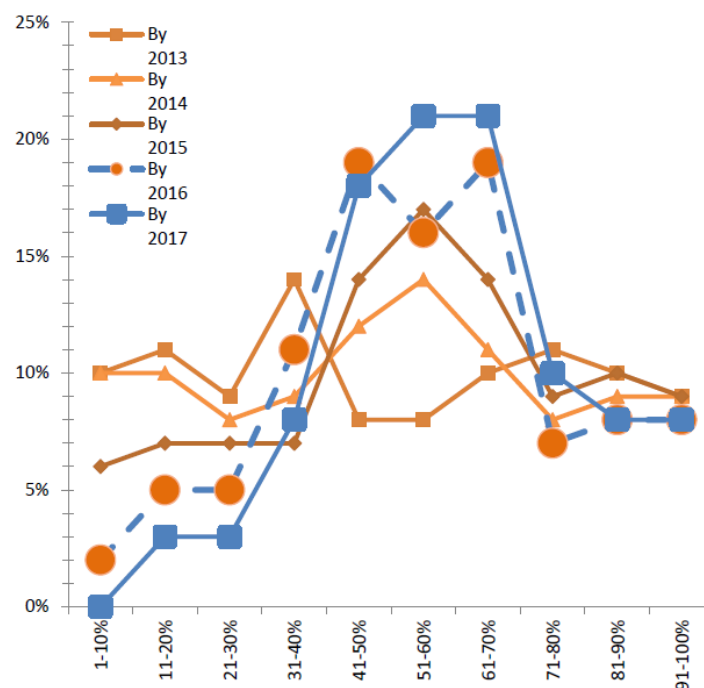
- ✓ When did our school last complete an audit of pupil use of ICT during a typical week?
- ✓ Has our school established expectations for the level of pupil use?
- ✓ Is there an equal spread across all subjects?
- ✓ Have we linked recent technology purchases with increased pupil use and impact on pupil outcomes?
- ✓ Is pupil use equitable?

## Secondary

In 2013, secondary schools indicated a very broad range of pupil exposure to ICT. The difference between now and expectations for 2017 is most notably a shift towards a central band ranging from 50% to 70% ICT exposure. The shift in expectations of exposure by 2017 is significant compared to that previously expected for use in 2016.

- 47% of secondary schools envisage more than half of pupil time being spent exposed to or making direct use of ICT in lessons – compared with 41% in the previous assessment for 2016 use.
- The accompanying chart also shows that few schools are indicating that more than 80% of pupil time is likely to be spent exposed to ICT, which has changed little over the last five years.

Chart 1.4.2 Pupil-time exposed to ICT - secondary



### Key Leadership Questions:

- ✓ When did our school last complete an audit of pupil use of ICT during a typical week?
- ✓ Has our school established expectations for the level of pupil use?
- ✓ Is there an equal spread of use across all subjects?
- ✓ Have we linked recent technology purchases with increased pupil use?
- ✓ Is pupil use equitable?



## Quick Audit Tool

Summary of key aspects for consideration when developing Education Technology use.

A quick overview of the key aspects derived from the research and priority audit questions. Please refer to the main body of this report for more detail and deeper questions for each aspect.

### Funding and ICT Investment

Strategic budgeting and maintaining and/or expanding Education Technology provision – Including pupil devices-Digital resources and infrastructure.

- ✓ How does my school's ability to maintain ICT investments compare to the national picture?
- ✓ Do we have a long term (3-5 year) strategic plan for our ICT investments?
- ✓ Are we allocating ongoing budget money for underlying infrastructure maintenance and replacement? (e.g. system software, Wi-Fi, administration, display technologies)

### ICT Provision

Provision of sound infrastructure such as Wi-Fi, broadband, replacing ageing display technology and meeting demands for more pupil devices.

- ✓ Does my school have sufficient provision for core broadband and Wi-Fi Infrastructure?
- ✓ Does my school still need to resource a fixed ICT provision with desktop machines?
- ✓ Does my school provide a variety of learner devices to match the needs of the curriculum?

### Access to ICT

Level of access to technology that schools provide for their pupils and staff

- ✓ Does my school provide an overall appropriate level of access for both teachers and pupils?
- ✓ Is the level of access equitable? Do I have a variety of device types available to all pupils?

### Digital Content Access

- ✓ Has the school recently reviewed its content purchases and subscriptions to ensure that it is being used and is value for money and is targeting improvement in pupil outcomes?

### Training

Level of training in the use of technology provided for staff

- ✓ Have I recently audited my staff ICT capabilities?
- ✓ Do I have a staff ICT training plan?

### Time Exposed to ICT

Time that pupils are exposed to technology for learning

- ✓ When did our school last complete an audit of pupil use of ICT during a typical week?
- ✓ Has our school established expectations for the level of pupil use?
- ✓ Is pupil use equitable?

## Authors of the Briefing Paper

**Dave Smith** is part of the development team for the 2015 BETT Award Winning 'Switched on Computing' (now in 5500 schools in the UK and overseas) and a member of the Havering team that was Highly Commended in the 2013 BETT Awards for 'ICT Support for Schools'.

He is Senior Vice-Chair of Naace, a Judge for the BETT and ERA Awards and a CEOP Online Safety Ambassador.

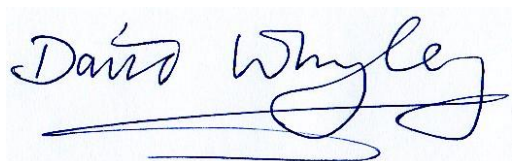
He has 21 years' experience in education, including 7 years' senior leadership in 3 schools, 4 years as a principal lecturer in a university, 10 years in local authority school improvement, and has served as a governor of 3 primary and 1 secondary school.

**Dave Whyley** is CEO of his own successful technology consultancy company and works with a number of UK and global clients, including schools, education establishments and multi-national technology companies.

Having over 35 years of experience as an educationalist in the City of Wolverhampton means his work is firmly rooted in hands on pedagogy. He is a former Primary Headteacher and leader of the BETT Award winning Wolverhampton City Learning Technologies Team.

Regarded as one of most significant innovators on his field, his individual contribution has been recognised with an Honorary Doctorate of Technology by Wolverhampton University. He has also received the Mobile Learning Impact Award (USA), two BETT awards and the inaugural lifetime achievement award from the e-Learning Foundation. He is currently co-opted as a board member for NAACE.

David Whyley



Member of the Naace Board of Management

CEO - Learning Technologies Consultant

Whytek Consulting

 whytekconsulting  
inspiring learning

Dave Smith



Senior Vice Chair of Naace

Computing and Online Safety Adviser

Havering Education

 Havering education services

Supporting excellent learning outcomes for children, young people and adults

[www.haveringeducationsservices.co.uk](http://www.haveringeducationsservices.co.uk)



## About BESA and NAACE



### About BESA

BESA is a trade association. We work on behalf of our members to support UK-based companies that supply goods and services to the education sector. We lobby Government and decision-makers on policy issues, provide information, training and advice to our members and arrange and promote marketing opportunities and exhibitions for BESA members in the UK and internationally.

Our members include manufacturers and distributors of equipment, materials, teaching aids, books, consumables, furniture, technology, ICT hardware and digital content. The total turnover of BESA members is more than £1.8billion per year.

Given that our members work with thousands of institutions across the education sector, we count ourselves as experts on best practice procurement. We'd be glad to share our knowledge with schools and other educational institutions, so feel free to give us a call or email us at [besa@besa.org.uk](mailto:besa@besa.org.uk).



### About Naace

We are a community of educators, technologists and policy makers who share a vision for the role of technology in advancing education. Our members include teachers, school leaders, advisors and consultants working within and across all phases of education in the UK and beyond. As a professional association, we represent the voice of the UK education technology community in the schools sector at a national and international level, as well as supporting one another across the sector through conferences, courses and the dissemination of resources, research and reflection. We play a key role in both members' professional development, through the challenge and support of a community of practice, and the development of the profession as a whole, through the sharing of innovation and expertise. To find out more about becoming a member of our organisation please visit [www.naace.co.uk](http://www.naace.co.uk) for more details.





## Education Technology Briefing Paper

Impartial overview of Education Technology Implementation and use in Schools (January 2016)

Published by BESA

Copyright © 2015 by Dave Smith, David Whyley, BESA and NAACE

Based on data from the BESA 2015 Market Research by 3C Education & NERP

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the publisher, except in the case of brief quotations embodied in critical reviews and certain other non-commercial uses permitted by copyright law. For permission requests, write to the publisher, addressed "Attention: Permissions Coordinator," at the address below from where further copies can also be obtained.

BESA, British Educational Suppliers Association,

20 Beaufort Court, Admirals Way, London, E14 9XL

Tel: +44 (0)20 7537 4997, Fax: +44 (0)20 7537 4846, Email: [besa@besa.org.uk](mailto:besa@besa.org.uk)