HOW TO AVOID 10 CRITICAL MISTAKES WHEN DEPLOYING CLASSROOM TECHNOLOGY IN A POST-COVID WORLD

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INTRODUCTION:

Firstly, thank you for taking the time to read this report which is the result of many months' worth of collaboration with six of the most knowledgeable and inspiring people working in education today.

I've created this report because the COVID pandemic has forced schools to adopt an accelerated approach to how technology can be used to support learning, and we urgently need to assess what has worked and what hasn't. What aspects of remote teaching and learning must be carried forward and incorporated into the classroom? Why have some students thrived while others have struggled?

At a time where there has never been more pressure on school budgets, the amount of money that will essentially be wasted if we don't get this right is frightening. However, if we can ensure that the next phase of technology deployment is underpinned by a strategic plan then the rewards for both staff and pupils could be huge.

What I hope we've put together in this report is a robust and repeatable plan for a successful ICT deployment project that's been informed by everything we've learned over the past year; one that any school can follow in order to ensure their classroom technology investment delivers tangible and life-changing benefits for its entire community.

As we look to invest, we must also look to see how technology can further develop what education looks like in the lives of students of any age. Where and how learning takes place has never been more of a strategic decision.

I hope you and your colleagues find it useful.

Kristian

Kristian Taylor
Education Manager - Schools & Colleges

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ABOUT THE REPORT AUTHORS:

Abdul Chohan is a former Head Teacher and Multi-Academy Trust CEO. He is an awardwinning Learning Technology Consultant who has been described by Apple as 'one of the most innovative educators in the world'.

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Julian Coultas is an Apple Distinguished Educator, Trainer and Mentor with over 20 years' successful experience of Apple in the classroom.

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Paul Jackson is the inspirational Head Teacher who took Manorfield Primary School in Tower Hamlets from Inadequate to Outstanding in the space of just 5 years.

Tim Lings is the Head of ICT at Heronsgate Primary School, an Ofsted Outstanding school that has twice been awarded the Naace ICT Mark award.

#1: ENSURE STUDENTS ARE AT THE VERY CENTRE OF IT ALL

Author: Matthew Pullen

The Covid pandemic has taught us all many things about how we adapt to forced change. At the very least, it made schools rethink how they could continue when the traditional school building was not an option for all learners. The instant the buildings were forced to close was the exact same moment that staff and leadership had to look quickly for ways to keep learning going.

Luckily, it came at a time when many schools had at least started to consider technology and its role in learning and teaching. What happened, though, was that this accelerated from a 2-3 year plan, to a 'What can we do tomorrow?" plan.

What resulted was one of the biggest transformations in education for over a hundred years, and one that we now must reflect on to see what we can learn from and the impact it had.

When doing that, it is essential to look at the impact on the learners themselves. How did learning in this new way change them? What differences were seen in how they engaged? What needed to change in how the content was delivered? How was it all assessed to ensure progress?

No doubt there was a lot of trial and error but in all of that there will have been many successes, and there will no doubt have been both students that struggled as well as those that absolutely thrived. It's at that point we need to consider the question of 'what now?'.

For those students that have now seen an alternative that technology has offered them, be it video to support learning so it can be reviewed as often as needed, the power of mobile tools to work anywhere and anytime, the option of creative approaches to demonstrate learning or simply the spaces both physical and virtual that allow a different way to collaborate and communicate. These need now to be considered for the face-to-face environment too, or you risk alienating a group of learners that have seen what is possible for them to succeed.

A strategic approach to technology now will see a blend of approaches. Technology is not just about remote learning, it is about choice; it's about providing access to all learners. After all, a video that supports a student with a better understanding of a maths problem is just as useful to re-watch in the classroom as it is at home.

Therefore, the call to action here is to ensure that now we know there is another way, how do we bring that back into the classroom so that ALL learners can benefit? It doesn't need to be a backup strategy any more, it can become the approach that offers choice to all.

#2: VISIT A SCHOOL THAT HAS ROLLED OUT A SIMILAR ICT PROJECT SUCCESSFULLY

Author: Julian Coultas

Networking is crucial to the lifeblood of a school and visiting schools that are using technology effectively is a key part of a successful roll out. Obviously, choosing a school with a similar profile is important, but not always possible. Looking at a school's provision in terms of the model they are using is crucial; is it 1-1, shared iPad, or class sets?

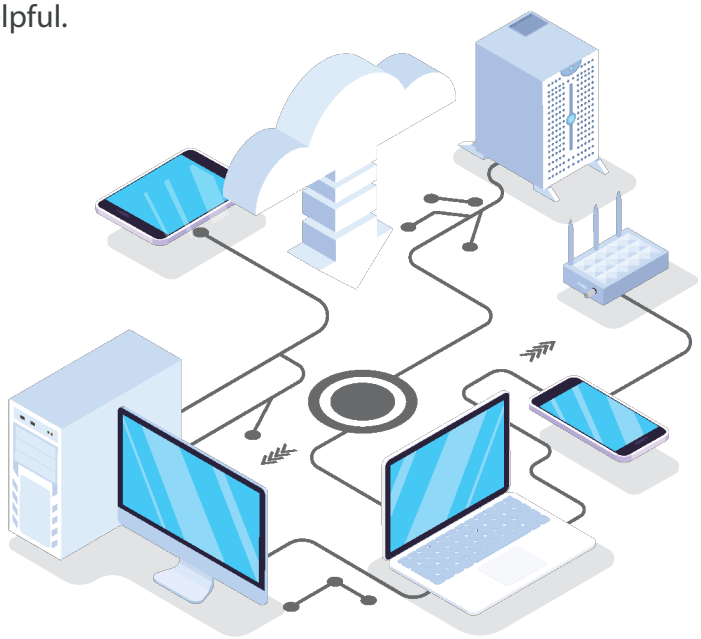
Discovering how the school has integrated the technology with learning is best seen from within the classroom, so ideally try and observe some lessons. Looking at how the teacher manages the learning is important. Basic things such as being able to mirror both the teacher's and student's screen is critical to student engagement. Some schools will use Apple TV, others Airplay-based screens and even software solutions like Airserver.

Listen to teachers' experiences, especially in terms of how they found the transition to using the new technology and what they felt the impact has been. In Primary Schools look carefully at how the technology is being deployed in EYFS and higher up in school as it will be very different in most cases.

On a practical level, exploring how devices are managed on a daily basis in terms of student access and charging at the end of the day is useful. Some schools use charging trolleys and/or cabinets, while others use large USB chargers and charge them centrally in a tech office.

It's useful to find out what the school's internet speed and bandwidth is in relation to the number of devices that are being used. One of the most common challenges that schools face is the squeeze felt on the WIFI network when additional sets of devices are rolled out. Hearing about the school's MDM solution and how it has helped the process is also helpful.

Contact the team at Academia who can setup a visit to a great local reference site, including an Apple Distinguished School, recognised as a centre of leadership and educational excellence.



#3: ENSURE INFRASTRUCTURE IS FUTURE-PROOFED FOR INCREASED CAPACITY

Author: Tim Lings

WIFI is a bit like electricity; in the same way you wouldn't dream of installing an ICT suite of computers and not give thought to how you would power the computers, modern mobile computers (whether it's iPad or Chromebooks) need a decent and reliable wireless Internet connection in order to be useful.

When considering upgrading your network, you need to think about the number of devices you're likely to need and where they're going to be used. In a school, you need to plan for coverage (so you can get a WIFI signal everywhere you might need it) and for density (so that it can cope with 30+ devices in a classroom), as well as thinking about bandwidth (that your 'pipe' is large enough so that everyone can download data at the same time without the connection slowing down).

It's worth getting an expert eye to make your school network work at its best, but don't forget that there are very excellent price-disruptive options out there, such as Uni-Fi from Ubiquiti Networks that gives you modern wireless networking at a very affordable price.

Once your network is in place, you need to think about how you're going to charge and store the devices. For older students, some schools allow the devices to be taken home, which shifts the problem onto students. For everyone else, it's important to find a way to charge, store, and possibly transport a class set of devices. We discovered some charging furniture from Zioxi that has shelves for each iPad, a secure door and then power strips inside to make use of the iPad devices own chargers. They look pretty inconspicuous in the classroom too!

In terms of managing all of the data and learning that might be produced on an iPad, the first issue to think about is how you might recover a student's data if the device is broken or needs replacing. With iPad devices, this problem is easily solved using cloud storage. With Apple School Manager (an online portal accessible via school.apple.com), you can create managed Apple IDs for each of your students, which gives each individual 200GB of free online cloud storage for iPad backups, documents, and photos. If you make use of Apple's Shared iPad mode, it's possible to set up a set of iPad devices so that multiple users can log in and out and all of their documents, data, and settings will be just where they left it before.

The second problem is to do with how other interested individuals (e.g. teachers, SLT, Ofsted, parents etc.) are going to easily see the learning that's happened on an iPad. There are lots of solutions out there which all have pros and cons. Here are a few that can work successfully:

Showbie

This allows teachers to create digital classes for students where work can be handed out, taken in and then feedback given using annotation and voicenote tools. The 'pro' functionality does require an annual subscription, but you can use a basic free account to start with. The 'pro' version also includes parental access, allowing parents to securely see all the learning that happens in class. It supports Google authentication and works with any file types.

Seesaw

This has free and paid options and is great for creating a student journal of the learning in class. A particularly useful feature is how students can log into their accounts using a class QR code, making managing shared iPads really simple. The paid option allows for more institutional oversight and the ability for journals to be kept year on year. All uploads are limited to photos, videos and PDFs and there are many annotation tools built in.

Google Classroom

If you're using Google's collaborative tools and have student logins already set up, this offers a way of organising and managing the learning in a classroom. There is an iPad app and it works in a web browser too.

Apple Schoolwork

This is Apple's latest offering and leverages Managed Apple IDs to allow for easy sharing of documents between your class, including the ability to collaborate in iWork (Pages/Numbers/Keynote) documents, either between the teacher and each individual or between the teacher and the class.

#4: CREATE A STRATEGY FOR MEASURING AND REPORTING IMPACT

Author: Abdul Chohan

For any technology programme in education to be successful, it is necessary to understand the impact that it will have on the core purpose of the organisation. In the case of education, this is teaching and learning. Successful programmes always take into consideration how the technology will amplify teaching and learning, and various associated pedagogies. In order to reach the right decision in terms of the technology that should be used, it is necessary to conduct simplified impact studies that are measurable and aren't always focused on the wow factor.

Consider how the technology will allow you to achieve your objective in a manner that was simply not possible in the past. Once a pilot study shows a positive impact, it will be important for senior leaders to decide if this should be a non-negotiable across the school. It is not always necessary to have non-negotiables, however the problem with not having any at all usually means that the novelty of technology can simply wear off.

In order to have consistently good learning experiences in a school, it is important that we harness the power of technology to save time and costs, and develop the workforce by ensuring frequent and relevant professional development is included as part of the implementation. This will need to develop and grow, and opportunities for sharing best practice will need to be created. This is not always possible in a face-to-face fashion, however a number of platforms are available where teachers can share best practice with colleagues.

The programme needs to be sustainable. An on-going professional development programme that allows for the sharing of best practices in innovative ways can mean the difference between a successful programme and one that is not.

> The effective use of technology is analogous to plumbing. Water is seen to come out of a tap, however this is only possible due to a bespoke design of pipes and bends that deliver the water to the user. Taps alone cannot deliver the goods. In the same way, a successful iPad programme requires a bespoke pedagogical design that is fit for purpose in delivering a great learning experience. Technology alone cannot deliver the goods.

#5: REALISE JUST WHAT'S POSSIBLE NOW IN TERMS OF MOBILE DEVICE MANAGEMENT

Author: Julian Coultas

Mobile Device Management (MDM) is the web-based software toolset that schools use to manage their iPad devices. MDM tools are a subscription based service. They vary in price based on how many devices are being managed, so understanding what you are getting for your money is important.

MDMs work in conjunction with Apple School Manager (ASM), another web-based tool. The great thing about this combination is that the days of physically plugging iPad devices into computers to set them up is over. With MDM and ASM, a brand-new iPad can be unboxed and all the school settings appear to be pre-installed along with appropriate apps. This can be used to manage individual teacher iPads, 1-1 set ups, and class sets of iPad devices. Accounts set up with ASM will automatically have 200GB of back up storage, and as a result, all staff and student work is safely backed up to the cloud. Existing devices, once they are in the MDM system can be remotely wiped and reset for new roles and users saving time for the school's tech team.

The division of labour tends to be as follows:

Apple School Manager (ASM) is used for buying apps and content, as well as creating managed Apple IDs for staff and students. It is also useful in terms of organising classes of iPad devices and linking a teacher iPad to a class, so that the Apple Classroom app can be used by the classroom teacher to control devices and mirror them effortlessly.

The MDM solution is used to deploy all the necessary internet access, filtering, and security settings. The MDM is also used to wirelessly push out the apps and ebook content to devices. It can also be used to configure home screens, apps that appear on the dock, and wallpaper. It can hide/show apps as well as move apps and licenses around device sets, providing updates to OS and apps.

MDMs will also enable the school to track the location of misplaced devices and provide the tech team with information about the usage in terms of data, how recently the device has been used, and the battery charge status without having to physically look at the device.

Some neat functions of MDM include the ability to set overnight schedules for updates. This is especially useful for slower and busy school networks that would struggle with multiple devices updating during the school day.

One powerful development with MDM and ASM has been the ability to set up "Shared iPad". This approach enables multiple students to log in and out of the same iPad. Schools can then provide a 1-1 experience, but on shared devices. Each student's photos, videos, and other app work is safely stored and backed up on the device and to the cloud. Shared iPad is a good starting point for schools that want the 1-1 experience but either don't have the budget or the confidence to roll out a full 1-1 model.

The MDM solution and Apple School Manager combination is the modern way to manage iPad, Macs, and Apple TVs in school. It can however be daunting and it is strongly recommended that you speak to your Apple Education Specialist for advice.

#6: PLAN A FINANCE SOLUTION THAT IS SUSTAINABLE

Author: Andrew Scott

With school budgets under so much pressure, any ICT purchase over a particular threshold is likely to be well thought through and scrutinised at a number of levels, by senior leadership and possibly by governors. Sadly, it's common for this scrutiny to focus too heavily on the initial investment and not enough on the ongoing costs of ensuring that the project is sustainable.

It's common for schools to use built up reserves, or save funds over a period of time in order to make larger capital ICT purchases. Sadly, too often, these projects which have required a significant initial financial outlaw are not adequately funded in the long term.

Examples of this include kitting out an ICT suite for 30 children, without an adequate future maintenance/repair/replacement budget. Classes then planning to use the ICT suite find that several pieces of equipment are not functioning properly, which then presents a huge barrier to the children's learning.

A school's ICT strategy should allow for this. To ensure there is regular maintenance, a system for reporting items broken and not working, a budget for the replacement of broken items and, ultimately, a plan for future replacement of out-of-date equipment is critical. A one-year strategy is not adequate for this; it must be a multi-year strategy, but one which is subject to regular, possibly annual reviews to allow for the inclusion of newly released and updated technology.

A challenge in this area is often the desire to purchase identical items to service a whole school, department, or ICT suite. Purchasing items at the same time is likely to result in them all needing repairing, but certainly replacing at the same time. A more sustainable approach would be to adopt a multi-year purchasing strategy, so the replacement is also ongoing, rather than all at once. This approach also gives the opportunity to 'pilot' particular ICT purchases and the chance to trial items before they are purchased in more of a bulk.

This of course presents an interesting debate around value for money, and whether bulk purchasing presents greater financial savings, or whether this is actually a false economy in the long term.

A multi-year strategy presents the opportunity to identify the source of any future funding needs and will help determine the extent of and timing of any school fundraising to be undertaken to support future purchases.

Any future financial plan cannot sit in isolation and must be considered alongside a school's other future budget plans. Consideration should also be given to leasing rather than outright purchasing as an option.

Ensuring the school budgets for licence renewals and software upgrades is also essential. A balance is required between the cheapest deals and length of commitment a school is comfortable making, as technology requirements change rapidly and unexpectedly.

#7: ENSURE YOUR SCHOOL'S CULTURE IS ALIGNED WITH THE AIMS OF THE PROJECT

Author: Julian Coultas

Whether you are rolling out new tech, or a new iteration, school leaders need to be seen to be actively involved and supporting it by using it.

For example, to Head Teacher that historically would have used their laptop for the assembly now use their iPad and Airplay, because this is what they expect their teachers to do every day in class. Likewise, the management of the school should be communicating, organising digitally, and not carrying around folders of papers.

Schools with a "growth mindset" approach also tend to be confident with ICT, but schools that struggle with change less so. The iPad, for example, has often been described as disruptive technology and has challenged existing approaches to technology in schools. This can be seen in the disappearance of ICT suites in primary schools. Teachers don't always have time anymore to take thirty children out of class and spend ages logging into a suite of computers. Now, the tech comes to them in the classroom and is "instantly on". If technology is flexibly integrated into the classroom it should be easier to integrate it pedagogically.

Exploring how that shiny new tech can improve ways of working and reduce workload should involve everyone. In recent years, the shift from email to real-time instant group messaging, for example, services like Slack and Microsoft Teams, have transformed internal school communication, improved the sharing of good practice and saved valuable time. Using Google Meet as a means of having face-to-face video conferences with partner schools without having to leave the campus are examples of saving time and working smarter.

Having an agreed whole-school approach and a core set of skills firmly embedded into everyday teaching practice helps teachers understand what is required of them. Leaders should have a clear idea about digital expectations of their staff as teachers. This might include how they deliver lessons using a screen and stylus, or use an App like Apple Classroom to control the children's devices in class. Leaders also need to be clear on the value of digital outcomes. If "book look/ scrutinise" only focuses on paper outcomes this will quickly have a detrimental effect on the perceived value of learning with technology.

One of the best ways to value the use of technology in school is to celebrate it. This can be managed easily by constantly updating the school website and its social media platforms with examples of children's work and internally by using digital signage. Trilby TV digital signage enables all the teachers in school to add photos, videos, and presentations to a playlist that then plays on the large screen in the school foyer/entrance. Not only does this give visitors a glimpse of the learning in school, it provides an audience for the children's work and raises the value of these outcomes for staff.

#8: TRAIN STAFF SO THEY FEEL CONFIDENT IN USING THE TECHNOLOGY TO ITS POTENTIAL

Author: Tim Lings

The importance of this cannot be overemphasised! Technology is not a 'magic bullet' in the classroom, automatically and instantaneously transforming teaching and learning. Rather, it requires teachers who know their subject, who understand how children learn, and who have a good grasp of just what is possible with technology.

Hopefully, subject knowledge and pedagogy are already being taught and developed in your school, so it's the understanding of technology that is the missing link, and how that interacts with the subjects being taught and how the students are learning.

In a sense, the best thing to have in a school are motivated individuals who know how to use technology for learning and can then share it with the rest of the staff team. This might be through coaching with individual teachers or through running whole-staff training during a staff meeting or INSET day. This needs to be tailored to the needs of teachers of the school and part of a regular programme of staff development. Technology is always changing, as are the members of a staff team over the years, so professional learning with technology is an ongoing task.

There are many resources out there to help as well. One of them is Apple Teacher, an online training programme on the essentials of using iPad and Mac in the classroom. This can be accessed via apple-teacher.apple.com and completed at your own pace. You get to choose to go down the iPad or Mac route and then there is a quiz to earn a badge for each of the core Apple apps (iMovie, GarageBand, Pages, Numbers and Keynote) and then for core skills ('Introduction to iPad', 'Fostering Creativity with iPad' and 'Enhancing Productivity'). Once you earn all eight badges, you are officially an Apple Teacher! If you encourage all staff to try and earn their Apple Teacher status, this means there is a baseline of understanding about educational technology.

There are also Apple Regional Training Centres across the UK and Ireland. These are schools and colleges that offer free iPad and Mac training for educators. Details of these can be found at rtceducationevents.com. You can also follow the hashtag #AppleRTC on Twitter to see what's been happening near you.

There are also a network of Apple Professional Learning Specialists across the UK and Ireland who can design and deliver bespoke training of how to utilise Apple technology in the classroom. Once teachers are shown meaningful ways of use the technology for learning, they can then start to integrate it effectively into the classroom.

#9: TRAIN AND UTILISE STUDENTS IN THE PROCESS

Author: Paul Jackson

"A bad workman always blames his tools."

The resources purchased are only ever going to be as good as the end user's ability to use them. It is therefore vital that for any investment in ICT, the students are involved as much as possible.

Staff training has been mentioned in point 7 above. In addition to this, fully involving students and their skills will greatly enhance any investment, ensuring even better value for money.

The children and young people we work with will often have excellent knowledge and experience of new technology before we do as school staff. Taking age-appropriateness into consideration, involving students in developing a school's vision for ICT, turning this vision into a strategy, and then involving them with the actual purchasing of any equipment will allow them to take ownership of the equipment, growing a long-term respect for and investment in the resources of the school.

One of the best things about introducing new technology to pupils is that their inquisitive nature means they learn how to use it very quickly, meaning we just need to steer their focus so they are able to make the most of the technology to best aid their learning. This can be achieved by keeping them involved in the planning stages and providing training post implementation.

Early investment in training for students (possibly as part of their induction to a school, subject, or year group) and teaching them the basics of any new resource will enable them to access it at a greater depth, enabling their learning to be greatly enhanced.

Students who display a particular knowledge and skill in this area should be valued as 'digital leaders', and effectively trained and empowered to train and support others. They will then act as highly effective role models to other students, allowing any ICT resource the greatest chance of success.

The digital leaders should be partners, who would accompany school staff on any visits to other schools (see point 1 of this report), having prepared the questions they would like to ask prior to the visit, potentially building a network with like-minded students from other schools and educational settings.

Having these 'digital leaders' in your school will provide invaluable support for teaching staff who may feel nervous or apprehensive about utilising new classroom technology. I've witnessed, on numerous occasions, students go to the aid of a teacher struggling with technology, and the benefits both in terms of maximising teaching time and nurturing leadership skills in pupils are numerous and far-reaching.

#10: PLAN YOUR SCHOOL'S DAY-TO-DAY AP-PROACH TO ONLINE SAFEGUARDING

Author: Paul Jackson

Online safety must never be an afterthought and must be key to planning, purchasing, rolling out and the ongoing use of any investment in school ICT.

Any purchase should be in line with a school's ICT strategy, part of which should also be a plan to review the related ICT policies. If it is not part of the plan, a planned ICT purchase is an ideal time to undertake a review of your school eSafety / online safety policy and how any teaching of e-safety is covered in the school's curriculum.

There is no fixed frequency of reviewing a school's policy and approach to e-safety, but reviewing every three years, or as new-technology arrives is an approach that many schools take.

Section 1 of this report mentions visiting another school who has rolled out a similar ICT project successfully. Discussing online safety as part of this visit will provide an insight into any elements that might be difficult to foresee prior to one's own rollout.

It would be irresponsible for schools to give children and young people in their care unlimited and 'unregulated' access to ICT. Consideration must therefore be given to the selection and deployment of a content filter to accompany any new ICT purchase. An existing filter may well be adequate, but as with the policies mentioned above, a new purchase is an ideal time to review this aspect too.

It is important to remember though, that it would be equally irresponsible for children to be 'overprotected' in their school setting, as many children will still have unlimited, unregulated, and unfiltered access to ICT and the internet outside of school.

Schools take different approaches to content filtering. One approach being to not filter out all undesirable words/sites, but to monitor closely in order to recognise when undesirable words are used and sites visited, using this as an opportunity to teach children the dangers of particular sites, and raise awareness of e-safety in a live context.

When introducing a new piece of technology or a new practice, a risk assessment should be undertaken involving ICT coordinators and relevant teachers. Regular updates should be scheduled for all staff to be made aware of current practices around online safety in schools as part of the annual Inset training timetable.

Ensuring that your Data Protection Officer is aware of your ICT policies is essential in particular in regards to disposal of equipment, use of personal data to be GDPR compliant, and online safety protocols for staff and pupils.

There are many useful sites which offer free online safety guidance to schools, including:

https://learning.nspcc.org.uk/research-resources/schools/e-safety-for-schools/ https://www.gov.uk/government/groups/uk-council-for-child-internet-safety-ukccis https://www.childnet.com/what-we-do/our-work-in-schools

What neXt?

I hope you enjoyed reading this report. I recognise that there is a lot of information here and it may feel slightly overwhelming, so if you do want to pick up the phone and have a chat with me about any of these issues, please do not hesitate to do so.

Beyond that, our specialist education team here at Academia can deliver a free Planning Essentials Workshop, either onsite or remotely. We spend 2-3 hours meticulously planning your upcoming ICT project with you and your colleagues in order to ensure that nothing is overlooked. For more information, just contact me via the details below.

Thank you.

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