Department for Education

Connect the Classroom Evaluation

Research report

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CooperGibson Research

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Contents

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Glossary of terms

AI	Artificial Intelligence
CGR	CooperGibson Research
CPD	Continuing Professional Development
CtC	Connect the Classroom
CtC1	Connect the Classroom 1
CtC2	Connect the Classroom 2
DfE	Department for Education
DSIT	Department for Science, Innovation and Technology
DCMS	Department for Digital, Culture, Media and Sport
EIA	Education Investment Areas
FTP	File Transfer Protocol
ICT	Information and Communication Technology
IP	Internet Protocol
IT	Information Technology
MAT	Multi-Academy Trust
Mbps	Megabits per second
PE	Physical Education
PEIA	Priority Education Investment Areas
PoE	Power over Ethernet
SATs	Standard Assessment Tests
SEND	Special Education Needs and Disabilities
SLT	Senior Leadership Team

TCP	Transmission Control Protocol
TISS	Technology in Schools Survey
WAN	Wide-Area Network
Wi-Fi	Wireless networking technology

Executive summary

Introduction

A key priority in the Government's Schools White Paper (March 2022) was to support schools to better understand the opportunities for using technology and help tackle the barriers to its effective adoption. Commitments set out in the Schools White Paper included investing up to £150m in the Connect the Classroom (CtC) programme, with the aim of improving connectivity in schools by upgrading Wi-Fi connectivity. Following an initial phase between 2021 and 2022 (CtC1), the programme was extended until 2025 (CtC2).

CooperGibson Research (CGR) was commissioned by the Department for Education (DfE) to evaluate the CtC2 programme, exploring the changes made within schools and experiences of the process of involvement.

Methodology

The research aimed to explore schools' views on the intervention process, barriers/challenges experienced, and the impact of the programme on schools' connectivity, staff (e.g. workload/technology use), pupils (e.g. engagement, attainment) and the school (e.g. use of a digital strategy, cloud storage, costs and efficiency savings).

A mixed methods approach was undertaken, comprising:

- online surveys with schools participating in CtC2, administered at the start (pre, n=474) and after (post, n=718) the connectivity intervention had taken place[1]
- 40 in-depth telephone or online virtual interviews conducted with schools after their CtC2 intervention

Key findings

Overall, schools' experiences of participating in CtC2 were positive, and the majority (76%) were satisfied with the process. Interviewees described a smooth and well-managed installation process, clear and well-coordinated communication with contractors and work typically organised outside of working hours to minimise disruption and allow schools to continue normal operations with little interference. Where challenges were

[1] Note that some analysis was undertaken on matched responses from schools that had completed both of the pre and post-surveys (n=196).

experienced, they were typically related to the time required for the installation process, which was exacerbated by supply chain delays and slow supplier responses for some.

Impact on connectivity

The upgrade provided by CtC2 was often characterised by interviewees as essential and long overdue, consolidating and future-proofing infrastructure and providing a strong foundation for further digital development.

Significant improvements in connectivity were reported after the intervention, including:

- a significant increase in the average (mean) internet download speeds across both primary and secondary schools
- increased satisfaction with the speed (pre-intervention 61%, post-intervention 91%) and reliability (pre-intervention 60%, post-intervention 91%) of their internet connection[2]
- reduction in internet blackspots

Improved connectivity outside the classrooms was seen as a key benefit, which allowed more outdoor learning to take place.

A significant increase in satisfaction with the security of their internet connection was seen and examples of improvements in cyber security, including more secure Wi-Fi and greater utilisation of enhanced security features, were provided. Similarly, satisfaction with the value for money of their connection was also reported.

Impact on use of the cloud and technology investment

Positive impacts on the use of the cloud were seen following participation in CtC2, including:

- 40% of schools that said they had increased their use of cloud-based storage or systems, driven by improved confidence in the reliability and speed of their connection
- almost half (48%) of schools that still had on-premises only storage (n=117) reported that they were more likely to switch to cloud-based in the future, and this was particularly the case for large primary schools (62%)

Interviewees described the benefits of moving to the cloud as greater collaboration among staff, easier access to shared resources, reduced administrative burden, and

[2] At the post-stage, 5% and 7% were dissatisfied respectively. Note that internet speed is dependent on multiple factors, including broadband connection which may vary independently of the WiFi infrastructure.

more streamlined operations, particularly across Multi-Academy Trusts (MATs) where it enabled teachers to co-develop and share digital materials efficiently across schools.

CtC2 was often described as a catalyst for expansion of technology use, and in some cases freed or redirected budgets towards new devices and classroom technologies. That said, future plans to upgrade, replace or invest in technology appeared to reduce after the intervention, which may be due to schools perceiving there to be a reduced need for investment due to the upgrades received through CtC2 (such as investment in servers and storage or technical support).

Impact on technology use

Positively, a significant improvement was seen in perceptions of how well education technology supported school tasks after the intervention:

- across a range of administration and teaching and learning activities, the vast majority of survey respondents (between 83% and 96%) believed that technology supported them extremely or quite well
- teachers' appetite (51%), confidence (48%) and skills (39%) for using technology were perceived to have improved and the majority (61%) of schools believed that CtC2 had helped them utilise the technology in their school to its maximum effect

Schools described a noticeable increase in digital confidence and expanded use of technology, primarily due to improved reliability of their connection. Smoother lesson delivery and increased flexibility in using technology in teaching allowed integration of real-time collaborative activities into lessons, increased use of technology in non-classroom spaces, and adaptation of technology use for pupils with Special Educational Needs and Disabilities (SEND).

Furthermore, barriers to the use of technology were felt to have reduced significantly after the intervention, particularly for teachers' skills (pre 73%, post 40%) and confidence (pre 74%, post 42%), and for reliability of the internet connection (pre 49%, post 18%), particularly for secondary schools (post 7%).

However:

- the cost of hardware and software, followed by lack of devices, continued to be perceived as the greatest barriers to technology use, as limited budgets and outdated devices restricted pupils' consistent access to technology and limited the potential benefits of the intervention
- some schools also still experienced areas of poor connectivity, particularly in older buildings where the physical structure made it difficult to ensure consistent signal

distribution, or in rural schools where limitations in the broadband entering the building restricted their ability to fully utilise the upgraded infrastructure

Impact on pupils and staff workload

Positive impacts on pupils were noted, particularly:

- increased pupil engagement (net improved 44%, improved a lot 10%) as a result of the improved learning experience that CtC2 had allowed
- faster device access which reduced lesson delays and minimised disruption
- multiple devices could be used simultaneously, reducing the need for device sharing and increasing pupil engagement, independence and confidence in using digital tools

The majority of schools recognised that technology had contributed (pre 57%) or could contribute (pre 14%) to improved pupil attainment and this did not change after the intervention (had 56%, could 18%). However, perceptions of the impact of CtC2 specifically on pupil progress and attainment were somewhat more limited at this stage (net improved 34%, improved a lot 5%), although it is worth noting that surveys were completed a relatively short period after the intervention and some of the schools interviewed were optimistic about seeing impacts in the longer-term.

Perceptions of the impact of technology and of CtC2 on staff workload were more mixed:[3]

- although the majority felt that there had been no change in their workload for tasks such as planning or delivering lessons, assessments, staff collaboration and school management (between 52% and 61%), some believed it had reduced (between 7% and 8%) whereas others felt it had increased (between 22% and 32%)
- that said, almost one-third (31%) felt that there had been an improvement in their workload following the intervention and only 1% said that it had worsened
- interviewees commented that any time saved was redirected to more meaningful tasks, such as pupil support or peer collaboration and schools often spoke more of improved efficiencies related to use of the cloud, having central systems in place, and access to digital collaboration, rather than time saved or reduced workload

[3] There are differences here to note in the wording of the survey questions which may have contributed to this mixed picture, however, this mixed view was also supported by the qualitative interviews.

Impact on strategy and costs

A positive impact was seen on schools' awareness and alignment with the DfE's digital standards:[4]

- awareness (fully aware pre 20%, post 31%) and monitoring of the school digital standards (pre 57%, post 69%) increased after the intervention
- results also suggest that CtC2 may improve schools' awareness of what is required to meet the standards allowing them to put measures in place to meet them in the future

No impact was seen on having a digital strategy, however differences noted for local authority primary schools, small primary schools and rural schools suggest that further support to produce a digital strategy may be beneficial.

Evidence of energy or cost savings was more limited:

- some schools, particularly secondary schools, had made changes to configure their network switching and wireless access points in order to save energy and costs (secondary 47%, primary 33%)
- however, day-to-day financial savings were more difficult to identify at the time of the research, cost savings were typically expressed in terms of short-term increased efficiencies

Although it was recognised by some schools that CtC2 had reduced some of the financial burden of technology improvements, concerns were raised about future costs of upgrading hardware and software to fully capitalise on its potential.

Conclusions and programme considerations

Overall, schools' experiences of participating in CtC2 were positive, with a smooth and well-managed installation process and minimal disruption.

Significant improvements in internet download speeds were reported after the intervention, and a reduction in internet blackspots. Many schools increased their cloud-based storage and systems following the intervention, leading to more streamlined processes and greater collaboration amongst staff. Schools, particularly primary schools, reported increased likelihood of switching to cloud-based storage after participation in CtC2. There was also increased likelihood that schools would switch to cloud-based storage in the future, particularly amongst primary schools. Improvements in cyber

[4] DfE's digital and technology standards are guidelines which support schools and colleges to use the right digital infrastructure and technology. CtC facilitates schools in meeting the digital standards in terms of their internal connectivity infrastructure.

security, including more secure Wi-Fi, and utilisation of enhanced security features were reported.

A noticeable increase in digital confidence and expanded use of technology was described by schools, including smoother lesson delivery and greater flexibility in using technology, including in non-classroom spaces. Pupil engagement increased as a result of the improved learning experience that CtC2 allowed, although perceptions of the impact of CtC2 on pupil attainment were more limited at this stage. Perceptions of the impact on staff workload were mixed. Whilst the majority felt there had been no change, improved efficiency was noted by some, which allowed more time to be spent on other tasks, whilst others felt that workload had increased.

A positive impact was seen on awareness and monitoring of the school digital standards, and an increase in schools which had or expected to meet the standards was noted. Evidence of energy or cost savings was more limited and no impact was seen on the development of a digital strategy.

Responses highlighted that future CtC interventions should consider:

- reviewing the eligibility criteria to ensure that the schools that most need the support can receive it
- reviewing supply chain fulfilment to minimise delays and disruptions, with greater clarity for schools that they can commission their preferred suppliers/contractors, and, more detailed forward planning and coordination for complex installations
- ways to ensure impact of the connectivity intervention and subsequent connectivity improvements is maximised by aiming for appropriate download speeds, although it is recognised that this is heavily contingent on the broadband supplied. Exploration of alignment with other internet infrastructure initiatives such as Project Gigabit would be valuable
- further support around technology standards and strategy would be useful, particularly for smaller or local authority maintained primary schools and rural schools
- signposting to sources of funding for technology to support schools in addressing hardware and software cost barriers, and to support professional development in the use of technology

Introduction

Connect the Classroom (CtC) is a government-funded programme which was set up in 2021 to improve internet speed in schools by upgrading Wi-Fi access points and network switches. Following an initial phase between 2021 and 2022 (CtC1), the programme was extended until 2025 (CtC2).

Background to CtC

Use of technology in schools has been gathering pace over recent years and was particularly accelerated by the COVID-19 pandemic which "created an unprecedented need for remote teaching and learning solutions"[5]. In DfE's 2020-21 EdTech survey, almost all headteachers (primary 94%, secondary 97%) indicated that their school had introduced, increased or upgraded technology in the previous 12 months, and almost two-thirds (64%) said they did so as a result of the pandemic.[6]

Nevertheless, challenges remain for many schools. In the 2020-21 EdTech survey, budgetary constraints, were particularly highlighted, as well as issues around the availability of technology for pupils at home, and staff confidence and skills in using technology. Wireless and broadband connectivity were also cited as common barriers by a substantial proportion of schools.[7] DfE's Technology in Schools Survey (TISS 2024-25), suggested that similar barriers to the uptake of technology were still evident, the greatest being budgetary constraints and the high cost of technology.[8] In this survey, just under half of school leaders indicated that Wi-Fi connectivity in school was a barrier (46% primary phase, down from 55% in 2022-23[9], and 37% secondary phase) and broadband connectivity was an issue for 42% of primary schools and 28% of secondary schools.

A key priority in the Government's Schools White Paper (March 2022) was to support schools to better understand the opportunities for using technology and help tackle the barriers to its effective adoption. The use of digital technology was a focus, as well as the need to create a robust evidence base for education intervention. Commitments set out in the Schools White Paper included:

- working with commercial providers to accelerate gigabit capable broadband rollout to schools

[5] DfE (2022), Education technology for remote teaching, p6. House of Lords Library (2023), Educational technology: Digital innovation and AI in schools.
[6] DfE (2021), Education technology (EdTech) survey 2020-21, p38.
[7] Ibid, p97.
[8] DfE (2025) 2024-25 Technology in Schools Survey, p172.
[9] DfE (2023) 2022-23 Technology in Schools Survey, p80

- setting out the foundational technology that schools should have in place by publishing new digital and technology standards, so that teachers and pupils have access to safe and reliable digital environments

- investing up to £150m in the Connect the Classroom (CtC) programme to upgrade the wireless networks in schools who are furthest from meeting the digital and technology standards in priority areas[10] (this was later increased to £200m)

- establishing a strong evidence base for effective use of technology and embed this evidence across our world-class school system, so that it is easy for schools and families to use the best products at the right time

CtC was introduced as part of this commitment, with the aim of improving connectivity in schools by upgrading Wi-Fi connectivity, particularly focusing on addressing the lack of connectivity in priority areas. The measure for success for improved connectivity was that schools meet the digital standards for network, switching, and wireless networks.

The programme was delivered in two phases:

- CtC1[11] which started in April 2021 and targeted schools which had received a fibre upgrade to the school site through the Rural Gigabit Connectivity Programme or the Local Full Fibre Networks Programme. Later that year it was expanded to include schools as a pilot of the upcoming Education Investment Areas (EIAs)[12].

- CtC2 which started in April 2022 provided funding specifically to upgrade connectivity in schools in the 24 Priority Education Investment Areas (PEIAs) and schools within the 31 EIAs below the Ofsted rating of 'Good' (rated 'requires improvement' or 'inadequate' at their last assessment)[13]

CtC2 assumed that a school already had an adequate internet connection to the building or that it would be upgraded through commercial intervention or joint Department for Science, Innovation and Technology (DSIT)/DfE funding through the Schools Gigabit Connectivity Project, part of Project Gigabit.

For the schools in scope of the programme, CtC2 provided: an audit of school's pre-intervention connectivity technology; advice on what technology should be procured to fix

[10] Information on definition of 'Priority areas': Identifying priority areas for raising school standards (publishing.service.gov.uk). Priority areas were an initiative under the previous Conservative government.
[11] CtC1 provided direct funding to schools, who would then procure their own contractor to upgrade their Wi-Fi infrastructure. There was an initial round of evaluation for the CtC1 programme which aimed to review the process of delivery.
[12] Education Investment Areas (EIAs) were a government initiative in England designed to improve educational outcomes in specific, underperforming areas. These EIAs were identified within the Levelling Up White Paper, published in February 2022.
[13] The programme was extended as a result of the 2025 spending review to support schools eligible for the regional improvement for standards and excellence (RISE) initiative.

their internal networking; support and funding for the procurement and installation of that technology; and support to plan their next steps in technology improvement.

CooperGibson Research (CGR) was commissioned by the DfE to explore the successes and benefits of the CtC2 programme, challenges experienced and areas for development as well as experiences of the process of involvement.

Research objectives

The evaluation explored:

- schools' views on the process/delivery of CtC2 (e.g. procurement process) and their involvement in the CtC2 programme
- challenges to delivery, enablers and barriers to realising intended benefits and impact
- the extent that the programme has increased connectivity in schools
- implementation and use of technology in CtC2 schools prior to and after intervention
- perceptions of impact of the programme for staff (e.g. workload/technology use), pupils (e.g. engagement, attainment) and the school (e.g. use of a digital strategy, cloud storage, costs and efficiency savings).

Methodology

A mixed methods approach was designed for the evaluation, involving:

- online surveys with schools participating in CtC2, administered at the start (pre, n=474) and after (post, n=718) the connectivity intervention had taken place
- 40 in-depth telephone or online virtual interviews conducted with schools after their CtC2 intervention

Online surveys

Two online surveys were administered:

- pre-survey: sent before the school's connectivity intervention had taken place, once schools had been fully onboarded to the CtC2 programme (i.e. they had received a quote for the connectivity intervention work and funding to pay for the work had been agreed by DfE). The pre-survey was designed and administered by the DfE and invitations were sent out in batches once a sufficient number of schools had been onboarded (typically at least 200 schools)
- post-survey: sent to participating schools after the connectivity intervention had been completed and paid for by DfE. This survey was designed and administered by CGR and surveying aimed to take place around 4-6 months after completion of the intervention work

It was aimed for surveys to be completed by someone with experience of the connectivity and technology within the school and participation was voluntary.

Data processing and weighting

Survey response data from the pre-survey were provided by DfE. Following data cleaning and processing, n=474 pre-survey responses and n=718 post-survey responses were included for analysis. Data were weighted to reflect the proportions of schools participating in CtC2 based on school phase (primary, secondary, other) and type (academies, local authority maintained schools, special schools) (Table 1).

Table 1: Weighting profile

Phase	Number of responses - pre	% of responses – pre (unweighted)	Number of responses - post	% of responses – post (unweighted)	% of responses (weighted)
Primary	358	76%	536	75%	77%
Secondary	90	19%	137	19%	17%
Other[14]	26	5%	45	6%	6%
Type	**Number of responses - pre**	**% of responses – pre (unweighted)**	**Number of responses - post**	**% of responses – post (unweighted)**	**% of responses (weighted)**
Academy	232	49%	397	55%	63%
local authority maintained	232	49%	301	42%	36%
Special	10	2%	20	3%	2%

Base: All respondents

Source: Pre and post-surveys

Pre-post survey matching

Pre and post-survey responses were matched to identify schools which had responded to both surveys, and the data was again weighted to reflect the profile of schools participating in CtC2 (Table 2).

The number of schools that had completed both of the pre and post-surveys (n=196) was significantly lower than the total number of survey responses received (pre n=474, post n=718). This dramatically reduced the sub-group analysis that could be conducted, as the number of responses for many of the sub-groups was too low (less than n=30). As a result, the majority of this report is based on analysis of the full pre and post-survey responses, with a small number of questions prioritised for matched pre-post survey analysis (see section 2.4 Reading this report). Any sub-group analysis has been conducted on full response data.

[14] Other schools included special schools, pupil referral units and alternative provision.

Table 2: Weighting profile – matched pre-post surveys

Phase	Number of responses	% of responses – (unweighted)	% of responses (weighted)
Primary	141	72%	77%
Secondary	44	22%	17%
Other[15]	11	6%	6%
Type	**Number of responses - pre**	**% of responses – pre (unweighted)**	**% of responses (weighted)**
Academy	84	43%	63%
local authority maintained	105	54%	36%
Special	7	4%	2%

Base: All matched pre-post surveys

Source: Pre and post-surveys

Survey sample profile[16]

Tables 24 to 28 in the Appendix detail the profile of the schools responding to the pre and post-surveys, including school size, region, urban/rural classification, Ofsted rating and respondent role. In summary (based on weighted data):

- **responses were received from a range of small, medium and large primary and secondary schools**. At the pre-stage, responses were significantly more likely to have been received from small primary schools (pre 23%, post 17%), whereas at the post-stage, more responses were received from medium sized primary schools (pre 24%, post 30%)
- **responses were spread across England,** with the most responses received from the north west (pre 25%, post 27%) and the least from the south east (pre 4%, post 4%) and north east (pre 7%, post 6%). Just 1 response was received from London at the pre-stage
- **schools were primarily based in urban areas** (pre 77%, post 84%), although responses were significantly more likely to be from rural areas at the pre-stage (pre 23%, post 14%)

[15] Other schools included special schools, pupil referral units and alternative provision.
[16] CtC2 was targeted at schools in the 24 priority Education Investment Areas (EIAs) and schools within EIAs below the Ofsted rating of 'Good' (rated 'requires improvement' or 'inadequate' at their last assessment (see section 1.1).

- **the majority of schools had a 'good' Ofsted rating** (pre 69%, post 67%) at the time of completing the surveys, although responses from schools with a rating of Requires Improvement/Serious Weakness/Special Measures were significantly higher at the pre-stage (pre 17%, post 13%)
- **around half of respondents were in Information Technology (IT) roles** (pre 54%, post 52%), around one-quarter were in senior leadership roles (pre 24%, post 26%), just under one-fifth were in Business or Office Manager roles (pre 15%, post 18%) and the remainder were a mix of other roles, including teaching, middle leadership, administration, finance and estates

Qualitative interviews

Qualitative in-depth interviews were conducted with 40 schools participating in the programme. Interviews were conducted either online or by telephone and were between 40-60 minutes in length. Schools were identified via the online post-survey, which included an option for respondents to consent to be contacted for follow-up research.

The final sample comprised a mix of school phase and type (Table 3), region, Ofsted grading and urban/rural classification, broadly selected to reflect the composition of the population of participating schools (Appendix Table 29).

Table 3: Qualitative sample profile – by phase and type

Phase	**Number of interviews**
Primary	22
Secondary	14
Special/other	4
Total	40
Type	**Number of interviews**
Academy	22
Local authority maintained	16
Special	2
Total	40

Methodological considerations

There are a number of methodological considerations to note when considering the findings provided in this report:

- the pre-survey was designed and administered by DfE, whereas the post-survey was later designed and administered by CGR after the pre-survey had begun. Some questionnaire changes were necessary for the post-survey to ensure the objectives of the evaluation could be met, therefore the pre and post-surveys were not identical. Furthermore, some questions were added to the pre-survey part way through fieldwork, which has resulted in some missing data for these questions. These changes may have impacted upon responses to the surveys and the findings of this research
- pre-surveys were sent out in batches at irregular intervals, which meant that schools may have been pre-surveyed with differing lead times to their installation. Because of this, if a school moved through the process very quickly (e.g. going from onboarding to having their claim approved by DfE in a few weeks) they may not have been sent a pre-survey, or they may have received a pre-survey once installation of their intervention was already underway or completed. It is expected that this may have happened in a very small number of cases, so would have had minimal impact on the data
- post-surveys were also sent out in batches at irregular intervals, which meant that schools may have been surveyed with differing elapsed times since their intervention was completed. This may have impacted responses to the survey, as schools which had their intervention completed longer ago may have had more time to experience the impacts of the work compared to those that had completed their work more recently.
- furthermore, where schools were installing the technology themselves, it is possible that they may have had their claim fulfilled by DfE and therefore been sent a post-survey, but not yet have completed their technology installation. Again, this may have impacted responses to the survey
- due to the significantly smaller base size for matched schools that had completed both the pre and post-surveys, analysis has primarily been conducted on the full sample of responses. This may mean that other factors, such as the characteristics of the schools or individuals taking part in the surveys, or other external factors, have had an impact on the findings. Data were weighted to minimise the impact of variation in the phase and type of schools between the pre and post-surveys, however this cannot fully compensate for any potential differences. As such, any changes identified between the pre and post surveys based on analysis of full data should be treated with some caution.

Reading this report

- sub-group analysis has primarily been conducted by phase (primary, secondary). Additional sub-group analysis has been conducted by primary type (primary academies, primary local authority maintained schools), size of school within phase (small, medium, large primary and small versus medium/large secondary) and urban/rural classification, where base sizes are greater than or equal to n=30. Sub-group analysis has also been conducted on other selected questions where relevant (e.g. by broadband speed test result, time since completion of the intervention, overall satisfaction and respondent role)

- analysis to identify significant differences between pre and post-surveys and sub-groups has been conducted at the 95% level of confidence

- the symbol * has been used to denote significant differences between pre-post data and is shown next to the percentage which is significantly higher

- where data has been combined into a ‘net’ figure (e.g. very/quite satisfied, extremely/quite well, increased a lot/a little) this may not equal the sum of the individual percentages due to rounding

- Likert scale data presented in the main body of the report is primarily based on the net ‘top 2’ (e.g. very/quite satisfied, extremely/quite well, increased a lot/a little) and/or the most positive response (e.g. very satisfied, extremely well, a lot)

- analysis has been conducted on all responses to the pre and post surveys, however, a small number of priority questions have been analysed based on matched pre-post survey data. This includes questions around satisfaction with the reliability and speed of the internet connection, awareness and monitoring of the DfE’s digital standards, plans to upgrade, replace or invest in technology over the next 2 years, and perceptions of the relationship between technology and workload or pupil attainment.

Experiences of Connect the Classroom 2

This section explores the experiences of schools participating in CtC2, including the extent to which their intervention had been completed, overall satisfaction with the connectivity intervention process and any challenges faced during the process.

Key Findings

- The vast majority (94%) of schools responding to the post-survey said their CtC2 intervention had been completed, typically 5 or more months ago
- Overall, schools' experiences of participating in CtC2 were positive, and the majority (76%) were satisfied with the process
- The installation process was generally smooth and well-managed, with clear and well-coordinated communication with contractors. Completion of work outside of working hours minimised
- A minority (15%) were dissatisfied with the installation process, driven by logistical delays, communication gaps and staff capacity constraints
- Similarly, where challenges were experienced, they were typically related to the time required for the installation process

Extent of connectivity intervention completion

At the time of completing the post-survey, the vast majority (94%) of respondents said that their CtC2 intervention was completed (Appendix Table 30). The time that had elapsed since completion of the CtC2 intervention varied (Appendix Table 31). Around two-fifths (43%) had their CtC2 intervention completed more than 6 months prior to completing the post-survey. Around one-quarter (26%) completed 5-6 months ago, one-fifth (22%) 3-4 months ago and under one-tenth (7%) less than 3 months ago.

Amongst the schools where the connectivity intervention had not been completed at the time of the post-survey (n=42), the majority (55%) were unsure when their intervention would be completed and the remainder gave a range of expected lead times, most commonly within the next month (16%) or 1-2 months (11%) (Appendix Table 32).[17]

[17] See section 2.3.

Satisfaction with the CtC2 process

Overall satisfaction with the CtC2 process was high, with 76% of post-survey respondents very or quite satisfied and almost half (49%) very satisfied. Similar results were seen by school phase (Table 4). Interviewees also expressed satisfaction with the installation process, generally describing it as smooth and well-managed. Most schools said they arranged for the work to be completed outside of teaching hours or during school holidays, which helped minimise disruption to staff and pupils. Communication with contractors during installation was typically clear and well-coordinated, allowing schools to continue normal operations with little interference. Implementation was often led by IT staff, with minimal involvement required from teaching staff, which helped reduce the burden on school operations during rollout.

While most were satisfied, a minority of post-survey respondents were dissatisfied with the CtC2 process (15%). Dissatisfaction was higher amongst respondents from academies (very dissatisfied 9%) compared to local authority maintained schools (very dissatisfied 4%) (Appendix Table 33). Overall, logistical delays, communication gaps and school staff capacity constraints were the main factors mentioned by interviewees which underpinned dissatisfaction with the process. These themes are further discussed below.

Table 4: Overall satisfaction with the connectivity process – by phase

	All respondents	Primary	Secondary
Very satisfied	49%	48%	57%
Quite satisfied	26%	27%	24%
Neither satisfied nor dissatisfied	8%	8%	5%
Quite dissatisfied	8%	9%	6%
Very dissatisfied	7%	7%	6%
Don't know	1%	1%	1%

Base: All respondents (718), Primary (536), Secondary (137)

Source: Post-survey

Challenges experienced during the CtC2 process

Just over half (53%) of post-survey respondents reported experiencing challenges during the CtC2 process. Most often, this related to the time required for the installation process (Table 5), including:

- supply chain delays (25%)

- the process taking too long (14%)
- finding time to complete the intervention work (13%)
- slow response from suppliers (11%).

Table 5: Challenges faced during connectivity process – by phase

	All respondents	Primary	Secondary
Supply chain delays with equipment	25%	24%	27%
Whole process took too long to complete	14%	14%	13%
Difficulties in finding the time to complete the intervention work	13%	11%	21%
Slow response from suppliers	11%	11%	12%
Difficulty completing supporting documents	8%	8%	11%
Disruption to school day-to-day activities	8%	8%	11%
Shortage of school staff to work on the project	5%	5%	8%
Difficulty finding suppliers	3%	3%	5%
Other[18]	7%	6%	14%
None	40%	43%	25%
Don't know	7%	8%	2%

Base: All respondents (718), Primary (536), Secondary (137)

Source: Post-survey

Interview data suggested these challenges were largely driven by supply chain pressures, which delayed delivery of switches and access points, and by occasionally inconsistent communication from the DfE, including long response times and specification changes. For larger schools or MATs, coordinating across multiple sites made the process more resource-intensive, while smaller primary schools mainly highlighted difficulties in releasing staff to oversee installations.

[18] Other challenges included: changes to budgets or guidelines (n=15), poor quality installation (n=11), delays/lengthy process (n=7), funding/payment issues (n=7), technical problems (n=7), damage caused by installer (n=6), communication issues (n=3), disruption to the school (n=3), continued poor connectivity (n=2) and other individual issues (n=3).

> The back and forth within that process was laborious for both me and my predecessor. The specs that we were working on had to change multiple times. It takes a few weeks to review by the DfE and by the time it's come back in, we're now working to a completely different spec. – *Director of IT and Data Services, Secondary school*

Those who were dissatisfied with the CtC2 process were more likely to mention supply chain delays (34%) and slow supplier response (28%) (Appendix Table 34).

Respondents from secondary schools were significantly more likely to say they had experienced challenges compared to those from primary schools (73% versus 49%). Secondary schools were significantly more likely to say finding the time to complete the intervention work was a challenge compared to those from primary schools (21% versus 11%). Several secondary school interviewees described the intervention as complex to deliver due to the need for detailed planning, coordination across teams, and scheduling around exams and site constraints. Out-of-hours installation added to the workload, and delays in communication and, for some, shifting requirements caused further disruption. These challenges made implementation more time-consuming compared to primary schools, which generally had simpler logistics. A few secondary schools, however, reported smoother experiences where internal capacity and prior planning helped mitigate these issues.

Other concerns mentioned by interviewees included a preference for more autonomy when selecting suppliers/contractors, particularly where existing relationships were in place. This however, suggests that there were some misunderstandings around the procurement process as the programme did not specify an approved suppliers list. There was also frustration that strict programme criteria prevented investment in priority upgrades like servers and firewalls.

Impact on school connectivity

The perceived impact of CtC2 on schools' internet connectivity following the intervention is discussed, including impact on internet speed, reliability and areas of the school with an unsatisfactory connection.

Key findings

- a significant increase in the average (mean) internet download speed was found across both primary and secondary schools
- a significant increase in satisfaction with the speed, reliability, security and value for money of their internet connection was also seen, along with a reduction in internet blackspots
- the CtC2 upgrade was often characterised as essential and long overdue, consolidating and future-proofing infrastructure and providing a strong foundation for further digital development
- after the intervention, schools were able to use technology for teaching and learning activities in areas where it had proved impossible or difficult in the past and improved connectivity in outside spaces was seen as a key benefit
- however, some areas of poor connectivity were still experienced by some older and rural schools typically caused by the physical structure of the school or broadband limitations

Connectivity speed[19]

At the pre and post-intervention stages, survey respondents were asked to perform an internet speed test on school premises while using a school device. They gave the download speed in Megabits per second (Mbps) that they were experiencing.[20]

There was a difference in the devices used for this test between the pre and post-stages (Appendix Table 35). Although a wired device[21] was most commonly used to conduct the speed test at both stages, at the pre-stage the proportion was significantly higher (pre

[19] Note that the connectivity questions were added part way through administration of the pre-survey, therefore the number of respondents answering them at the pre-stage (n=267) is less than the total number of pre-stage respondents (n=474). As a result, sub-group analysis by size of school and urban/rural was not possible due to some sub-groups having bases below n=30.
[20] Survey respondents were also asked to provide the minimum download (mean pre 244Mbps, post 364Mbps) and upload (mean pre 209Mbps, post 325Mbps) speeds as specified in their broadband contract, however over half were unable to provide this information therefore this data should be treated with caution (Appendix Table 38).
[21] A device which requires a network cable (sometimes known as an ethernet cable) to access the internet.

72%, post 62%). Secondary schools were more likely to have used a wired device for the test, although this decreased significantly between the pre and post-stages (pre 91%, post 73%).

Despite these differences in the device used to conduct the download speed test, **a significant improvement in download speed was reported at the post-stage compared to the pre-stage**[22] (Appendix Tables 36 and 37):

- tests performed on wireless devices increased from a mean of 80Mbps at the pre-stage to 192Mbps at the post-stage.
- tests performed on wired devices increased from a mean of 230Mbps at the pre-stage to 316Mbps at the post-stage

A significant increase was seen for both primary and secondary phases (Table 6):

- the mean download speed reported by primary schools increased by 33%, from 152Mbps at the pre to 202Mbps at the post-stage
- amongst secondary schools, the mean download speed reported increased by 51%, from 382Mbps to 578Mbps, and over half (53%) reported speeds of over 500Mbps.

Table 6: Internet download speed test – by phase

	Primary Pre	Primary Post	Secondary Pre	Secondary Post
50Mbps or less	29%*	11%	4%	2%
51-100Mbps	40%	39%	21%*	5%
101-250Mbps	15%	26%*	23%	12%
251-500Mbps	8%	14%*	19%	28%
Over 500Mbps	7%	10%	34%	53%*
Mean[23]	152	202	382	578

Base: Primary (pre 201, post 536), secondary (pre 48, post 137)

Source: Pre and post-surveys

[22] Note that these reported speeds may not align with the contracted minimum download speed due to a range of factors, including the device type that the test was performed on and the location within the school that the test was conducted.

[23] Note that the download speed test results provided by schools varied widely. The digital and technology standards for schools suggest that primary schools should have a minimum of 100Mbps download speed and a minimum of 30Mbps upload speed, and secondary schools, all-through schools and further education colleges should have a connection with the capacity to deliver 1Gbps download and upload speed.

Satisfaction with the internet connection[24]

Satisfaction with the speed and reliability of the internet connection increased significantly after the intervention amongst matched respondents who completed both the pre and post surveys (Table 7):

- The proportion satisfied with the speed of the internet connection increased from 61% at the pre-stage to 91% at the post stage (as did the proportion very satisfied (from 21% to 54%)
- The proportion satisfied with the reliability of the internet connection increased from 60% at the pre-stage to 91% at the post stage (as did the proportion very satisfied, from 18% to 48%)

Analysis of these measures based on all survey responses showed a similar result and a significant increase was seen across both primary and secondary phases, [25] and by type for primary schools[26] (Appendix Tables 39 and 40).

Table 7: Satisfaction with the speed and reliability of the school's internet connection – matched responses by phase

The speed of your connection? For example, how long it takes to load a webpage[27]	**Pre**	**Post**
NET Satisfied	61%	91%*
Very satisfied	21%	54%*
The reliability of your connection? For example whether your connection breaks while you are on a teams call[28]	**Pre**	**Post**
NET Satisfied	60%	91%*
Very satisfied	18%	48%*

Base: All matched pre-post surveys (pre 121, post 196)

Source: Pre and post-surveys

[24] Note that these questions were added part way through administration of the pre-survey, therefore the number of respondents answering them at the pre-stage amongst matched survey respondents (n=121) is less than the total number of matched pre-stage respondents (n=196).
[25] Significant difference for secondary schools was only seen for the increase in the proportion who were very satisfied.
[26] Bases at the pre-stage were too low for analysis by size of primary school and by urban/rural classification (<n=30).
[27] At the post-stage, 4% were neither satisfied nor dissatisfied, 4% were not very satisfied and 1% were not at all satisfied.
[28] At the post-stage, 2% were neither satisfied nor dissatisfied, 5% were not very satisfied and 2% were not at all satisfied.

Interview data reflected this broad satisfaction with the connectivity improvements delivered through the intervention. Most school staff described the upgrade as a significant improvement over their previous infrastructure, often characterising it as essential and long overdue. The enhanced connectivity met expectations for reliability and performance in the majority of cases, with interviewees consistently emphasising that greater reliability gave them confidence to use technology more regularly in both teaching and administration. This sense of confidence was described as a step-change compared to before the intervention, when unreliable Wi-Fi often disrupted lessons or deterred staff from using digital tools.

> In a classroom next door, we have 35 laptops. And they will all be able to log on and be working in less than 5 minutes, whereas previously it could take up to 20 minutes of a lesson to get everybody logged on. – *IT Technician, Primary school*

Overall, the intervention was viewed positively, with the improved infrastructure seen as a strong foundation for further digital development. Even for schools that already had some level of reliable connectivity, the intervention was often valued as consolidating and future-proofing their infrastructure.

> Where we have six classes, maybe one of the classrooms would be able to see me live in the assembly. One wouldn't be able to see me, one might be able to see it, but it would be breaking up and some wouldn't get anything through it at all. Now that isn't an issue anymore. – *Headteacher, Primary school*

However, a few of the MAT schools interviewed reported that they already had fast and reliable connections before, thus they noticed a minimal difference in connectivity speed and reliability after the intervention.

Satisfaction with the security and value for money of their school's internet connection was also significantly higher at the post-stage compared to before the intervention (Table 8). An increase in satisfaction was seen across both phases and type of primary school, although the difference was not significant for satisfaction with the security of the connection amongst respondents from primary academies (Appendix Tables 40 and 42). Interview data supported these findings, with secondary schools and MATs often pointing to improvements in cyber security as evidence of stronger protection, while primary schools highlighted the reassurance that secure and reliable Wi-Fi brought to everyday teaching.

Several interviewees noted a range of enhancements following the intervention, including centrally controlled configurations and password management, more secure Wi-Fi infrastructure, and moves to Windows 11 for its improved security features. Some

schools also introduced updated telephone systems to better monitor calls, while others noted that going serverless reduced the risk of local breaches. One MAT reported entering a new cyber security insurance agreement, further strengthening protection across the trust.

Table 8: Satisfaction with the security and value for money of the school's internet connection

The security of your connection? For example, whether your firewalls and antivirus software are active and up to date[29]	**Pre**	**Post**
NET Satisfied	88%	94%*
Very satisfied	52%	68%*
The value for money of your connection[30]	**Pre**	**Post**
NET Satisfied	45%	76%*
Very satisfied	15%	43%*

Base: All respondents (pre 267, post 718)

Source: Pre and post-surveys

Coverage and internet blackspots

A significant increase in survey respondents who said that all areas across their school had satisfactory internet connection was seen between the pre and post-stages in both primary (pre 15%, post 74%) and secondary phases (pre 26%, post 84%) (Appendix Table 43). This increase was consistently seen for primary academies and local authority schools, small, medium and large schools and for urban and rural schools (Appendix Table 44). There was similar feedback from interviewees. They described now being able to use technology for teaching and learning activities in areas of the school where it had proved impossible or difficult in the past. A key benefit expressed by some interviewees was improved connectivity outside of the school buildings which allowed more outdoor learning to take place. Examples were given of physical education (PE) teachers now being able to carry out work on their tablets during their outside lessons.

[29] At the post-stage, 3% were neither satisfied nor dissatisfied and 1% were not very satisfied.
[30] At the post-stage, 11% were neither satisfied nor dissatisfied, 5% were not very satisfied and 2% were not at all satisfied.

> It's literally 100% coverage. In particular, on the front side of the building where we've got a dual carriageway running outside, I've been right over across the other side of the road and I could still pick up full strength [signal] over there, and same at the back, down towards the field. – *IT Manager, Primary School*

The following case study illustrates how CtC2 has enabled a school to embrace wider use of technology with pupils and to expand digitally-supported learning in previously poorly connected areas of the school.

More diverse teaching and learning and use of school spaces

Key challenges

The ICT infrastructure of a small rural primary school was near the end of its life. Facilities could not be used effectively in teaching and learning as Wi-Fi did not cover all areas. Teachers found existing systems incompatible with innovative pedagogies, particularly those supporting personalised learning, working on cultural and language needs or taking learning outside of the classroom.

Changes

Through CtC2, the remote points and wiring were upgraded and external points installed, so that remote areas of the site had coverage. Improvement in connectivity has extended the use of technology and ICT in teaching and learning, in a way that would not have been feasible before. With the capacity to use more technology, and use it more flexibly, there has been a change in mindset about how technology can improve and diversify learning.

Impacts

Technology is used on a wider scale and is becoming routine in all classes. They are beginning to include all pupils more easily, in all aspects of learning, by providing personalised devices, adapted to the individual for those with special educational needs and disabilities (SEND).

The school has a significant proportion of pupils who are refugees. The introduction of translation apps and personalised devices has opened learning pathways for refugee pupils, supporting both academic progress and emotional well-being. They hope to strengthen personalised learning opportunities for vulnerable pupils as the technology is developed.

Classes now use tablets outdoors for physical education or Forest School lessons; pupils can watch video clips and use apps in situ to identify specimens as part of their learning. With more efficient and faster systems, pupils can share their learning with parents through a specialist education communication platform, and teachers can more easily update learning records and communicate this with parents, who have become more engaged as a result.

> Now that technology is more accessible, we are able to think more outside the box and look for ways to use technology to improve our learning - *School Business Manager*.

A significant reduction in reporting of internet blackspots (areas where the connection was unsatisfactory) was seen after the intervention. The most common areas where the connection was unsatisfactory cited at the pre-stage were playing fields/playgrounds (56%), classrooms (40%), offices/administration spaces (36%) and the school hall (32%) (Table 9). Around one-quarter of respondents mentioned staff rooms (25%) or pastoral support places (23%), with other areas mentioned by less than 15%.

After the intervention however, mentions were significantly reduced across all areas (most frequently mentioned were playing fields/playground 9%, classrooms 6% and offices/administration spaces 6%).

Table 9: Areas of the school with unsatisfactory internet connection

	Pre	Post
Playing fields/ playgrounds	56%*	9%
Classrooms	40%*	6%
Offices/ administration spaces	36%*	6%
School hall	32%*	2%
Staff rooms	25%*	3%
Pastoral support spaces	23%*	3%
Library	14%*	0%
Gym	9%*	1%
IT suite/ IT specific classrooms	6%*	1%
Other[31]	10%	4%
Don't know	0%	1%

Base: All respondents (pre 474, post 718)

Source: Pre and post-surveys

After the intervention, primary schools were significantly more likely to say they had an unsatisfactory connection in their offices/administration spaces compared to secondary schools, although mentions were still very low (primary 7%, secondary 3%, Appendix Table 45).

A few interviewees noted that some areas still experienced poor connectivity coverage, particularly in older buildings and rural schools. In older school buildings, the physical

[31] Other mentions included corridors, external buildings/rooms, kitchen and other rooms/offices.

structure made it difficult to install additional access points or ensure consistent signal distribution, resulting in patchy connectivity in certain areas.

Rural schools were more likely to struggle with limitations in the broadband entering the building, which restricted their ability to fully utilise the upgraded infrastructure. These remaining blackspots meant that some classrooms or learning areas were still unable to support reliable digital access, limiting the use of online tools and occasionally disrupting teaching. While this was not widespread and most interviewees reported significant improvements in their connectivity, these issues highlighted the need for further investment in both internal layout adaptations and external broadband services in some schools.

> They [primary school] struggle for internet connectivity at times because they can't get full-fibre. At least they could get a leased line. But a leased line would be massively out of budget for them. Because they couldn't get FTP[32] in their area, they were using Virgin Media business, which was really, really flaky. – *Director of IT and Data Services, Secondary school*

[32] File Transfer Protocol, a standard network protocol used for transferring files between a client and a server over a TCP/IP network, such as the internet.

Impact on the school

Schools were asked about the impact of CtC2 on their use of cloud-based storage and systems, energy saving and efficiency, and their plans to upgrade or invest in technology. The impact of CtC2 participation on schools' use of a digital strategy, awareness and monitoring of the digital and technology standards, and the extent to which schools met the standards, is also discussed in this section.

Key findings

- following CtC2, two-fifths of schools reported increased use of cloud-based storage and systems and schools that still had on-premises only storage were more likely to switch to cloud-based in the future
- improved confidence in connectivity led to greater collaboration among staff, easier access to shared resources, reduced administrative burden and more streamlined operations
- CtC2 was often described as a catalyst for expansion of technology use and in some cases freed or redirected budgets towards new devices and classroom technologies
- however, in the surveys, future plans to upgrade, replace or invest in technology appeared to reduce after the intervention, potentially due to a reduced need for investment due to the upgrades received
- awareness and monitoring of the school digital standards increased after the intervention
- no impact was seen on having a digital strategy, however local authority maintained primary schools, small primary schools and rural schools may benefit from further support to produce a digital strategy
- it was recognised by some schools that CtC2 had reduced some of the financial burden of technology improvements, however evidence of energy savings or cost savings was more limited and typically expressed in terms of short-term increased efficiencies.

Use of cloud-based storage and systems

Before the CtC2 intervention, schools responding to the surveys were commonly utilising a mix of on-premises and cloud-based storage and systems. Email and productivity systems were the most likely to be cloud-based only (73%), whereas curriculum and administration storage were least likely to be cloud-based only (21% and 18%

respectively) (Appendix Table 46). Some differences were noted in use of the cloud before the intervention by phase and type of school (Appendix Tables 47 to 50):

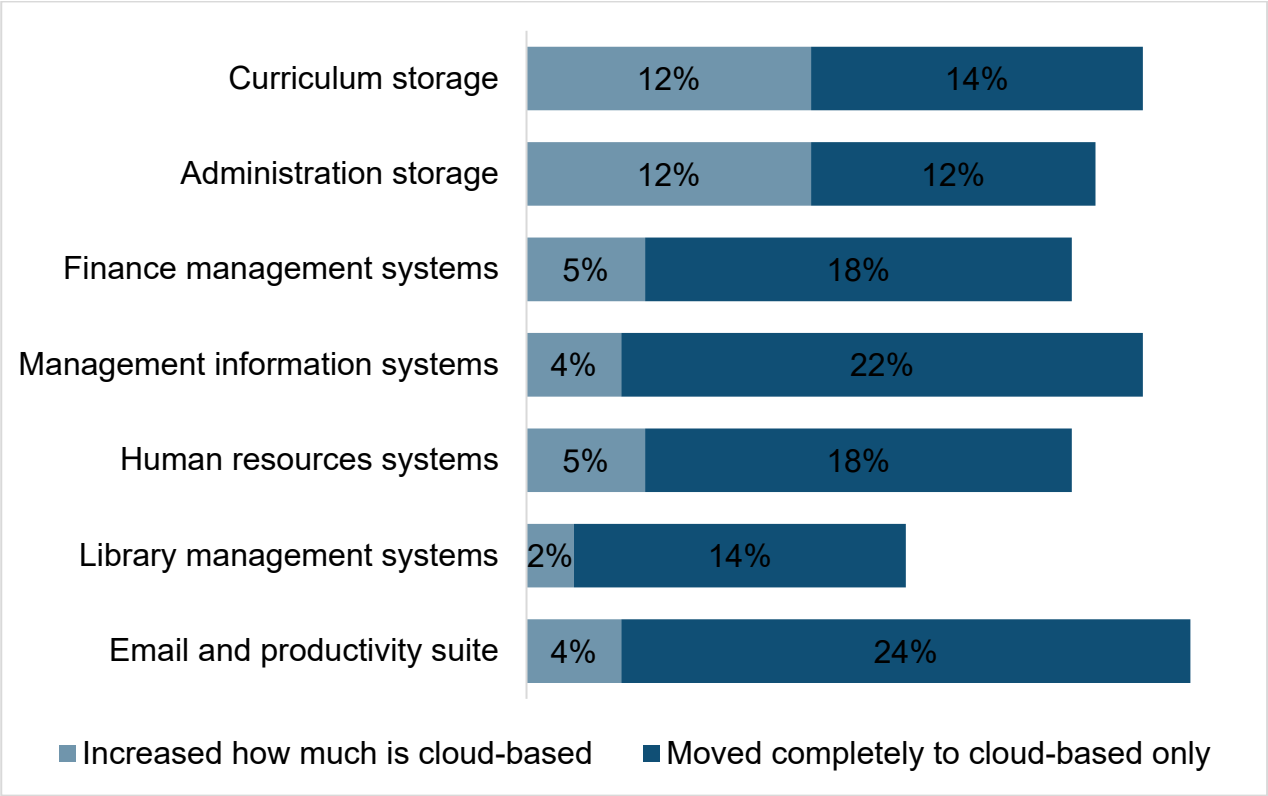
- secondary schools (76%) were significantly more likely to be using a mix of on-premises and cloud-based curriculum storage compared to primary schools (60%)
- secondary schools were significantly more likely to have on-premises only (50%), and less likely to have cloud-based only (28%) management information systems compared to primary schools (on-premises only 21%, cloud-based only 46%)
- local authority maintained primary schools were typically more likely to have on-premises only and less likely to have cloud-based only storage and systems

Several interviewees, mostly from MATs, reported that their teachers were already using the cloud in their work before the intervention, for tasks such as marking, lesson planning, and register-taking. The same schools also reported beginning to shift their systems to the cloud even before the intervention, although the CtC2 upgrade was seen as accelerating this process by providing the reliability and confidence to expand cloud use more quickly. A few rural schools, mostly local authority maintained, relied heavily on paper-based systems for administration and curriculum functions before the intervention, and for these schools the improved connectivity was described as an essential enabler, making it possible to begin moving processes online where it had previously not been feasible.

> In the past because they [teachers] couldn't get on the device, they would have to have had half a dozen boxes of paper printed, ready to use if the technology didn't work. – *Business Manager, Special school*

After participation in CtC2, **two-fifths (40%) of schools reported either increasing or moving completely to cloud-based for any aspects of their storage or systems** (Figure 1). Email and productivity suite (24%) and management information systems (22%) were the most likely to have been moved completely to the cloud, followed by finance management (18%) and human resources systems (18%). Although an increase in cloud-based storage was seen after the intervention, curriculum and administration storage continued to be primarily a mix of cloud-based and on-premise (52% respectively) (Appendix Table 51).

Figure 1: Changes to cloud-based storage or systems – post-survey



Base: All respondents (post 718)

Source: Post-survey

Most school interviewees reported that they had transitioned most, if not all, of their data and processes to the cloud. This shift was largely driven by improved confidence in the reliability and speed of their connectivity, which made it feasible to adopt cloud-based systems for tasks such as lesson planning, marking, and administrative workflows. As a result, schools experienced greater collaboration among staff, easier access to shared resources, reduced administrative burden, and more streamlined operations, particularly across MATs where teachers could co-develop and share digital materials efficiently.

However, one rural primary school interviewed saw little benefit in shifting away from established paper-based systems and lacked appetite to move towards digitalisation due to limited budgets, low staff confidence and ongoing issues with external broadband into the building, unrelated to the CtC2 intervention.[33]

Plans to switch to cloud-based approaches amongst the schools that only had on-premises storage or systems were similar at the pre and post-stages (Appendix Tables 52 and 53). The only significant differences seen were an increase in those who planned

[33] The CtC2 intervention improves connectivity within a school, therefore would not impact upon external broadband entering the school.

to switch to cloud-based administration storage (in the next 12 months pre 19%, post 33%).

That said, almost half (48%) of post-survey respondents from schools that still had on-premises only storage or systems said that receiving the CtC2 connectivity intervention had made it **more likely that they would switch to cloud-based storage** in the future, and propensity to switch was particularly high amongst those from large primary schools (62%) (Table 10). The desire to transition fully to cloud-based storage was particularly strong among the interviewees from MAT schools that had not yet fully transitioned. They placed emphasis on having one common system which would allow them to standardise their processes fully. Alongside the administrative efficiencies, MAT interviewees also highlighted the benefits for teaching and learning, with cloud platforms enabling teachers to share lesson plans and resources more easily, collaborate on curriculum content across schools, and provide pupils with a more consistent learning experience.

> From an IT support point of view, one common platform across our trust is a massive benefit because there's only one system to manage and one system to focus our skills against, whereas beforehand there could have been three or four different solutions in place [to manage]. – *ICT Director, Primary school*

Table 10: Impact on schools' position on cloud storage

	All respondents	Large primary
It has made it more likely we will switch to cloud storage	48%	62%
It has made no difference	43%	30%
It has made it less likely we will switch to cloud storage	0%	0%
Don't know	9%	8%

Base: All respondents (post 117), large primary (42)

Source: Pre and post-surveys

The following case study illustrates how within a MAT, improved connectivity has allowed centralised systems to be accessed by schools, improving access to shared cloud-based services and enabling more efficient cross-school collaboration.

Strategic connectivity upgrade across a Multi-Academy Trust

Key challenges

A secondary school within a Multi-Academy Trust (MAT) experienced significant disruption due to outdated and inconsistent ICT infrastructure. Different school sites operated on varying systems, with some relying on legacy networks that were no longer fit for purpose. The lack of interoperability across legacy systems created digital silos, limiting collaboration and exposing potential data security vulnerabilities.

Changes

The MAT implemented a phased digital transformation plan supported by the CtC2 programme. Wireless access points were installed across all school buildings, and incompatible infrastructure was replaced. As part of the rollout, the MAT worked closely with suppliers to ensure device protocols aligned with upgraded networks. The secondary school successfully migrated to the MAT's central wide-area network (WAN), improving access to shared cloud-based services and enabling more efficient collaboration between schools. Staff received training and support throughout the process, ensuring smooth adoption.

Impacts

Staff can now move between sites and access shared systems without connectivity disruptions. Lessons are more interactive, with digital resources now reliably accessible in all classrooms. Administrative processes have also improved, with more tasks moved online across more schools. Migration to a central WAN has not only enabled consistent access but also enhanced cyber resilience, reducing exposure to data breaches and aligning with digital standards.

> From a trust point of view, being able to have our staff move between schools, have the same set of wireless networks, join the same wide area network and then actually just work from anywhere, there's definite benefit there. – *School IT Manager*.

Energy and cost efficiencies

Amongst post-survey respondents, just over one-third (36%)[34] of schools reported making **changes to configure their network switching and wireless access points in order to save energy and costs after the intervention** and changes were significantly more likely to have been made by secondary schools (Appendix Table 54):

- 23% reported using central management tools to configure their switching and monitor performance and energy use (primary 21%, secondary 32%)
- 15% configured wireless access points to save energy, by powering down devices when full wireless functionality is not required (primary 13%, secondary 22%)
- 15% configured Power over Ethernet (PoE)[35] ports to save energy by powering down devices when they are not required (primary 14%, secondary 17%)[36]
- 14% put technical support in place to help with energy saving approaches (primary 13%, secondary 22%)

Practice example: improved energy efficiency

A Director of Data and IT Services from a secondary school reported that the school achieved tangible cost savings through improved IT efficiency and energy management. By replacing outdated network switches with more energy-efficiency models, the school reduced their overall power consumption, despite the higher drawing power of the newer Wi-Fi 6 infrastructure. IT staff time spent on maintenance was reduced, since the new switches allowed for centralised monitoring and remote fixes. Elimination of inefficient old switches resulted in savings which the school was confident in sustaining.

Energy savings were cited in the interviews as a benefit of the upgraded switching infrastructure. Schools reported using features such as powering down unused ports or disconnecting devices outside of school hours. They noted that enhanced connectivity and remote management capabilities made it easier to implement these changes. Secondary schools particularly spoke of adopting energy-saving configurations. They often described having dedicated IT teams and centralised systems that enabled more effective monitoring and energy management. In contrast, primary schools typically faced tighter budgets and limited technical resources, which constrained their ability to configure advanced network settings or sustain energy-efficient practices.

[34] Respondents in IT roles were more likely to be aware of these types of changes (Appendix Table 55).
[35] Specialised Ethernet ports on a switch that not only transmit data but also provide electrical power to connected devices.
[36] Difference is not significant.

However, in terms of day-to-day financial savings, interviewees expressed mixed views on the impact of the connectivity intervention. Some noted reduced costs from improved energy efficiency, fewer support needs, and the removal of physical storage requirements.

> Reduced costs with the switches; it'll be around £1500 per year we will save on support. The main saving is on the hardware costs. For the next 10 years we don't have to worry about the connectivity, or the licensing on the switches and access points. – *Network Administrator, Primary school*

Others, however, were unsure about the scale of these savings and voiced concerns about rising electricity bills and future licensing costs. While short-term efficiencies, such as time savings for IT staff and streamlined administration processes were widely reported, views on long-term savings were more cautious. Several schools, particularly MATs, saw potential in shifting to cloud-based systems as a way to reduce future infrastructure spending, but some remained concerned about sustainability once warranties expired and ageing equipment needed replacement.

Plans to upgrade, replace or invest in technology

Analysis of matched data for respondents that had completed both the pre and post-surveys showed that before the intervention, the most common technologies that survey respondents said their school planned to upgrade, replace or invest in over the next 2 years were (Table 11): [37]

- end user devices (65%)
- servers and storage (54%)
- audio visual equipment (43%)

Interview findings suggest that in some cases, the decline in planned investment in servers and storage reflects a shift towards cloud-based systems. Schools, especially MATs, reported that the intervention gave them greater confidence to future-proof their infrastructure by reducing reliance on on-site servers, with many seeing the upgrades as accelerating their move to the cloud. This shift may also explain reduced mentions of technical support, since cloud systems were expected to simplify ongoing management needs.

Around one-third of matched survey respondents said their school was looking to upgrade, replace or invest in cyber security (35%), assistive technology (35%) or back-

[37] Analysis of full survey data showed a similar finding (Appendix Table 56).

office systems and software (33%) and around one-quarter on technical support (27%) or training for teachers on using technology (24%).

Table 11: Plans to upgrade, replace or invest in technology over the next 2 years – matched pre-post data

	Pre	Post
End user devices e.g. laptops	65%	65%
Servers and storage, including cloud storage	54%*	36%
Audio visual equipment	43%*	32%
Digital curriculum resources	40%*	29%
Cyber security e.g. firewalls	35%	31%
Assistive technology for pupils with SEND	35%*	24%
Back-office systems and software	33%	31%
Technical support	27%*	15%
Training for teachers on using technology	24%	29%
Training for non-teaching staff on using technology	16%	22%
Innovative technologies, such as virtual reality or artificial intelligence	11%	14%
My school plans to upgrade, replace, or invest in technology but we are unsure in which areas	11%	17%
Other[38]	3%	1%
My school has no plans to upgrade, replace or invest in any technologies or digital resources over the next two years	7%	3%
Don't know	1%	7%
Not answered	2%	0%

Base: All matched survey respondents (pre 196, post 196)

Source: Pre and post-surveys

For the most part, CtC did not appear to change schools' plans to upgrade, replace or invest in technologies. However, matched survey respondents were significantly **less likely to say they planned to upgrade, replace or invest in:**

- servers and storage (pre 54%, post 36%)

[38] See Appendix Table 56 for all other responses.

- audio visual equipment (pre 43%, post 32%)
- digital curriculum resources (pre 40%, post 29%)
- assistive technology for pupils with SEND (pre 35%, post 24%)
- technical support (pre 27%, post 15%)

These differences were driven by primary school respondents and no differences were found for secondary school respondents, although it should be noted that the base size was low (n=44) which made it more difficult to detect significant changes (Appendix Table 57 and 58).

Many interviewees, particularly from primary and local authority maintained schools, consistently reported struggling with outdated equipment and limited budgets for upgrades and the intervention was felt to have delivered upgrades they could not otherwise have afforded. At the same time, CtC2 was often described as a catalyst, in that reliable connectivity gave schools confidence to expand digital use, and freed or redirected budgets towards devices and classroom technologies. Some upgrades had already been made before the post-survey, helping to explain the lower reported future investment. For special schools, priorities remained focused on reinvesting savings into devices and resources to support pupils with SEND.

After the CtC2 intervention, some differences were noted in intended investment or change in technologies, which may help with tailoring future school support (Appendix Tables 59 and 60):

- respondents from secondary schools and primary academies were more likely to mention end user devices, audio visual equipment or cyber security
- respondents from secondary schools were more likely to mention servers and storage, and back-office systems and software

MAT and urban school interviewees particularly, talked of investing further in technology, such as Artificial Intelligence (AI) tools, SEND resources, and computing suites, often using internal budgets or separate funding. Several participants expressed frustration over the programme's lack of flexibility, noting that without funding for devices and digital systems, the full benefits of improved connectivity could not be realised in classroom practice or school operations. Some schools also raised concerns about the long-term sustainability of maintaining new infrastructure, further limiting appetite for investing in back-end systems or support.

> If I'd have had my way, I wouldn't have spent it on that [access points and switches]. I would have spent it on a new server and devices because that's where we're lacking. It would have made a massive difference because we've had a new computing suite, which we've completely gutted and rebuilt. – *Inclusion Manager, Primary school*

Awareness and monitoring of digital standards

CtC2 had some positive impact on the awareness and monitoring of the school digital and technology standards. Analysis of matched data for respondents that had completed both the pre and post-surveys found a significant increase in the proportion of respondents who said they were fully aware of the new digital standards, from 20% at the pre-stage to 31% at the post-stage (Table 12).

Table 12: Awareness of DfE's new digital and technology standards for schools matched pre-post data

	Pre	Post
1 - Never heard of the standards	11%	6%
2	10%	8%
3 - Somewhat aware of the standards	38%	31%
4	20%	25%
5 - Fully aware of the standards	20%	31%*

Base: All matched survey respondents (pre 196, post 196)

Source: Pre and post-surveys

Furthermore, a significant increase was also seen in those who said they were monitoring the Meeting digital and technology standards in schools and colleges service on gov.uk in for new standards releases, from 57% at the pre-stage to 69% at the post-stage (Table 13).

Table 13: Is school monitoring the 'Meeting digital and technology standards in schools and colleges' service on gov.uk – matched pre-post data

	Pre	Post
Yes	57%	69%*
No	14%	12%
Don't know	30%*	19%

Base: All matched survey respondents (pre 196, post 196)

Source: Pre and post-surveys

Similar to the survey findings, interview data suggests that CtC2 intervention contributed to increased awareness and monitoring of DfE's digital and technology standards. Several interviewees described becoming more engaged with digital strategy following the intervention, often as part of broader infrastructure upgrades or trust-wide planning. This included carrying out audits of existing systems against the standards, embedding them into procurement decisions, and in some MATs, developing trust-wide digital roadmaps aligned with DfE guidance. Some school leaders also reported using the standards to make stronger cases for future investment to governors and trustees, illustrating how the intervention acted as a prompt to formalise digital planning.

Following the CtC2 intervention, respondents from secondary schools and primary academies were significantly more likely to be fully aware of the standards (secondary 49%, primary academies 41%) compared to those from local authority maintained primary schools (19%) (Appendix Tables 61 and 62). Interviewees from secondary schools and primary academies were typically engaged with the digital standards, largely because they had dedicated IT leads or operated within MATs that provided structured digital oversight.

Primary academies were also significantly more likely to be monitoring for new standards releases compared to local authority maintained primary schools (primary academies 72%, primary local authority maintained 56%), suggesting that local authority maintained primary schools in particular may benefit from further communications around the digital standards (Appendix Table 63).[39] Interviewees from local authority maintained primary schools often described lack of a clear digital strategy and a dependence on local authority support, suggesting lower engagement with the standards.

Meeting the digital and technology standards

The CtC2 intervention also appears to have had an impact on the extent to which respondents believed their school met the digital and technology standards (Appendix Table 64).

Whilst the proportion who said they already met the standards before CtC2 was similar at the pre (8%) and post-stages (post 11%) and similar proportions at pre and post-stages said their school did not meet the standards and they had no additional plans to meet them (pre 5%, post 4%), after the intervention, schools were *less likely* to say they now meet the standards and were *more* likely to say they had put additional plans in place:

[39] It should be noted that local authority maintained primary schools were significantly more likely to not be able to answer this question, which may have an impact on these findings.

- 45% believed they would meet the digital and technology standards after their CtC2 intervention at the pre-stage, however schools were *less* likely to say they now met the standards after their intervention (32%)

- at the pre-stage 25% said that they had put additional plans in place (outside of the connectivity upgrade) to address meeting the standards, however at the post-stage schools were *more* likely to say they had put additional plans in place (39%)

This shift may be linked, in part, to the improved awareness of the digital and technology standards: with greater awareness of the standards, schools may have a more accurate perception of whether their school meets them. As CtC2 only addresses connectivity, it should be noted that participation does not ensure that schools meet all of the standards, however this finding does suggest that CtC2 may improve schools' awareness of what is required to meet the remaining standards so that schools can put the correct measures in place to meet them in the future.

After the intervention, primary schools were significantly more likely to say that they now met the standards after participating in CtC2, compared to secondary schools (primary 35%, secondary 21%), whereas secondary schools were significantly more likely to say they had plans in place to do so (secondary 56%, primary 35%) (Appendix Table 65).

In the interviews primary school staff described immediate improvements in lesson delivery and connection reliability after the intervention, which they felt helped move their schools closer to meeting the standards. Interviewees from MAT schools often described the desire to expand the connectivity upgrade as part of trust-wide digital strategies, including plans to standardise infrastructure, expand cloud-based systems, and align with DfE digital and technology standards across multiple sites. Schools mentioned utilising the standards to update their strategies for the next 2-5 years.

> So we've been looking at that since it came out and while some of it doesn't apply to us and some bits in there just are outside what we do at the moment, a lot of what we're focusing on for our 2-3 year plans is trying to aim towards those minimum standards in that document. – *Trust IT Manager, Secondary school*

Cost (82%) was by far the main barrier to meeting all of the standards in the future amongst post-survey respondents from schools that had not yet met them, followed by the time and planning required (44%) and staff skills to use new technology (23%) (Table 14).[40] Cost was also the most frequently cited barrier across interviews, with rural, often

[40] These were also the highest mentioned barriers at the pre-stage (71%, 42% and 22% respectively), although mentions of 'cost' at the pre-stage were significantly lower than at the post-stage.

primary schools, describing tight budgets and the need to prioritise essential devices over further technology-related investments.

Other barriers mentioned by one-tenth or more respondents were lack of tech support in the school (15%), staff reluctance to change existing systems (15%) and knowing what technology to buy (12%) or what the technology should cost (10%).

Several interviewees from rural schools highlighted ongoing difficulties. In some cases, this related to the external broadband connection coming into the school, which limited the extent to which the CtC2 upgrades could be fully utilised. Others described internal building-related issues, such as thick walls or older infrastructure, which continued to restrict Wi-Fi coverage in parts of the school and prevented them from realising the full potential of the improved connectivity (also see section 4.3).

Table 14: Barriers to meeting the digital standards

	Pre	Post
Cost of meeting standards	71%	82%*
Time and planning required to meet standards	42%	44%
Staff skills to use new technology or digital systems	22%	23%
Lack of tech support in the school	19%	15%
Knowing what technology to buy	17%	12%
Staff reluctance to change existing systems	14%	15%
Knowing what the technology should cost	13%	10%
Knowing which companies to buy technology from	11%	8%
IT policies	9%	6%
The benefits of meeting the standards is unclear	7%	6%
Knowing how to install the technology	5%	3%
Other	10%*	3%
My school does not envisage having any barriers to meeting the standards	9%	8%
Don't know	1%	3%
Not answered	1%	0%

Base: All that did/would not meet the digital standards (pre 124, post 279)

Source: Pre and post-surveys

Digital strategy

No impact on schools having a digital strategy in place was seen following participation in CtC2. Almost half (49%) of respondents from matched schools that completed both the pre and post-surveys said they had a digital strategy in place and the figure was the same at the post-stage (49%) (Table 15, see Appendix Table 66 for data for all respondents). After the intervention, around one-fifth (22%) had a standalone strategy and one-quarter (26%) said it was covered as part of a wider school strategy. The majority of the remainder said their digital strategy was in planning (32%).

Some interviewees, especially from smaller or non-MAT primary schools, reported that developing a digital strategy was not a current priority. While a few described the CtC2 intervention as helping them start or expand digital planning, many pointed to barriers such as outdated devices, limited budgets, a lack of internal IT support, and the need to focus on staffing or day-to-day operations. Several noted that without dedicated IT leads or resources, strategic planning felt unrealistic, and that replacing ageing devices took precedence over broader digital ambitions. In these contexts, the CtC2 upgrade was valued as a practical fix to keep day-to-day systems running, rather than as a driver of long-term change.

Table 15: Does the school have a digital strategy in place – matched pre-post data

	Pre	Post
NET: Yes	49%	49%
Yes, we have a standalone strategy in place	20%	22%
Yes, it is covered in a wider school strategy	28%	26%
Not yet, but it is in planning	26%	32%
No, and no plans to do so	6%	4%
Don't know	20%	15%

Base: All matched survey respondents (pre 196, post 196)

Source: Pre and post-surveys

Some differences were noted by school phase, size and type at the post-stage (Appendix Tables 67 to 70):

- secondary schools (33%) were significantly more likely to have a standalone strategy compared to primary schools (22%)
- amongst primary schools, academies were significantly more likely to have a strategy in place (67%) compared to local authority maintained primary schools (44%)

- small primary schools were more likely to say their digital strategy was in planning (31%) compared to large primary schools (18%)
- one in ten rural primary schools (10%) did not have a digital strategy and were not planning to do so

These findings suggest that further support to produce a digital strategy may be beneficial for local authority maintained, small and/or rural primary schools.

While the survey did not indicate widespread changes in the presence of digital strategies, interview data suggested that for some schools, particularly those within MATs or with digitally-minded leadership, the intervention had emphasised the need for strategic development. These interviewees described already having established or emerging digital strategies and saw the improved connectivity as a foundation to accelerate their plans. They highlighted increased use of cloud-based systems, streamlined operations, and stronger cross-school collaboration. In these cases, the infrastructure upgrade was viewed not merely as a technical improvement, but as a catalyst for broader digital transformation in teaching, learning, and school management (also see section 5.3).

Practice example: introducing a new digital strategy

One secondary school interviewee reported that improved connectivity allowed them to begin to draft a trust-wide digital strategy. They had tailored elements of the strategy for each school and introduced a more aspirational vision of targeting improvements on the experiences for each year group, and focusing more on the pupil outcomes.

> This programme has accelerated that [digitalisation] forwards by probably a couple of years at least and brought the aspirations closer. It's now about the impact that we can have in the classroom and the impact that we can have with the learners. – *IT Director, Secondary*

Such a transition is also illustrated in the following case study:

A digital shift in an urban primary academy

Key challenges

An urban primary academy had struggled with using technology consistently across the school. The school's reliance on manual systems left staff stretched and important information was poorly tracked. As a result, many teachers avoided using digital tools, and confidence was low. The school lacked a digital strategy, and key tasks like pupil registration and tracking extracurricular activities were still done manually. Leadership worried that adopting more digital processes would place extra pressure on staff already juggling high workloads.

Changes

The school upgraded its entire connectivity infrastructure as part of the CtC2 programme. Wi-Fi became stable and accessible across all areas of the school, including classrooms and shared spaces. Teachers were supported through in-class training sessions on how to use cloud-based tools, interactive whiteboards, and online platforms to enhance lessons. This training helped improve digital confidence among teachers, who started to embrace technology in their classrooms. Leadership, which had been hesitant to fully adopt digital solutions due to concerns over additional workload, began to see the benefits of technology in both teaching and operational processes.

Impacts

Technology is now used more confidently across the school. Teachers began to deliver more engaging, interactive lessons using online resources and platforms. Adopting cloud-based systems also allowed the school to reduce paper waste significantly and phase out underused print infrastructure, resulting in lower operational costs and a smaller environmental footprint. Administrative tasks, such as pupil registration and activity tracking, are now streamlined through digital systems. Leadership has seen a shift in staff attitudes, with more willingness to try new tools and approaches.

> It has made the senior leadership team take more notice in a really positive way of the pitfalls and the amazing things we can achieve when we do rely on technology and when we have reliable technology. – *Senior School Administrator*

Impact on staff and pupils

The following section discusses the impact of CtC2 on school staff and pupils, including impacts on the use of education technology in schools for teaching and learning and administration tasks, and the frequency of using the internet and devices. Barriers to using education technology are discussed, as well as perceptions of changes in staff confidence, skills and appetite for using technology, assessment of technology needs, staff workload, pupil engagement, progress and attainment.

Key findings

- a significant improvement was seen in perceptions of how well education technology supported school administration and teaching and learning tasks after the intervention and the majority (61%) of schools believed that CtC2 had helped them utilise the technology in their school to its maximum effect
- teachers' appetite (51%), confidence (48%) and skills (39%) for using technology were perceived to have improved, and barriers to using technology had reduced significantly
- expanded flexibility and use of technology allowed smoother lesson delivery, integration of real-time collaborative activities, increased use in non-classroom spaces and adaptation for pupils with SEND
- over two-fifths (44%) noted that CtC2 had led to increased pupil engagement. Perceptions of the impact on pupil attainment were somewhat more limited (34%), although some interviewees were optimistic about seeing longer-term impacts
- perceptions of the impact of technology and of CtC2 on staff workload were more mixed. Although the majority reported no change in their workload, some believed it had decreased whilst others that it had increased. Where time savings or improved efficiencies were noted, this allowed more time to be spent on other more meaningful tasks
- the cost of hardware and software, followed by lack of devices, continued to be perceived as the greatest barriers to technology use, and restricted budgets and outdated devices limited the potential benefits of the intervention for some schools

Use of technology

Survey respondents were asked how well education technology in the school supported a range of administration and teaching and learning activities.[41] **A significant increase was seen in those who said that education technology supported activities extremely well for all areas** between the pre and post-surveys and this significant increase was typically seen across all sub-groups (where base sizes permitted analysis) (Table 16 and Appendix Tables 71 to 77).

After the CtC2 intervention, the best supported activities were:

- pupil/student data management (extremely well 55%)
- delivering lessons (extremely well 54%)
- planning lessons/ curriculum content (extremely well 54%)
- collaborating and sharing resources with other teachers (extremely well 54%)
- delivering teacher training/Continuous Professional Development (CPD) (extremely well 51%)
- financial management (extremely well 50%)

The vast majority (between 83% and 96%) of respondents felt that education technology supported administration and teaching and learning activities extremely or quite well after the intervention (Appendix Table 78). Respondents from secondary schools and those from urban schools were particularly likely to say that education technology supported administration and teaching and learning activities extremely well after the intervention (Appendix Tables 79 and 80).

[41] Note that these questions were added part way through administration of the pre-survey, therefore the number of respondents answering them at the pre-stage (n=267) is less than the total number of pre-stage respondents (n=474).

Table 16: How well education technology supports activities – extremely well[42]

Supports activities extremely well	Pre	Post
Pupil/pupil data management	27%	55%*
Planning lessons/ curriculum content	27%	54%*
Delivering lessons	26%	54%*
Financial management	25%	50%*
Timetabling	24%	46%*
Collaborating and sharing resources with other teachers	22%	54%*
Parental/carer engagement/ communication	22%	49%*
Tracking pupil progress	22%	49%*
Delivering teacher training/ CPD	19%	51%*
Payroll	19%	47%*
Conducting formative assessment (e.g. giving feedback or marking)	18%	47%*
Communication with and delivery of governance	18%	45%*
HR processes	17%	47%*
Offering independent/ online learning (including in class)	17%	47%*
Supporting flexible working practices (e.g. part-time working)	17%	41%*
Conducting summative assessment	16%	46%*
Supporting pupils with SEND (e.g., assistive technology that supports pupils to learn / improve independence / wellbeing)	16%	46%*
Estate management	14%	43%*

Base: All respondents excluding 'do not use technology for this task' (base varies pre 169-255, post 485-713)

Source: Pre and post-surveys

The CtC2 intervention also appears to have had **a moderate positive impact on use of technology** (Table 17 and Appendix Tables 81 to 83). After the intervention:

- around half of post-survey respondents believed that their school had seen an **increase in teachers' use of hardware/devices (51%) and**

[42] Primary schools with a 100Mbps or lower download speed test result were significantly less likely to say that education technology supported a range of activities well, suggesting that 100Mbps may be too low.

software/programmes/apps (51%), and around 1 in 7 believed it had increased a lot (14% and 13% respectively)

- around half of post-survey respondents believed that **staff appetite for using technology (51%) and teacher confidence[43] in using technology (48%) had improved** and one-tenth (9% respectively) said they had improved a lot
- three-fifths (61%) of post-survey respondents believed that the connectivity intervention had **improved their schools use of technology available to its maximum effect**, with 15% saying it had improved a lot and 46% that it had improved a little[44]
- impact on teachers' skills in using technology and in schools' skills in assessing their technology needs was noted to a lesser extent[45]

Table 17: Perceptions of impact on staff use of technology

	Increased a lot	**Net: Increased**
Teacher's use of hardware/devices	14%	51%
Teachers' use of software/programmes/apps	13%	51%
	Improved a lot	**Net: Improved**
Technology available in your school being used to its maximum effect	15%	61%
Staff appetite for using technology	9%	51%
Teacher confidence	9%	48%
Teacher skills in using technology	5%	39%
My schools' skills in assessing our technology needs	6%	38%

Base: All respondents (post 718)

Source: Post-survey

The frequency of use of laptops or notebooks within primary schools increased significantly (used a lot of the time pre 69%, post 78%). However, little change was seen

[43] Respondents from small primary schools were significantly less likely to say that teacher confidence had improved a lot (3%) compared to those from large or medium sized primary schools (10% and 11% respectively).
[44] Respondents from local authority maintained primary schools (22%), and from urban schools (16%) were particularly likely to say that it had improved a lot.
[45] Primary academy (4%) and small primary school (2%) were significantly less likely to say that CtC2 had improved their schools' skills in assessing their technology needs a lot compared to local authority maintained primary schools (9%) and large primary schools (8%).

in the frequency of use of the internet (which was already very high before the intervention), desktop or tablet computers in the classroom (Appendix Table 84).[46]

The survey results were supported by qualitative feedback from most school staff, who described a noticeable increase in digital confidence and expanded use of technology, supported by faster log-ins and more reliable connectivity.

> We've got good IT coordinators amongst the teachers who come up with new apps for them to use and they're more confident in using them now, whereas before they were worried that if they went online it would crash out halfway through the lesson. – *IT Technician, Primary school*

They spoke of integrating new technologies, increased use of hardware, educational apps and online learning tools, websites, and wireless projectors. Teachers reported smoother lesson delivery and more flexibility in using technology in their teaching. Integrating real-time collaborative activities into lessons more effectively enhanced both planning and classroom delivery.

Teachers reported more use of cloud-based collaboration tools and easier sharing of resources such as lesson plans, marking templates, and teaching materials, which supported more consistent practice across year groups and departments for tasks like register-taking, lesson planning, and marking. Cloud-based platforms allowed multiple staff to work on documents simultaneously which improved collaboration among staff and reduced duplication of effort, particularly in planning and assessment. In MATs, interviewees highlighted the benefits of shared systems across schools, which improved communication and standardised digital processes. These developments contributed to a stronger culture of collaboration within and, in some cases, across schools.

> Suddenly, across the 23 small primary schools, you are working with teachers who are all sharing resources and ideas, teaching ideas using IT and tech. That is an advancement. – *Headteacher, Primary school*

Both primary and secondary schools noted increased engagement with existing platforms, though digital adoption remained uneven in some schools and was sometimes limited by barriers such as insufficient devices, varying staff confidence, and lack of ongoing training or support from digital champions.

[46] Base sizes were too low at the pre-stage to conduct analysis by size of school and urban/rural classification (<n=30).

Barriers to using education technology

Before the CtC2 intervention, survey respondents cited a range of barriers to using education technology more (Table 18 and Appendix Table 85). The most commonly mentioned (to a great/some extent) included:

- cost of hardware (85%) and software (74%)
- teachers' confidence (74%) and skills (73%) to incorporate education technology into their teaching
- number (68%) and suitability (56%) of devices/hardware
- teachers' reluctance (50%) to incorporate education technology into their teaching
- unreliable internet (49%)
- unsuitable software (42%)
- lack of tech support (42%)

Positively, **mentions of almost all barriers were significantly lower after the CtC2 intervention** compared to before (with the exception of pupils' reluctance to use technology which was low at both stages), in particular for teachers' skills and confidence, and for reliability of the internet connection (Table 17 and Appendix Table 86).

Furthermore, **having an unreliable internet connection had significantly reduced as a barrier**, particularly for secondary schools (7% to a great/some extent) and schools with a speed test result of over 250Mbps (251-500Mbps 9%, over 500Mbps 4%). However, small primary schools (29%) and schools with speed test results of 250Mbps or lower (up to 100Mbps 26%, 101-250Mbps 21%) were significantly more likely to say that unreliable internet connection was still a barrier to a great or some extent (Appendix Table 87). Some interviewees acknowledged that their internet speed was limited by the external broadband supply (which is outside of the scope of CtC2). This may be a consideration for future internet infrastructure programmes.

After the intervention, the costs of hardware (70%) and software (63%) remained the most frequently mentioned barriers, followed by lack of devices (51%). All other barriers were mentioned as being a barrier to a great/some extent by around two-fifths or fewer respondents.

Table 18: Barriers to using education technology more – to a great/some extent

A barrier to a great/some extent	Pre	Post
Cost of hardware	85%*	70%
Cost of software	74%*	63%
Teachers' confidence to incorporate technology into teaching	74%*	42%
Teachers' skills to incorporate technology into teaching	73%*	40%
My school doesn't have enough devices	68%*	51%
Suitability of hardware	56%*	34%
Teachers' reluctance to incorporate technology into teaching	50%*	29%
My school's internet connection is unreliable	49%*	18%
Availability of tech support in the school	42%*	25%
Suitability of software	42%*	21%
Pupils' skills to use technology	34%*	18%
Knowing what technology or digital tools to buy	33%*	21%
Cyber security concerns e.g. ensuring your school's technology infrastructure is resistant to cyber attacks	33%*	18%
Pupils' confidence to use technology	26%*	14%
Safeguarding concerns	24%*	14%
Data security concerns e.g. ensuring confidentiality, integrity and availability of data	23%*	13%
The benefits of using technology are unclear	14%*	7%
Pupils' reluctance to use technology	10%	8%

Base: All respondents (pre 474, post 718)

Source: Pre and post-surveys

Similarly, interviewees consistently pointed to key barriers being the high cost of hardware and software, insufficient or outdated devices, and low staff digital confidence. The cost of hardware and software was a major concern for interviewees, as limited budgets often meant replacing only a handful of devices each year, leaving classrooms with a mix of old and new equipment and restricting pupils' consistent access to technology. Outdated devices also made it difficult to take full advantage of the upgraded connectivity, limiting the potential benefits of the intervention.

> My IT equipment budget is about £8,000 a year, which isn't very much really by the time I've had to replace a couple of teacher devices and the odd pupil device, and it certainly doesn't leave anything for networking infrastructure. I think that is a sector-wide problem, isn't it? – *Acting Deputy, Primary school*

Respondents from primary schools were more likely to say after the intervention that the cost of hardware or software, insufficient devices or the availability of tech support in the school were still barriers to a great extent.[47] These barriers therefore, persisted not because connectivity was lacking, but because schools could not afford to upgrade the devices and systems needed to make best use of it.

After the intervention, barriers that were more prevalent to some extent amongst secondary schools included teachers' reluctance to incorporate technology into teaching, pupils' confidence to use technology and cyber and data security.[48] In practice, this often reflected uneven digital skills within the workforce, with schools without recent CPD particularly affected. The absence of ongoing training continued to hinder full adoption of the upgraded infrastructure. Conversely, strong leadership support and the presence of digital champions were identified as critical enablers, driving staff engagement and encouraging uptake of new tools.

Staff workload

Overall, survey respondents had **mixed views on the impact of the CtC2 intervention on teacher and staff workload**, although interviewees noted that any time savings or increased efficiencies due to the CtC2 intervention allowed staff to spend time on more meaningful tasks, such as pupil support or peer collaboration.

Perceptions of the relationship between the school's current technology and workload amongst matched survey respondents were similar at the pre and post-stages (Table 19). After their CtC2 intervention:

- around one-quarter (27%) of matched post-survey respondents felt that their school's technology had already *reduced* their workload and just under one-fifth (17%) that they expected it to reduce their workload in the future

[47] Barriers to a great extent: cost of hardware (primary 33%, secondary 21%), cost of software (primary 24%, secondary 12%), insufficient devices (primary 19%, secondary 10%). Barrier to some/a great extent availability of tech support (primary 28%, secondary 16%).
[48] Barriers to some extent: teachers' reluctance to incorporate technology into teaching (secondary 36%, primary 25%), pupils' confidence to use technology (secondary 20%, primary 12%), cyber (secondary 25%, primary 14%) and data security (secondary 17%, primary 10%).

- conversely, one-fifth (21%) said it had *increased* their workload and a further 29% believed that it would not reduce their workload in the future.

The only significant change was seen for those saying that they did not expect their school's technology to reduce their workload in the future, from 19% at the pre-stage to 29% at the post stage.

Table 19: Impact on perceptions of the relationship between the school's current technology and workload – matched pre-post surveys

	Pre	Post
Technology has increased my workload	25%	21%
Technology has not reduced my workload, and it is not expected to do so in the future	19%	29%*
Technology has not reduced my workload, but it is expected to do so in the future	24%	17%
Technology has already reduced my workload	23%	27%
Don't know	10%	6%

Base: All matched survey respondents (pre 196, post 196)

Source: Pre and post-surveys

After participating in CtC2, reduction in workload from technology use was most likely to be reported by respondents from primary schools (27% said that technology had already reduced their workload, compared to 18% for secondary schools), particularly medium-sized primary schools (34% versus 24% for large and 21% for small primary schools (Appendix Tables 90 and 91).

When asked about the impact of CtC2 specifically, again there was a mixed view:

- the majority of post-survey respondents (58%) felt that their school's connectivity intervention had resulted in *no change* in teacher workload, whereas almost one-third (31%) believed it had *improved* teacher workload and 1% that it had made it *worse* (Appendix Table 88)
- when asked about specific aspects of staff workload (Table 19), between 52% and 61% believed there had been *no change*, a minority (10% or less) that it had *reduced* staff workload and between 22% and 32% that it had *increased* workload[49]

[49] Respondents from primary schools were significantly more likely to say that their workload had increased a lot for formative/summative assessment (primary 6%, secondary 1%), whereas large primary school respondents were significantly more likely than those from medium sized and small primary schools to say

There are differences here to note in the wording of the questions which may have contributed to this mixed picture, however, this mixed view was also supported by the qualitative interviews.

Table 20: Perceptions of impact on staff workload for tasks

	Net: Increased	Increased a lot	No change	Reduced a lot	Net: Reduced
Delivering lessons	30%	8%	52%	2%	10%
School administration/ management	31%	7%	54%	1%	9%
Staff collaboration	32%	8%	52%	1%	8%
Planning lessons	25%	6%	58%	1%	8%
Formative/summative assessment	22%	5%	61%	1%	7%

Base: All respondents (post 718)[50]

Source: Post-survey

Several headteachers and teachers interviewed said their overall workload had not changed, as any time saved from improved systems was quickly taken up by other tasks. Where marginal time gains were noted, they tended to enable staff to focus on pupil support or peer collaboration. However, a small number also described increased workload due to the additional steps involved in using some online systems.

> I think it is the time factor that it's helped. It's given them some more time back in that sense. But I wouldn't say it was hours and hours a week or anything, but there are marginal gains, and any marginal gain is a help. – *Executive Headteacher, Primary school*

> The teacher no longer has to write 30 lesson plans for 30 individual pupils, and we can use software and generative AI to do some of that for us. – *Director of IT and Data Services, Secondary school*

When considering efficiency, however, interviewees were more consistently positive. Teachers referred to streamlined processes such as lesson planning and assessment, while IT staff reported significant time savings, with one estimating that 20–25% of their role was no longer spent resolving connectivity issues thanks to remote management. For MATs, efficiencies came from shared platforms that reduced duplication of effort

that their CtC2 intervention had reduced workload for planning and delivering lessons a lot, although the proportions were very low (Appendix Table 89).

[50] Don't know responses not shown.

across schools, and administrative staff highlighted faster and less burdensome systems for document management, staff and visitor sign-in, fire signalling and parent communication. Overall, efficiency improvements were more widely emphasised than direct reductions in staff workload.

Where one headteacher referred to increased workload, this was due to using new online systems.

> I think that in terms of our staff system where there's a lot of entering of information, that if you just had a form and you were handwriting it would be really quick. But sometimes getting it into some of the online forms and things like that and scanning it, uploading it and those types of things takes a little bit longer. – *Executive Headteacher, Primary school*

The following case study highlights an example of how time savings for an IT coordinator have been reinvested into supporting teaching staff to engage with and embed technology in their practice.

Saved ICT coordinator time reinvested into training staff

Key challenges

At a small special educational needs school, before the intervention, the Wi-Fi connection was inconsistent and unreliable, without capacity for multiple devices to be used concurrently. The ICT coordinator spent a large amount of time troubleshooting. Staff felt restricted; reticent to use technology, as they risked pupil frustration and loss of engagement when it failed.

Changes

The school was able to install a new internal wireless networking system as part of the CtC2 programme. Connectivity has measurably improved since the installation. Devices worked faster and more reliably in all classrooms, resulting in significant savings in paper and printing costs now staff do not require printed resources as a failsafe plan. Energy savings were apparent with automatic switch off systems now built in. There have been large time savings for the ICT coordinator, who is no longer 'fire-fighting' issues with the system. Due to cost savings from CtC2 and increased confidence in the ability of Wi-Fi to support the use of ICT, the school are looking to invest more in technology for pupils.

Impacts

Time saved for the ICT coordinator has been reinvested into a new proactive remit as part of their role. They meet staff frequently to review the effectiveness of current ICT and lead staff in researching novel uses of technology in teaching and learning. By shifting from technology troubleshooting to embedded coaching, the ICT lead has catalysed a cultural shift in how staff think about and experiment with technology in the classroom. This has changed the learning experiences and productivity in classrooms. For example, new tablet devices with larger, portable interactive screens for younger pupils are being introduced following a trial.

> We wouldn't have risked funding new technology as its use wouldn't have been reliably supported by the Wi-Fi. We can now look at buying kit that we would never have been able to afford before; to see what new teaching and learning methods there are that ICT will support. There is nothing, technology wise that we can't take advantage of now – *School Business Manager*.

Pupils

Similar to the impact on teacher's use of hardware and software seen in section 6.1, the CtC2 intervention appears to have had a **moderate positive effect on pupils' use of hardware and software**. At the post-stage, just over half of survey respondents believed that their school had seen an increase in pupils' use of hardware/devices (54%) and software/programmes/apps (52%), and 14-16% believed it had increased a lot (Table 21).[51]

Table 21: Perceptions of impact on the use of technology

	Increased a lot	Net: Increased
Pupils' use of hardware/devices	16%	54%
Pupils' use of software/programmes/apps	14%	52%

Base: All respondents (post 718)

Source: Post-survey

The majority of survey respondents from matched pre-post schools **recognised that technology in schools can have a positive impact on pupil attainment.** This did not change between the pre and post-surveys. At the pre-stage, the majority (57%) of matched survey respondents believed that technology in their school had already contributed to pupil attainment and a further 14% believed that it would in the future, with similar findings seen at the post-stage (Table 22). A small minority felt that technology would not contribute to improved pupil attainment or that it had contributed negatively. However, it should be noted that this question was difficult to answer for around one-quarter of respondents, particularly amongst non-SLT or non-teaching respondents.[52]

Perceptions of the impact of the connectivity intervention on pupil progress and attainment were moderately positive (Table 23):

- around half felt there had been no change in progress and attainment (50%) following the intervention
- around one-third (34%) felt that pupil progress and attainment had improved, with 5% saying that it had improved a lot[53]

[51] Some differences were found by school phase/type (Appendix Table 92): respondents from local authority maintained primary schools were significantly more likely to say that pupils' use of hardware/devices had increased a lot (22%) compared to primary academies (15%); respondents from primary schools were significantly more likely to say that pupils' use of software/programmes/apps had increased a lot (17%) compared to secondary schools (7%).
[52] Post-stage 'don't know' response by role: Office/Business Manager 39%, IT 29%, SLT 10%, Other roles 23%.
[53] Large (7%) and medium sized (7%) primary schools were significantly more likely to say that CtC2 had improved pupil progress and attainment a lot compared to those from small primary schools (1%) (Appendix Table 93).

Table 22: Perceptions of the relationship between the school's current technology and pupil attainment – matched pre-post surveys

	Pre	Post
Technology has contributed negatively to pupil attainment	3%	0%
Technology has not contributed to improved pupil attainment, and it is not expected to do so in the future	2%	2%
Technology has not contributed to improved pupil attainment, but it is expected to do so in the future	14%	18%
Technology has already contributed to improved pupil attainment	57%	56%
Don't know	25%	24%

Base: All matched survey respondents (pre 196, post 196)

Source: Pre and post-surveys

Whilst interviewees offered limited evidence of improved academic attainment at the time of the study, some schools expressed optimism that enhanced access to digital tools and more consistent use of technology in lessons would support long-term improvements in learning outcomes. However, one school had already reported positive gains:

> As soon as we put the Chromebooks into year 6, who are starting to work towards their SATs[54], we've already been seeing a better uptake and an improvement in marks. They [pupils] now can access all the programmes they need straight away. – *IT Technician, Primary school*

That said, perceptions of improvements in pupil engagement were somewhat more positive (Table 23):

- over two-fifths (44%) felt that pupil engagement had improved and one-tenth (10%) that it had improved a lot following the intervention
- whereas 45% felt there had been no change[55]

[54] Standard Assessment Tests.

[55] Respondents from primary schools (11%) and urban schools (11%) were significantly more likely to say that CtC2 had improved pupil engagement a lot compared to those from secondary schools (5%) and rural schools (4%) (Appendix Table 94).

Table 23: Perceptions of impact on pupils

	Improved a lot	Net: Improved	No change	A lot worse	Net: Worse
Pupil engagement	10%	44%	45%	0%	0%
Pupil progress and attainment	5%	34%	50%	0%	0%

Base: All respondents (post 718)[56]

Source: Post-survey

According to interviewees, after the connectivity intervention, pupils' learning experience was considerably improved by enabling faster device access, reducing lesson delays, and minimising technical disruptions. Pupils were able to log on quickly and use multiple devices simultaneously and there was less sharing of devices, which fostered greater independence and confidence in using digital tools. Pupils were also able to navigate and use digital learning tools independently with less teacher intervention, which contributed to higher levels of classroom engagement.

> I think from the pupils, their engagement has definitely improved because they have more access to computers now. It's possible to do entire lessons with their entire year group of 50-60 children, all on laptops. – *IT Instructor, Primary school*

Practice example: Improved classroom engagement

One MAT IT manager reported that teachers at their school were previously spending up to 15-20 minutes waiting for the register to load on their computers each morning, which meant that some pupils would disengage during lessons. Following the intervention, they reported that improved system performance significantly reduced loading times, leading to increased engagement and less disruption in the classroom. As a result, teachers now spend less time on administrative tasks and are able to dedicate more time to the lesson.

For pupils with SEND, reliable connectivity supported the use of assistive technologies and enabled learning to take place in quieter or alternative spaces, such as dedicated rooms or outdoor areas, better accommodating their individual needs. The case study at the end of this section illustrates how improved connectivity has enabled more inclusive learning in one school.

[56] Don't know responses not shown.

Improved digital access for inclusive learning

Key challenges

A local authority maintained primary school had access to digital devices but struggled to embed them meaningfully into teaching and learning. Connectivity limitations in spaces like the sensory room meant that pupils with SEND missed opportunities for personalised digital interventions. Teachers reported a noticeable disengagement among some pupils with SEND when trying to use digital resources, particularly those who previously responded well to tailored activities. Staff were reluctant to rely on technology and noted a reduction in the variety of teaching strategies employed, as digital tools were not readily available or effectively integrated. Parents were also not engaged in digital learning, as tools to share pupil progress were limited.

Changes

The school received a full connectivity upgrade through the CtC2 programme. Wi-Fi coverage was extended to all areas of the school, including hard-to-reach spaces. Training was delivered to staff on how to integrate technology into lesson planning, and targeted sessions helped boost staff confidence. Parent engagement was also prioritised, with digital safety and learning-at-home sessions run for families. The improved infrastructure meant devices worked reliably and teachers were encouraged to try out new digital tools and approaches.

Impacts

Technology is now a routine part of teaching and learning. Pupils use tablets in group work, for online research, and to present their learning. The sensory room is now fully functional with digital equipment supporting personalised learning for pupils with SEND. Digital platforms are being used more effectively to share pupil progress with parents, who are now more engaged with their children's learning. The technology has enabled pupils to take ownership of their learning journeys by extending schoolwork at home.

> We have a lot of children, particularly in Key Stage 2, that are very invested in their learning and absolutely love the fact that they can start something at school and go home and finish if they don't have time to make it how they want to make it. This provides them with a chance to do these things to impress their teachers and to progress their own learning. – *School Computing Lead*

Conclusions and future considerations

Overall, schools' experiences of participating in CtC2 were positive, with a smooth and well-managed installation process which was typically organised outside of working hours to minimise disruption. That said, some challenges were experienced, typically around the time required for the installation process, supply chain delays and slow supplier responses.

Significant improvements in internet download speeds were reported after the intervention, leading to increased satisfaction with the speed and reliability of their internet connection, and a reported reduction in internet blackspots. Improvements in cyber security were also noted following CtC2, including more secure Wi-Fi, migration to the cloud and utilisation of enhanced security features.

Many schools had increased their cloud-based storage and systems following the intervention, which led to more streamlined processes and greater collaboration amongst staff. Participation in CtC2 also increased the likelihood that schools would switch to cloud-based storage in the future, particularly amongst primary schools.

Positively, improved connection reliability led to greater confidence amongst staff in utilising technology. A significant improvement was seen in schools' perceptions of how well their technology supported administration and teaching and learning activities, and in the use of hardware and software. Teachers reported smoother lesson delivery and greater flexibility in using technology in their teaching, including adapting technology use for pupils with SEND.

Some impacts on pupils were also noted, particularly increased pupil engagement as a result of the improved learning experience that CtC2 had allowed due to having a faster and more reliable internet connection. Whilst the majority of schools recognised that technology had or could contribute to improved pupil attainment, perceptions of the impact of CtC2 on pupil attainment were more limited at this stage.

Perceptions of the impact of technology and of CtC2 on staff workload were mixed. Although the majority felt that there had been no change in their workload, some believed it had reduced whereas others felt it had increased. Where time savings or improved efficiencies were noted, this allowed more time to be spent on more meaningful tasks, such as pupil support or peer collaboration.

Evidence of energy or cost savings were limited. Some changes to save energy were noted, particularly amongst secondary schools. However financial savings were more difficult to identify and were often related to more efficient processes and systems. Some schools recognised that CtC2 had reduced some of the financial burden of technology

improvements, however concerns were raised about future costs of upgrading hardware and software to fully capitalise on its potential.

Whilst no impact was seen on whether schools had a digital strategy, schools were more likely to be fully aware of and monitoring changes to the digital and technology standards after the intervention. Furthermore, evidence suggests that CtC2 may improve schools' awareness of what is required to fully meet the standards so that they can put the correct measures in place to meet them in the future.

Based on the findings from this evaluation, a number of suggestions and recommendations have emerged which should be considered for future CtC interventions:

- there is potential to review the eligibility criteria, to ensure that schools that most need the support can receive it
- consider a review of supply chain fulfilment and communications to improve the time required for installation and minimise school disruption
- provide greater clarity for schools around the procurement process, with clear guidelines for commissioning their preferred suppliers/contractors
- to support a smoother installation, complex interventions in secondary schools may benefit from more detailed forward planning and coordination across teams, considering the timing of installation and of the availability of internal school capacity
- consider ways to ensure school internet download speeds are appropriate and meet the needs of the school as this will maximise impact of the connectivity intervention and subsequent connectivity improvements. This could include exploration of the alignment with other internet infrastructure initiatives such as Project Gigabit
- further support around technology would be useful for smaller or local authority maintained primary schools and rural schools, for example, around developing a digital strategy, further communications around the digital standards, what technology to buy and sources of tech support
- cost was a key barrier to schools using technology more and to meeting the digital and technology standards. Signposting to sources of funding for technology and related professional development, would be useful, particularly end user devices, audio visual equipment or cyber security for secondary schools and primary academies, and additionally for secondary schools, servers, storage or back-office systems and software.

Appendix

Table 24: Size of school by phase[57]

Pre-survey	Number of respondents (unweighted)	% of respondents (unweighted)	% of respondents (weighted)
Large primary	137	29%	29%
Medium primary	112	24%	24%
Small primary	107	23%	23%*
Large secondary	18	4%	3%
Medium secondary	34	7%	6%
Small secondary	37	8%	7%
Not applicable	29	6%	7%
Post-survey	**Number of respondents (unweighted)**	**% of respondents (unweighted)**	**% of respondents (weighted)**
Small primary	202	28%	29%
Medium primary	207	29%	30%*
Large primary	117	16%	17%
Small secondary	26	4%	3%
Medium secondary	54	8%	7%
Large secondary	53	7%	7%
Not applicable	59	8%	8%

Base: All respondents (pre 474, post 718)

Source: Pre and post-surveys

[57] the symbol * has been used to denote significant differences between pre-post data and is shown next to the percentage which is significantly higher.

Table 25: Region

Pre-survey	Number of respondents (unweighted)	% of respondents (unweighted)	% of respondents (weighted)
North East	30	6%	7%
North West	133	28%	25%
Yorkshire and The Humber	56	12%	12%
East Midlands	52	11%	11%
West Midlands	61	13%	13%
East of England	53	11%	13%
London	1	<1%	<1%
South East	21	4%	4%
South West	67	14%	16%*
Post-survey	**Number of respondents (unweighted)**	**% of respondents (unweighted)**	**% of respondents (weighted)**
North East	41	6%	6%
North West	205	29%	27%
Yorkshire and The Humber	127	18%	18%*
East Midlands	66	9%	9%
West Midlands	104	14%	14%
East of England	96	13%	14%
London	0	0%	0%
South East	26	4%	4%
South West	53	7%	8%

Base: All respondents (pre 474, post 718)

Source: Pre and post-surveys

Table 26: Urban/rural classification

Pre-survey	Number of respondents (unweighted)	% of respondents (unweighted)	% of respondents (weighted)
Urban	372	78%	77%
Rural	100	21%	23%*
Not available	2	<1%	1%
Post-survey	**Number of respondents (unweighted)**	**% of respondents (unweighted)**	**% of respondents (weighted)**
Urban	209	85%	84%*
Rural	97	14%	14%
Not available	12	2%	2%

Base: All respondents (pre 474, post 718)

Source: Pre and post-surveys

Table 27: Ofsted rating

Pre-survey	Number of respondents (unweighted)	% of respondents (unweighted)	% of respondents (weighted)
Outstanding	23	5%	5%
Good	326	69%	69%
Requires Improvement/Serious Weakness/Special Measures	83	18%	17%*
Not available	42	9%	8%
Post-survey	**Number of respondents (unweighted)**	**% of respondents (unweighted)**	**% of respondents (weighted)**
Outstanding	55	8%	7%
Good	485	68%	67%
Requires Improvement/Serious Weakness/Special Measures	99	14%	12%
Not available	79	11%	13%*

Base: All respondents (pre 474, post 718)

Source: Pre and post-surveys

Table 28: Respondent role

Pre-survey	Number of respondents (unweighted)	% of respondents (unweighted)	% of respondents (weighted)
IT	251	53%	54%
Senior leadership	117	25%	24%
Business/Office Manager	76	16%	15%
Other	30	6%	8%*
Post-survey	**Number of respondents (unweighted)**	**% of respondents (unweighted)**	**% of respondents (weighted)**
IT	359	50%	52%
Senior leadership	185	26%	26%
Business/Office Manager	137	19%	18%
Other	37	5%	4%

Base: All respondents (pre 474, post 718) [58]

Source: Pre and post-surveys

[58] Other roles include teaching, middle leadership, administration, finance and estates.

Table 29: Qualitative sample profile

Size of school	**Number of interviews**
Large primary	10
Medium primary	4
Small primary	8
Large secondary	4
Medium secondary	3
Small secondary	6
Not applicable	4
Region	**Number of interviews**
North East	4
North West	6
Yorkshire and the Humber	10
East Midlands	4
West Midlands	5
East of England	4
South East	1
South West	4
Urban/rural	**Number of interviews**
Urban	31
Rural	9
Ofsted	**Number of interviews**
Outstanding	4
Good	25
Requires Improvement	7
Not available	4

Table 30: Extent intervention has been completed (post-survey) – by phase

	All respondents	Primary	Secondary
Fully completed	94%	94%	93%
Around three-quarters has been completed	2%	3%	3%
Around half has been completed	1%	1%	1%
Around a quarter or less has been completed	0%	0%	0%
Don't know	3%	3%	3%

Base: All respondents (718), primary (536), secondary (137)

Source: Post-survey

Table 31: When connectivity intervention was completed (post-survey) – by phase

	All respondents	Primary	Secondary
Within the last month	2%	2%	3%
1-2 months	5%	6%	2%
3-4 months	22%	21%	24%
5-6 months	26%	27%	26%
(Over 6 months)[59]	(3%)	(3%)	(4%)
7-9 months	17%	16%	21%
10-12 months	15%	16%	10%
More than 12 months	7%	7%	8%
Don’t know	2%	2%	1%
NET: More than 6 months	43%	42%	43%

Base: All with their CtC intervention completed (676), primary (503), secondary (128)

Source: Post-survey

[59] Code changed during fieldwork.

Table 32: When expect connectivity intervention will be completed (post-survey)

	All respondents
Within the next month	16%
1-2 months	11%
3-4 months	8%
5-6 months	8%
7-9 months	2%
10-12 months	0%
More than 12 months	0%
Don't know	55%

Base: All with their CtC intervention not yet completed (42)

Source: Post-survey

Table 33: Overall satisfaction with the connectivity process (post-survey) – by school type

	Academy	local authority maintained
Very satisfied	50%	48%
Quite satisfied	25%	29%
Neither satisfied nor dissatisfied	8%	8%
Quite dissatisfied	7%	10%
Very dissatisfied	9%	4%
Don't know	1%	1%

Base: Academy (397), local authority maintained schools (301)

Source: Post-survey

Table 34: Challenges experienced during connectivity intervention process (post-survey) – by overall satisfaction

	Very satisfied	Quite satisfied	Neither satisfied nor dissatisfied	Dissatisfied
Supply chain delays with equipment	22%	27%	22%	34%
Whole process took too long to complete	4%	22%	37%	23%
Difficulties in finding the time to complete the intervention work	11%	14%	14%	17%
Slow response from suppliers	5%	11%	18%	28%
Difficulty completing supporting documents	6%	7%	17%	12%
Disruption to school day-to-day activities	5%	8%	16%	14%
Shortage of school staff to work on the project	5%	7%	9%	4%
Difficulty finding suppliers	3%	4%	5%	3%
Other	3%	10%	17%	11%
None	56%	25%	16%	31%
Don't know	3%	10%	19%	3%

Base: All respondents very satisfied (355), quite satisfied (192), neither satisfied nor dissatisfied (55), dissatisfied (107)

Source: Post-survey

Table 35: Device used for internet download speed test – by phase[60]

All respondents	Pre	Post
Wired device	72%*	62%
Wireless device	28%	37%*
Don't know	1%	1%
Primary	**Pre**	**Post**
Wired device	68%	60%
Wireless device	32%	39%
Don't know	1%	1%
Secondary	**Pre**	**Post**
Wired device	91%*	73%
Wireless device	9%	27%*
Don't know	0%	0%

Base: All respondents (pre 267, post 718), primary (pre 201, post 536), secondary (pre 48, post 137)

Source: Pre and post-surveys

Table 36: Internet download speed test

	Pre	Post
50Mbps or less	26%*	9%
51-100Mbps	38%	32%
101-250Mbps	15%	24%*
251-500Mbps	10%	16%*
Over 500Mbps	12%	18%*
Mean	188	270*

Base: All respondents (pre 267, post 718)

Source: Pre and post-surveys

[60] A wired device requires a network cable (sometimes known as an ethernet cable) to access the internet. A wireless device accesses the internet via a Wi-Fi connection.

Table 37: Internet download speed test – by device type

Wired	**Pre**	**Post**
50Mbps or less	19%*	7%
51-100Mbps	38%	33%
101-250Mbps	15%	19%
251-500Mbps	11%	17%*
Over 500Mbps	16%	24%*
Mean	230	316*
Wireless	**Pre**	**Post**
50Mbps or less	43%*	14%
51-100Mbps	39%	31%
101-250Mbps	13%	32%*
251-500Mbps	5%	15%*
Over 500Mbps	0%	8%*
Mean	80	192*

Base: All respondents wired (pre 191, post 453), wireless (pre 75, post 261)

Source: Pre and post-surveys

Table 38: Average contracted minimum internet speed – by phase

All respondents	**Pre**	**Post**
Download mean	244	364
Download NA	54%	54%
Upload mean	209	325
Upload NA	56%	55%
Primary	**Pre**	**Post**
Download mean	158	214
Download NA	54%	56%
Upload mean	121	167
Upload NA	57%	57%
Secondary	**Pre**	**Post**
Download mean	589	889
Download NA	52%	42%
Upload mean	539	876
Upload NA	51%	43%

Base: All respondents (pre 267, post 718), primary (pre 201, post 536), secondary (pre 48, post 137)

Source: Pre and post-surveys

Table 39: Satisfaction with the speed of the school's internet connection (all respondents) – by phase and type of primary school

All respondents	**Pre**	**Post**
NET Satisfied	62%	91%*
Very satisfied	19%	54%*
Primary	**Pre**	**Post**
NET Satisfied	55%	89%*
Very satisfied	13%	51%*
Secondary	**Pre**	**Post**
NET Satisfied	88%	97%
Very satisfied	48%	69%*
Primary academy	**Pre**	**Post**
NET Satisfied	54%	89%*
Very satisfied	13%	53%*
Primary local authority maintained	**Pre**	**Post**
NET Satisfied	57%	89%*
Very satisfied	14%	47%*

Base: All respondents (pre 267, post 718), primary (pre 201, post 536), secondary (pre 48, post 137), primary academy (pre 69, post 266), primary local authority maintained (pre 132, post 270)

Source: Pre and post-surveys

Table 40: Satisfaction with the reliability of the school's internet connection (all respondents) – by phase and type of primary school

All respondents	**Pre**	**Post**
NET Satisfied	60%	89%*
Very satisfied	20%	57%*
Primary	**Pre**	**Post**
NET Satisfied	56%	88%*
Very satisfied	13%	53%*
Secondary	**Pre**	**Post**
NET Satisfied	85%	98%*
Very satisfied	46%	76%*
Primary academy	**Pre**	**Post**
NET Satisfied	55%	87%*
Very satisfied	12%	57%*
Primary local authority maintained	**Pre**	**Post**
NET Satisfied	57%	89%*
Very satisfied	15%	47%*

Base: All respondents (pre 267, post 718), primary (pre 201, post 536), secondary (pre 48, post 137), primary academy (pre 69, post 266), primary local authority maintained (pre 132, post 270)

Source: Pre and post-surveys

Table 41: Satisfaction with the security of the school's internet connection (all respondents) – by phase and type of primary school

Primary	**Pre**	**Post**
NET Satisfied	89%	93%
Very satisfied	52%	67%*
Secondary	**Pre**	**Post**
NET Satisfied	87%	98%*
Very satisfied	53%	72%*
Primary academy	**Pre**	**Post**
NET Satisfied	93%	92%
Very satisfied	55%	67%
Primary local authority maintained	**Pre**	**Post**
NET Satisfied	86%	95%*
Very satisfied	48%	67%*

Base: All respondents (pre 267, post 718), primary (pre 201, post 536), secondary (pre 48, post 137), primary academy (pre 69, post 266), primary local authority maintained (pre 132, post 270)

Source: Pre and post-surveys

Table 42: Satisfaction with the value for money of the school's internet connection (all respondents) – by phase and type of primary school

Primary	**Pre**	**Post**
NET Satisfied	44%	73%*
Very satisfied	12%	41%*
Secondary	**Pre**	**Post**
NET Satisfied	53%	84%*
Very satisfied	27%	49%*
Primary academy	**Pre**	**Post**
NET Satisfied	42%	74%*
Very satisfied	13%	43%*
Primary local authority maintained	**Pre**	**Post**
NET Satisfied	45%	73%*
Very satisfied	11%	38%*

Base: All respondents (pre 267, post 718), primary (pre 201, post 536), secondary (pre 48, post 137), primary academy (pre 69, post 266), primary local authority maintained (pre 132, post 270)

Source: Pre and post-surveys

Table 43: Internet connectivity across the school estate – by phase

All respondents	**Pre**	**Post**
All areas across the school estate have a satisfactory connection	18%	76%*
Most areas across the school estate have a satisfactory connection but not all	36%*	20%
Some areas across the school estate have a satisfactory connection and some do not	35%*	3%
Most areas across the school estate have an unsatisfactory connection	7%*	0%
All areas across the school estate have an unsatisfactory connection	4%*	1%
We have no connection across the whole school estate	1%	0%
Don’t know	0%	0%
Primary	**Pre**	**Post**
All areas across the school estate have a satisfactory connection	15%	74%*
Most areas across the school estate have a satisfactory connection but not all	33%*	21%
Some areas across the school estate have a satisfactory connection and some do not	39%*	3%
Most areas across the school estate have an unsatisfactory connection	7%*	0%
All areas across the school estate have an unsatisfactory connection	4%*	1%
We have no connection across the whole school estate	0%	0%
Don’t know	1%	1%

Table 43 continued: Internet connectivity across the school estate – by phase

Secondary	Pre	Post
All areas across the school estate have a satisfactory connection	26%	84%*
Most areas across the school estate have a satisfactory connection but not all	48%*	15%
Some areas across the school estate have a satisfactory connection and some do not	21%*	1%
Most areas across the school estate have an unsatisfactory connection	4%	0%
All areas across the school estate have an unsatisfactory connection	1%	0%
We have no connection across the whole school estate	1%	0%
Don't know	0%	0%

Base: All respondents (pre 474, post 718), primary (pre 358, post 536), secondary (pre 90, post 137)

Source: Pre and post-surveys

Table 44: Internet connectivity across the school estate – by type of primary school, size of school and urban/rural classification

All areas of the school have a satisfactory connection	Pre	Post
Primary academy	15%	75%*
Primary local authority maintained	15%	71%*
Large primary	20%	74%*
Medium primary	15%	72%*
Small primary	8%	77%*
Large/medium secondary	22%	84%*
Small secondary	31%	83%*
Primary urban	18%	72%*
Primary rural	8%	80%*

Base: All respondents primary academy (pre 157, post 266), primary local authority (pre 201, post 270), large primary (pre 137, post 202), medium primary (pre 112, post 207), small primary (pre 107, post 117), large/medium secondary (pre 52, post 80), small secondary (pre 37, post 53), primary urban (pre 266, post 444), primary rural (pre 90, post 84)

Source: Pre and post-surveys

Table 45: Areas of the school with unsatisfactory internet connection (post-survey) – by phase

	Primary	Secondary
Playing fields/playgrounds	9%	10%
Classrooms	7%	4%
Offices/administration spaces	7%	3%
Staff rooms	3%	1%
Pastoral support spaces	4%	1%
School hall	2%	1%
IT suite/ IT specific classrooms	1%	2%
Gym	0%	2%
Library	0%	1%
Other	4%	4%
Don't know	2%	0%

Base: All respondents primary (536), secondary (137)

Source: Post-survey

Table 46: Location of storage and systems (pre-survey)

	Curriculum storage	Administration storage	Finance management systems	Management information systems	Human resources systems	Library management systems	Email and productivity suite
Mixture of on-premises & cloud-based	63%	61%	37%	29%	36%	14%	24%
Cloud-based only	21%	18%	42%	41%	33%	31%	73%
On-premises only	15%	20%	16%	27%	14%	11%	2%
Don't know	1%	1%	3%	2%	10%	8%	2%
Not applicable - school does not have this	0%	0%	1%	0%	7%	36%	0%

Base: All respondents (474)

Source: Pre-survey

Table 47: Location of storage and systems (pre-survey) – primary schools

	Curriculum storage	Administration storage	Finance management systems	Management information systems	Human resources systems	Library management systems	Email and productivity suite
Mixture of on-premises & cloud-based	60%	61%	38%	31%	35%	14%	24%
Cloud-based only	23%	18%	42%	46%	34%	27%	72%
On-premises only	16%	20%	16%	21%	14%	10%	2%
Don't know	1%	1%	4%	3%	11%	9%	2%
Not applicable - school does not have this	0%	0%	1%	0%	7%	40%	0%

Base: All respondents primary (358)

Source: Pre-survey

Table 48: Location of storage and systems (pre-survey) – secondary schools

	Curriculum storage	Administration storage	Finance management systems	Management information systems	Human resources systems	Library management systems	Email and productivity suite
Mixture of on-premises & cloud-based	76%	63%	31%	21%	40%	14%	21%
Cloud-based only	15%	16%	45%	28%	31%	57%	79%
On-premises only	8%	20%	22%	50%	18%	17%	0%
Don't know	1%	1%	1%	1%	6%	3%	0%
Not applicable - school does not have this	0%	0%	1%	0%	4%	10%	0%

Base: All respondents secondary (90)

Source: Pre-survey

Table 49: Location of storage and systems (pre-survey) – primary local authority maintained schools

	Curriculum storage	Administration storage	Finance management systems	Management information systems	Human resources systems	Library management systems	Email and productivity suite
Mixture of on-premises & cloud-based	58%	57%	43%	35%	37%	14%	33%
Cloud-based only	17%	14%	22%	31%	23%	22%	61%
On-premises only	22%	27%	29%	30%	22%	13%	2%
Don't know	1%	1%	6%	3%	12%	10%	3%
Not applicable - school does not have this	0%	0%	0%	0%	6%	41%	0%

Base: All respondents primary local authority maintained schools (201)

Source: Pre-survey

Table 50: Location of storage and systems (pre-survey) – primary academy

	Curriculum storage	Administration storage	Finance management systems	Management information systems	Human resources systems	Library management systems	Email and productivity suite
Mixture of on-premises & cloud-based	61%	64%	34%	28%	33%	14%	18%
Cloud-based only	26%	21%	55%	55%	41%	30%	79%
On-premises only	12%	15%	6%	14%	8%	8%	2%
Don't know	1%	1%	3%	3%	10%	9%	1%
Not applicable - school does not have this	0%	0%	1%	0%	8%	39%	0%

Base: All respondents primary academy (157)

Source: Pre-survey

Table 51: Location of storage and systems (post-survey)

	Curriculum storage	Administration storage	Finance management systems	Management information systems	Human resources systems	Library management systems	Email and productivity suite
Mixture of on-premises & cloud-based	52%	52%	27%	24%	27%	15%	19%
Cloud-based only	32%	30%	52%	53%	50%	39%	74%
On-premises only	11%	13%	13%	17%	8%	7%	3%
Don't know	3%	4%	5%	5%	8%	8%	4%
Not applicable - school does not have this	1%	1%	3%	2%	7%	31%	1%

Base: All respondents (718)

Source: Post-survey

Table 52: Plans to switch to cloud-based – pre-survey

	Curriculum storage	Administration storage	Finance management systems	Management information systems	Human resources systems	Library management systems	Email and productivity suite[61]
Net: Yes	63%	53%	52%	59%	55%	42%	-
Yes, in the next 12 months	22%	19%	27%	25%	29%	7%	-
Yes, in more than 12 months' time	40%	34%	24%	34%	26%	36%	-
No	19%	26%	23%	16%	25%	29%	-
Don't know	19%	21%	25%	24%	20%	28%	-

Base: All with any on-premises only storage or systems (base varies 55-141)

Source: Pre-survey

Table 53: Plans to switch to cloud-based – post-survey

	Curriculum storage	Administration storage	Finance management systems	Management information systems	Human resources systems	Library management systems	Email and productivity suite[62]
Net: Yes	65%	67%	53%	60%	47%	34%	-
Yes, in the next 12 months	35%	33%	33%	32%	23%	21%	-
Yes, in more than 12 months' time	30%	34%	20%	28%	24%	13%	-
No	19%	20%	25%	22%	24%	43%	-
Don't know	16%	14%	22%	18%	29%	23%	-

Base: All with any on-premises only storage or systems (base varies 48-131)

Source: Pre-survey

[61] Data suppressed due to low base (n=<30).
[62] Data suppressed due to low base (n=<30).

Table 54: Changes made to configure network switching and wireless access points in order to save energy and costs – post-survey – by phase

	All respondents	Primary	Secondary
Using central management tools to configure the switching and monitor performance and energy use	23%	21%	32%
Configured wireless access points to save energy, by powering down radios when full wireless functionality is not required (for example during the night time, at weekends and during school holidays)	15%	13%	22%
Configured PoE ports to save energy by powering down devices when they are not required (for example during the night time, at weekends and during school holidays)	15%	14%	17%
Put technical support in place to help with energy saving approaches	14%	13%	22%
None of the above	35%	34%	43%
Don't know	29%	33%	10%
Other[63]	1%	1%	2%

Base: All respondents (718), primary (536), secondary (137)

Source: Post-survey

[63] Other responses: all or most were already in place before the intervention (n=2), labelled port interfaces, mapped out locations of access points (n=1), power and performance settings were configured by the CtC provider (n=1), the new Wi-Fi and switching has facilitated participation in a separate project to install on-line energy monitoring devices widely around school (n=1).

Table 55: Changes made to configure network switching and wireless access points in order to save energy and costs (IT role only) – post-survey – by phase

	All respondents (IT role)	Primary (IT role)	Secondary (IT role)
Using central management tools to configure the switching and monitor performance and energy use	35%	36%	34%
Configured wireless access points to save energy, by powering down radios when full wireless functionality is not required (for example during the night time, at weekends and during school holidays)	21%	20%	24%
Configured PoE ports to save energy by powering down devices when they are not required (for example during the night time, at weekends and during school holidays)	19%	21%	16%
Put technical support in place to help with energy saving approaches	20%	20%	22%
Other	1%	1%	2%
None of the above	39%	37%	45%
Don't know	10%	12%	5%

Base: All respondents with an IT role (359), primary (211), secondary (123)

Source: Post-survey

Table 56: Plans to upgrade, replace or invest in technology over the next 2 years

	Pre	Post
End user devices e.g. laptops	60%	66%
Servers and storage, including cloud storage	50%*	37%
Audio visual equipment	39%	35%
Cyber security e.g. firewalls	35%	31%
Digital curriculum resources	34%*	29%
Back-office systems and software	30%	26%
Assistive technology for students with SEND	28%	25%
Technical support	26%*	14%
Training for teachers on using technology	23%	32%*
Training for non-teaching staff on using technology	18%	25%*
Innovative technologies, such as virtual reality or artificial intelligence	12%	18%*
My school plans to upgrade, replace, or invest in technology but we are unsure in which areas	16%	17%
My school has no plans to upgrade, replace or invest in any technologies or digital resources over the next two years	5%	3%
Other[64]	2%	1%
Don't know	2%	6%*
Not answered	1%	0%

Base: All respondents (pre 474, post 718)

Source: Pre and post-surveys

[64] Other responses included: wireless, networking or broadband (n=6), new IT supplier across the Trust (n=4), laptops/iPads (n=3), moving to the cloud (n=3), teacher boards (n=1), telephone system (n=1), monitoring/filtering (n=1), switching/cabling (n=1).

Table 57: Plans to upgrade, replace or invest in technology over the next 2 years – matched pre-post schools - primary

	Pre	Post
End user devices e.g. laptops	62%	63%
Servers and storage, including cloud storage	52%*	33%
Digital curriculum resources	42%*	28%
Audio visual equipment	39%*	27%
Assistive technology for students with SEND	36%*	20%
Back-office systems and software	30%	26%
Cyber security e.g. firewalls	29%	27%
Technical support	28%*	15%
Training for teachers on using technology	27%	26%
Training for non-teaching staff on using technology	17%	19%
Innovative technologies, such as virtual reality or artificial intelligence	12%	12%
My school plans to upgrade, replace, or invest in technology but we are unsure in which areas	11%	17%
My school has no plans to upgrade, replace or invest in any technologies or digital resources over the next two years	8%	4%
Don't know	2%	7%
Not answered	2%	0%

Base: All matched survey respondents primary (pre 141, post 141)[65]

Source: Pre and post-surveys

[65] Other responses not shown.

Table 58: Plans to upgrade, replace or invest in technology over the next 2 years – matched pre-post data - secondary

	Pre	Post
End user devices e.g. laptops	77%	72%
Servers and storage, including cloud storage	66%	50%
Audio visual equipment	59%	63%
Digital curriculum resources	28%	31%
Assistive technology for students with SEND	29%	32%
Cyber security e.g. firewalls	61%	52%
Back-office systems and software	44%	48%
Technical support	23%	19%
Training for teachers on using technology	13%	30%
Training for non-teaching staff on using technology	10%	19%
Innovative technologies, such as virtual reality or artificial intelligence	10%	21%
My school plans to upgrade, replace, or invest in technology but we are unsure in which areas	9%	21%
My school has no plans to upgrade, replace or invest in any technologies or digital resources over the next two years	4%	0%
Don't know	1%	0%

Base: All matched survey respondents primary (pre 44, post 44)[66]

Source: Pre and post-surveys

[66] Other responses not shown.

Table 59: Plans to upgrade, replace or invest in technology over the next 2 years (post-survey) – by phase

	Primary	Secondary
End user devices e.g. laptops	63%	74%
Servers and storage, including cloud storage	34%	49%
Audio visual equipment	31%	53%
Training for teachers on using tech in the classroom	32%	28%
Cyber security, firewalls	26%	49%
Digital curriculum resources	29%	29%
Back-office systems and software	24%	36%
Assistive technology for students with SEND	23%	26%
Training for non-teaching staff on using technology	25%	21%
Innovative technologies, such as virtual reality or artificial intelligence	18%	24%
Technical support	14%	14%
My school plans to upgrade, replace, or invest but are unsure in which areas	18%	17%
My school has no plans to upgrade, replace or invest in any technologies or resources over the next two years	3%	2%
Don't know	7%	2%

Base: All respondents primary (536), secondary (137)[67]

Source: Post-survey

[67] Other responses not shown.

Table 60: Plans to upgrade, replace or invest in technology over the next 2 years (post-survey) – by primary type

	Primary academy	Primary local authority maintained
End user devices e.g. laptops	67%	56%
Servers and storage, including cloud storage	36%	30%
Training for teachers on using tech in the classroom	34%	30%
Audio visual equipment	36%	23%
Digital curriculum resources	29%	29%
Cyber security, firewalls	36%	13%
Training for non-teaching staff on using technology	27%	22%
Back-office systems and software	26%	21%
Assistive technology for students with SEND	28%	16%
Innovative technologies, such as virtual reality or artificial intelligence	20%	15%
Technical support	17%	11%
My school plans to upgrade, replace, or invest but are unsure in which areas	17%	20%
My school has no plans to upgrade, replace or invest in any technologies or resources over the next two years	3%	4%
Don't know	6%	8%

Base: All respondents primary academy (266), primary local authority maintained (270)[68]

Source: Post-survey

[68] Other responses not shown.

Table 61: Awareness of the DfE's new digital and technology standards for schools (post-survey) – by phase

	Primary	Secondary
1 - Have never heard of the standards	8%	8%
2	7%	3%
3 - Somewhat aware of the standards	35%	15%
4	19%	26%
5 - Fully aware of the standards	31%	49%

Base: All respondents primary (536), secondary (137)

Source: Post-survey

Table 62: Awareness of the DfE's new digital and technology standards for schools (post-survey) – by primary type of school

	Primary academy	Primary local authority maintained
1 - Have never heard of the standards	6%	12%
2	6%	9%
3 - Somewhat aware of the standards	29%	42%
4	19%	18%
5 - Fully aware of the standards	41%	19%

Base: All respondents primary academy (266), primary local authority maintained (270)

Source: Post-survey

Table 63: Is the school monitoring the *Meeting digital and technology standards in schools and colleges* service on gov.uk to be aware of new standards releases (post-survey) – by primary type of school

	Primary academy	Primary local authority maintained
Yes	72%	56%
No	7%	14%
Don't know	21%	30%

Base: All respondents primary academy (266), primary local authority maintained (270)

Source: Post-survey

Table 64: Extent met/will meet digital standards

	Pre	Post
My school already meets/met all current standards before the connectivity intervention	8%	11%
My school now meets/will meet all the current standards after having the connectivity intervention	45%*	32%
My school does not meet the current standards, but has put additional plans in place (outside of the connectivity upgrade) to address meeting the current standards	25%	39%*
My school does not meet the current standards and has no additional plans to meet them	5%	4%
Don't know	17%	15%

Base: All that did not already meet the standards (pre 427, post 655)

Source: Pre and post-surveys

Table 65: Extent met/will meet digital standards (post-survey) – by phase

	Primary	Secondary
My school already meets/met all current standards before the connectivity intervention	10%	13%
My school now meets/will meet all the current standards after having the connectivity intervention	35%	21%
My school does not meet the current standards, but has put additional plans in place (outside of the connectivity upgrade) to address meeting the current standards	35%	56%
My school does not meet the current standards and has no additional plans to meet them	4%	5%
Don't know	17%	6%

Base: All that did not already meet the standards primary (489), secondary (127)

Source: Post-survey

Table 66: Does the school have a digital strategy in place

	Pre	Post
NET: Yes	50%	58%
Yes, we have a standalone strategy in place	20%	23%
Yes, it is covered in a wider school strategy	30%	35%
Not yet, but it is in planning	29%	25%
No, and no plans to do so	4%	4%
Don't know	17%	13%

Base: All matched survey respondents (pre 474, post 718)

Source: Pre and post-surveys

Table 67: Does the school have a digital strategy in place (post-survey) – by phase

	Primary	Secondary
NET: Yes	57%	62%
Yes, we have a standalone strategy in place	22%	33%
Yes, it is covered in a wider school strategy	35%	29%
Not yet, but it is in planning	24%	27%
No, and no plans to do so	5%	1%
Don't know	14%	10%

Base: All respondents primary (536), secondary (137)

Source: Post-survey

Table 68: Does the school have a digital strategy in place (post-survey) – by primary type

	Primary academy	Primary local authority maintained
NET: Yes	67%	44%
Yes, we have a standalone strategy in place	26%	16%
Yes, it is covered in a wider school strategy	40%	29%
Not yet, but it is in planning	20%	30%
No, and no plans to do so	1%	10%
Don't know	12%	16%

Base: All respondents primary academy (266), primary local authority maintained (270)

Source: Post-survey

Table 69: Does the school have a digital strategy in place (post-survey) – by size of primary

	Large primary	Medium primary	Small primary
NET: Yes	64%	58%	47%
Yes, we have a standalone strategy in place	25%	23%	15%
Yes, it is covered in a wider school strategy	39%	35%	32%
Not yet, but it is in planning	18%	25%	31%
No, and no plans to do so	4%	4%	8%
Don't know	14%	14%	15%

Base: All respondents large primary (202), medium primary (207), small primary (117)

Source: Post-survey

Table 70: Does the school have a digital strategy in place (post-survey) – by primary urban/rural classification

	Primary urban	Primary rural
NET: Yes	58%	50%
Yes, we have a standalone strategy in place	23%	14%
Yes, it is covered in a wider school strategy	35%	36%
Not yet, but it is in planning	25%	23%
No, and no plans to do so	4%	10%
Don't know	14%	18%

Base: All respondents primary urban (444), primary rural (84)

Source: Post-survey

Table 71: How well education technology supports activities excluding 'do not use' – primary

Extremely well	Pre	Post
Pupil/student data management	26%	53%*
Planning lessons/ curriculum content	26%	52%*
Delivering lessons	25%	52%*
Collaborating and sharing resources with other teachers	21%	51%*
Delivering teacher training/ CPD	19%	50%*
Financial management	22%	48%*
Parental/carer engagement/ communication	25%	47%*
Tracking pupil progress	22%	47%*
Timetabling	18%	41%*
Conducting formative assessment (e.g. giving feedback or marking)	18%	45%*
HR processes	18%	45%*
Payroll	21%	45%*
Offering independent/ online learning (including in class)	16%	45%*
Communication with and delivery of governance	20%	42%*
Conducting summative assessment	18%	43%*
Supporting pupils with SEND (e.g. assistive technology that supports pupils to learn/improve independence/ wellbeing)	15%	43%*
Estate management	16%	41%*
Supporting flexible working practices (e.g. part-time working)	17%	37%*

Base: Primary respondents excluding 'do not use technology for this task' pre (base varies 118-201), post (base varies 317-534)

Source: Pre and post-surveys

Table 72: How well education technology supports activities excluding 'do not use' – secondary

Extremely well	Pre	Post
Pupil/student data management	36%	68%*
Planning lessons/ curriculum content	34%	65%*
Delivering lessons	34%	61%*
Collaborating and sharing resources with other teachers	25%	64%*
Delivering teacher training/ CPD	15%	65%*
Financial management	34%	62%*
Parental/carer engagement/ communication	17%	60%*
Tracking pupil progress	20%	59%*
Timetabling	41%	62%*
Conducting formative assessment (e.g. giving feedback or marking)	18%	58%*
HR processes	12%	59%*
Payroll	18%	60%*
Offering independent/ online learning (including in class)	20%	59%*
Communication with and delivery of governance	19%	58%*
Conducting summative assessment	10%	56%*
Supporting pupils with SEND (e.g. assistive technology that supports pupils to learn/improve independence/ wellbeing)	14%	58%*
Estate management	13%	56%*
Supporting flexible working practices (e.g. part-time working)	19%	54%*

Base: Secondary respondents excluding 'do not use technology for this task' pre (base varies 43-48), post (base varies 124-136)

Source: Pre and post-surveys

Table 73: How well education technology supports activities excluding 'do not use' – primary local authority maintained

Extremely well	Pre	Post
Pupil/student data management	24%	49%*
Planning lessons/ curriculum content	24%	52%*
Delivering lessons	23%	50%*
Collaborating and sharing resources with other teachers	19%	50%*
Delivering teacher training/ CPD	19%	48%*
Financial management	19%	46%*
Parental/carer engagement/ communication	22%	47%*
Tracking pupil progress	20%	48%*
Timetabling	17%	42%*
Conducting formative assessment (e.g. giving feedback or marking)	17%	47%*
HR processes	16%	42%*
Payroll	18%	42%*
Offering independent/ online learning (including in class)	13%	46%*
Communication with and delivery of governance	15%	43%*
Conducting summative assessment	16%	45%*
Supporting pupils with SEND (e.g. assistive technology that supports pupils to learn/improve independence/ wellbeing)	14%	41%*
Estate management	8%	37%*
Supporting flexible working practices (e.g. part-time working)	17%	32%*

Base: Primary local authority maintained respondents excluding 'do not use technology for this task' pre (base varies 75-132), post (base varies 156-270)

Source: Pre and post-surveys

Table 74: How well education technology supports activities excluding 'do not use' – primary academy

Extremely well	Pre	Post
Pupil/student data management	28%	55%*
Planning lessons/ curriculum content	29%	52%*
Delivering lessons	26%	55%*
Collaborating and sharing resources with other teachers	22%	52%*
Delivering teacher training/ CPD	20%	52%*
Financial management	25%	49%*
Parental/carer engagement/ communication	28%	47%*
Tracking pupil progress	24%	47%*
Timetabling	19%	40%*
Conducting formative assessment (e.g. giving feedback or marking)	18%	43%*
HR processes	20%	47%*
Payroll	24%	47%*
Offering independent/ online learning (including in class)	19%	44%*
Communication with and delivery of governance	25%	42%*
Conducting summative assessment	19%	42%*
Supporting pupils with SEND (e.g. assistive technology that supports pupils to learn/improve independence/ wellbeing)	16%	43%*
Estate management	23%	43%*
Supporting flexible working practices (e.g. part-time working)	18%	40%*

Base: Primary academy respondents excluding 'do not use technology for this task' pre (base varies 43-69), post (base varies 161-264)

Source: Pre and post-surveys

Table 75: How well education technology supports activities excluding 'do not use' – large primaries

Extremely well	Pre	Post
Pupil/student data management	32%	57%*
Planning lessons/ curriculum content	26%	55%*
Delivering lessons	30%	56%*
Collaborating and sharing resources with other teachers	23%	55%*
Delivering teacher training/ CPD	25%	55%*
Financial management	31%	51%*
Parental/carer engagement/ communication	33%	49%*
Tracking pupil progress	29%	48%*
Timetabling	24%	40%
Conducting formative assessment (e.g. giving feedback or marking)	23%	44%*
HR processes	27%	46%*
Payroll	29%	45%*
Offering independent/ online learning (including in class)	20%	46%*
Communication with and delivery of governance	28%	45%*
Conducting summative assessment	21%	43%*
Supporting pupils with SEND (e.g. assistive technology that supports pupils to learn/improve independence/ wellbeing)	21%	43%*
Estate management	19%	44%*
Supporting flexible working practices (e.g. part-time working)	25%	39%*

Base: Large primary respondents excluding 'do not use technology for this task' pre (base varies 60-95), post (base varies 129-202)

Source: Pre and post-surveys

Table 76: How well education technology supports activities excluding 'do not use' – medium primaries

Extremely well	Pre	Post
Pupil/student data management	21%	53%*
Planning lessons/ curriculum content	29%	53%*
Delivering lessons	21%	54%*
Collaborating and sharing resources with other teachers	20%	52%*
Delivering teacher training/ CPD	15%	48%*
Financial management	14%	47%*
Parental/carer engagement/ communication	19%	46%*
Tracking pupil progress	16%	47%*
Timetabling	11%	41%*
Conducting formative assessment (e.g. giving feedback or marking)	15%	46%*
HR processes	10%	46%*
Payroll	15%	48%*
Offering independent/ online learning (including in class)	16%	46%*
Communication with and delivery of governance	12%	43%*
Conducting summative assessment	18%	45%*
Supporting pupils with SEND (e.g. assistive technology that supports pupils to learn/improve independence/ wellbeing)	10%	42%*
Estate management	12%	41%*
Supporting flexible working practices (e.g. part-time working)	10%	37%*

Base: Medium primary respondents excluding 'do not use technology for this task' pre (base varies 45-78), post (base varies 116-207)

Source: Pre and post-surveys

Table 77: How well education technology supports activities excluding 'do not use' – primary urban

Extremely well	Pre	Post
Pupil/student data management	24%	54%*
Planning lessons/ curriculum content	27%	54%*
Delivering lessons	24%	54%*
Collaborating and sharing resources with other teachers	21%	53%*
Delivering teacher training/ CPD	19%	51%*
Financial management	19%	49%*
Parental/carer engagement/ communication	23%	47%*
Tracking pupil progress	22%	48%*
Timetabling	15%	41%*
Conducting formative assessment (e.g. giving feedback or marking)	18%	46%*
HR processes	16%	45%*
Payroll	18%	45%*
Offering independent/ online learning (including in class)	16%	46%*
Communication with and delivery of governance	18%	43%*
Conducting summative assessment	18%	44%*
Supporting pupils with SEND (e.g. assistive technology that supports pupils to learn/improve independence/ wellbeing)	15%	42%*
Estate management	13%	40%*
Supporting flexible working practices (e.g. part-time working)	15%	38%*

Base: Urban school respondents excluding 'do not use technology for this task' pre (base varies 107-178), post (base varies 265-443)

Source: Pre and post-surveys

Table 78: How well education technology supports activities (post-survey) excluding 'do not use'

	Extremely well	Net: extremely/quite well
Pupil/pupil data management	55%	96%
Planning lessons/ curriculum content	54%	95%
Delivering lessons	54%	94%
Collaborating and sharing resources with other teachers	54%	94%
Delivering teacher training/ CPD	51%	94%
Financial management	50%	94%
Parental/carer engagement/ communication	49%	94%
Tracking pupil progress	49%	94%
HR processes	47%	93%
Payroll	47%	90%
Conducting formative assessment (e.g. giving feedback or marking)	47%	89%
Offering independent/ online learning (including in class)	47%	91%
Timetabling	46%	90%
Conducting summative assessment	46%	89%
Supporting pupils with SEND (e.g., assistive technology that supports pupils to learn / improve independence / wellbeing)	46%	89%
Communication with and delivery of governance	45%	92%
Estate management	43%	87%
Supporting flexible working practices (e.g. part-time working)	41%	83%

Base: All respondents excluding 'do not use technology for this task' (base varies post 485-715)

Source: Post-survey

Table 79: How well education technology supports activities (post-survey) excluding 'do not use' – by phase

Extremely well	Primary	Secondary
Pupil/pupil data management	53%	68%
Planning lessons/ curriculum content	52%	65%
Delivering lessons	52%	61%
Collaborating and sharing resources with other teachers	51%	64%
Delivering teacher training/ CPD	48%	63%
Financial management	48%	62%
Parental/carer engagement/ communication	47%	60%
Tracking pupil progress	47%	59%
HR processes	45%	59%
Payroll	45%	60%
Conducting formative assessment (e.g. giving feedback or marking)	45%	58%
Offering independent/ online learning (including in class)	45%	59%
Timetabling	41%	62%
Conducting summative assessment	43%	56%
Supporting pupils with SEND (e.g., assistive technology that supports pupils to learn / improve independence / wellbeing)	43%	58%
Communication with and delivery of governance	42%	58%
Estate management	41%	56%
Supporting flexible working practices (e.g. part-time working)	37%	54%

Base: All respondents excluding 'do not use technology for this task' primary (base varies post 317-534), secondary (base varies post 124-136)

Source: Post-survey

Table 80: How well education technology supports activities (post-survey) excluding 'do not use'– by urban/rural classification

Extremely well	Urban	Rural
Pupil/pupil data management	57%	44%
Planning lessons/ curriculum content	56%	39%
Delivering lessons	55%	41%
Collaborating and sharing resources with other teachers	55%	43%
Delivering teacher training/ CPD	52%	41%
Financial management	51%	40%
Parental/carer engagement/ communication	49%	41%
Tracking pupil progress	50%	39%
HR processes	47%	43%
Payroll	47%	44%
Conducting formative assessment (e.g. giving feedback or marking)	49%	37%
Offering independent/ online learning (including in class)	49%	34%
Timetabling	46%	43%
Conducting summative assessment	47%	37%
Supporting pupils with SEND (e.g. assistive technology that supports pupils to learn/improve independence/ wellbeing)	46%	41%
Communication with and delivery of governance	46%	38%
Estate management	43%	37%
Supporting flexible working practices (e.g. part-time working)	42%	28%

Base: All respondents excluding 'do not use technology for this task' urban (base varies post 420-607), rural (base varies post 59-96)

Source: Post-survey

Table 81: Perceptions of impact on staff use of technology (post-survey) – by primary school type

Increased a lot	**Primary academy**	**Primary local authority maintained**
Teacher's use of hardware/devices	13%	17%
Teachers' use of software/programmes/apps	13%	17%
Improved a lot	**Primary academy**	**Primary local authority maintained**
Technology available in your school being used to its maximum effect	12%	22%
Staff appetite for using technology	8%	13%
Teacher confidence	7%	11%
Teacher skills in using technology	4%	9%
My schools' skills in assessing our technology needs	4%	9%

Base: All respondents primary academy (post 266), primary local authority maintained (post 270)

Source: Post-survey

Table 82: Perceptions of impact on staff use of technology (post-survey) – by primary school size

Increased a lot	Large primary	Medium primary	Small primary
Teacher's use of hardware/devices	17%	15%	10%
Teachers' use of software/programmes/apps	17%	15%	10%
Improved a lot	**Large primary**	**Medium primary**	**Small primary**
Technology available in your school being used to its maximum effect	19%	18%	10%
Staff appetite for using technology	11%	11%	8%
Teacher confidence	10%	11%	3%
Teacher skills in using technology	7%	7%	3%
My schools' skills in assessing our technology needs	8%	7%	2%

Base: All respondents large primary (post 202), medium primary (post 207), small primary (117)

Source: Post-survey

Table 83: Perceptions of impact on staff use of technology (post-survey) – by urban/rural classification

Increased a lot	Urban	Rural
Teacher's use of hardware/devices	15%	11%
Teachers' use of software/programmes/apps	14%	9%
Improved a lot	**Urban**	**Rural**
Technology available in your school being used to its maximum effect	16%	7%
Staff appetite for using technology	10%	6%
Teacher confidence	9%	5%
Teacher skills in using technology	6%	3%
My schools' skills in assessing our technology needs	7%	3%

Base: All respondents urban (post 609), rural (post 97)

Source: Post-survey

Table 84: Frequency of technology use in lessons

An internet connection	Pre	Post	Primary pre	Primary post
A lot of the time	91%	94%	91%	94%
Sometimes	7%	5%	7%	6%
Rarely	1%	0%	1%	0%
Not at all	0%	0%	0%	0%
Our school does not have this equipment	0%	0%	0%	0%
Don't know	1%	0%	1%	0%
Desktop computer	**Pre**	**Post**	**Primary pre**	**Primary post**
A lot of the time	55%	59%	50%	55%
Sometimes	17%	15%	16%	14%
Rarely	15%	12%	18%	14%
Not at all	8%	8%	10%	10%
Our school does not have this equipment	4%	5%	5%	6%
Don't know	1%	0%	1%	0%
Tablet computer	**Pre**	**Post**	**Primary pre**	**Primary post**
A lot of the time	45%	51%	52%	56%
Sometimes	33%	33%	37%	34%
Rarely	16%	11%	9%	7%
Not at all	4%	3%	1%	2%
Our school does not have this equipment	1%	2%	0%	1%
Don't know	1%	0%	1%	0%
Laptop/notebook	**Pre**	**Post**	**Primary pre**	**Primary post**
A lot of the time	69%	75%	69%	78%
Sometimes	24%	20%	26%	19%
Rarely	5%	3%	3%	2%
Not at all	0%	0%	0%	0%
Our school does not have this equipment	1%	0%	1%	0%
Don't know	1%	0%	1%	0%

Table 84 continued: Frequency of technology use in lessons

Specialised assistive devices, e.g. Braille devices, digital communication aids	Pre	Post	Primary pre	Primary post
A lot of the time	6%	8%	5%	6%
Sometimes	17%	17%	18%	15%
Rarely	35%	32%	34%	33%
Not at all	10%	10%	11%	11%
Our school does not have this equipment	21%	23%	22%	25%
Don't know	10%	10%	10%	10%

Base: All respondents (pre 267, post 718), primary (pre 201, post 536)

Source: Pre and post-surveys

Table 85: Barriers to using education technology more – pre-survey

	Net: To a great/ some extent	To a great extent	To some extent	Not really	Not at all	Don't know
Cost of hardware	85%	48%	36%	10%	5%	1%
Cost of software	74%	35%	39%	17%	7%	2%
Teachers' confidence to incorporate technology into teaching	74%	15%	59%	20%	4%	2%
Teachers' skills to incorporate technology into teaching	73%	11%	62%	21%	4%	2%
My school doesn't have enough devices	68%	21%	47%	17%	14%	1%
Suitability of hardware	56%	13%	43%	27%	16%	1%
Teachers' reluctance to incorporate technology into teaching	50%	8%	42%	36%	11%	3%
My school's internet connection is unreliable	49%	14%	35%	25%	25%	1%
Availability of tech support in the school	42%	9%	33%	27%	30%	1%

Table 85 continued: Barriers to using education technology more – pre-survey

	Net: To a great/ some extent	To a great extent	To some extent	Not really	Not at all	Don't know
Suitability of software	42%	6%	36%	35%	22%	2%
Pupils' skills to use technology	34%	4%	30%	45%	19%	2%
Knowing what technology or digital tools to buy	33%	6%	27%	32%	33%	2%
Cyber security concerns e.g. ensuring your school's technology infrastructure is resistant to cyber attacks	33%	3%	31%	37%	28%	2%
Pupils' confidence to use technology	26%	3%	22%	49%	23%	2%
Safeguarding concerns	24%	4%	21%	39%	36%	1%
Data security concerns e.g. ensuring confidentiality, integrity and availability of data	23%	2%	20%	43%	32%	1%
The benefits of using technology are unclear	14%	2%	12%	32%	53%	1%
Pupils' reluctance to use technology	10%	1%	9%	48%	40%	2%

Base: All respondents (pre 474)

Source: Pre-survey

Table 86: Barriers to using education technology more – post-survey

	Net: To a great/ some extent	To a great extent	To some extent	Net: Not really/ not at all	Don't know
Cost of hardware	70%	29%	41%	26%	4%
Cost of software	63%	21%	42%	33%	4%
My school doesn't have enough devices	51%	17%	34%	47%	2%

Table 86 continued: Barriers to using education technology more – post-survey

	Net: To a great/ some extent	To a great extent	To some extent	Net: Not really/ not at all	Don't know
Teachers' confidence to incorporate technology into teaching	42%	3%	39%	53%	4%
Teachers' skills to incorporate technology into teaching	40%	3%	36%	56%	5%
Suitability of hardware	34%	7%	27%	64%	2%
Teachers' reluctance to incorporate technology into teaching	29%	3%	26%	66%	5%
Availability of tech support in the school	25%	5%	20%	73%	2%
Knowing what technology or digital tools to buy	21%	3%	18%	75%	4%
Suitability of software	21%	2%	19%	76%	2%
My school's internet connection is unreliable	18%	4%	14%	81%	1%
Cyber security concerns	18%	3%	15%	79%	3%
Pupils' skills to use technology	18%	1%	17%	77%	5%
Safeguarding concerns	14%	1%	12%	83%	4%
Pupils' confidence to use technology	14%	1%	13%	81%	5%
Data security concerns	13%	2%	11%	84%	3%
Pupils' reluctance to use technology	8%	1%	8%	87%	5%
The benefits of using technology are unclear	7%	1%	7%	86%	7%

Base: All respondents (post 718)

Source: Post-survey

Table 87: Extent the school's internet connection is a barrier (post-survey) – by phase, size of primary school and internet speed test

Phase	**To a great/some extent**
Primary	20%
Secondary	7%
Size of primary school	**To a great/some extent**
Large primary	17%
Medium primary	19%
Small primary	29%
Internet speed test	**To a great/some extent**
100Mbps or less	26%
101-250Mbps	21%
251-500Mbps	9%
Over 500Mbps	4%

Base: All respondents primary (536), secondary (137), large primary (202), medium primary (207), small primary (117), speed test 100Mbps or less (295), 101-250Mbps (170), 251-500Mbps (115), over 500Mbps (138)

Source: Post-survey

Table 88: Perceptions of impact of connectivity intervention on workload – post-survey

	Post
Improved a lot	4%
Improved a little	27%
No change	58%
A little worse	1%
A lot worse	0%
Don't know	10%

Base: All respondents (718)

Source: Post-survey

Table 89: Perceptions of impact on staff workload for tasks (post-survey) – by size of primary school

Reduced a lot	Large primary	Medium primary	Small primary
Planning lessons	4%	0%	1%
Delivering lessons	4%	1%	0%

Base: All respondents large primary (202), medium primary (207), small primary (117)

Source: Post-survey

Table 90: Impact on perceptions of the relationship between the school's current technology and workload (post-survey) – by phase

	Primary	Secondary
Technology has increased my workload	15%	30%
Technology has not reduced my workload, and it is not expected to do so in the future	30%	24%
Technology has not reduced my workload, but it is expected to do so in the future	17%	20%
Technology has already reduced my workload	27%	18%
Don't know	11%	8%

Base: All respondents primary (pre 536), secondary (137)

Source: Post-survey

Table 91: Impact on perceptions of the relationship between the school's current technology and workload (post-survey) – by size of primary school

	Large primary	Medium primary	Small primary
Technology has increased my workload	19%	11%	14%
Technology has not reduced my workload, and it is not expected to do so in the future	31%	28%	32%
Technology has not reduced my workload, but it is expected to do so in the future	15%	16%	21%
Technology has already reduced my workload	24%	34%	21%
Don't know	10%	10%	13%

Base: All respondents large primary (202), medium primary (207), small primary (117)

Source: Post-survey

Table 92: Perceptions of impact on staff use of technology (post-survey) – by primary school type

Increased a lot	Primary	Secondary	Primary academy	Primary local authority maintained
Pupils' use of hardware/devices	18%	11%	15%	22%
Pupils' use of software/programmes/apps	17%	7%	14%	20%

Base: All respondents primary (536), secondary (137), primary academy (266), primary local authority maintained (270)

Source: Post-survey

Table 93: Perceptions of impact on pupils' progress and attainment (post-survey) – by size of primary school

Size of primary school	Net: Improved a lot/a little	Improved a lot
Large primary	35%	7%
Medium primary	35%	7%
Small primary	39%	1%

Base: All respondents large primary (202), medium primary (207), small primary (117)

Source: Post-survey

Table 94: Perceptions of impact on pupils' engagement (post-survey) – by phase and urban/rural classification

Phase	Net: Improved a lot/a little	Improved a lot
Primary	46%	11%
Secondary	38%	5%
Urban/rural classification	**Net: Improved a lot/a little**	**Improved a lot**
Urban	45%	11%
Rural	38%	4%

Base: All respondents primary (536), secondary (137), urban (609), rural (97)

Source: Post-survey

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