

Digital Technology Infrastructure Guide for Post Primary Schools

JMB Education Conference 2022

Croke Park

Wed 5th October 2022

PDST Technology in Education

www.pdsttechnologyineducation.ie/technology

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- DTI **main building blocks** - devices, networks/wifi, presentation technologies, learning platforms and cloud services, broadband, technical support, cybersecurity...
- Context: **New Digital Strategy (to 2027) for schools, DLF, DL Planning**
- **Vision: Raising the quality of DTI and technical support for all schools**
- **Simplifying** the management of DTI
- Making DTI **easier to manage**, by **simplifying** the technical aspects

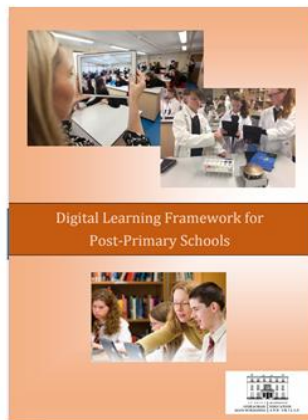
Updated Supports from PDST-TiE:

- Updated advice and supports on DTI areas, **New Projector Framework**
- **New minimum technical specifications** for DTI
- **New technical specification templates** for DTI
- **Guidance and direction for IT Providers to assist them in supporting schools**





Digital Strategy for
Schools to 2027



Digital Learning
Framework for
Schools



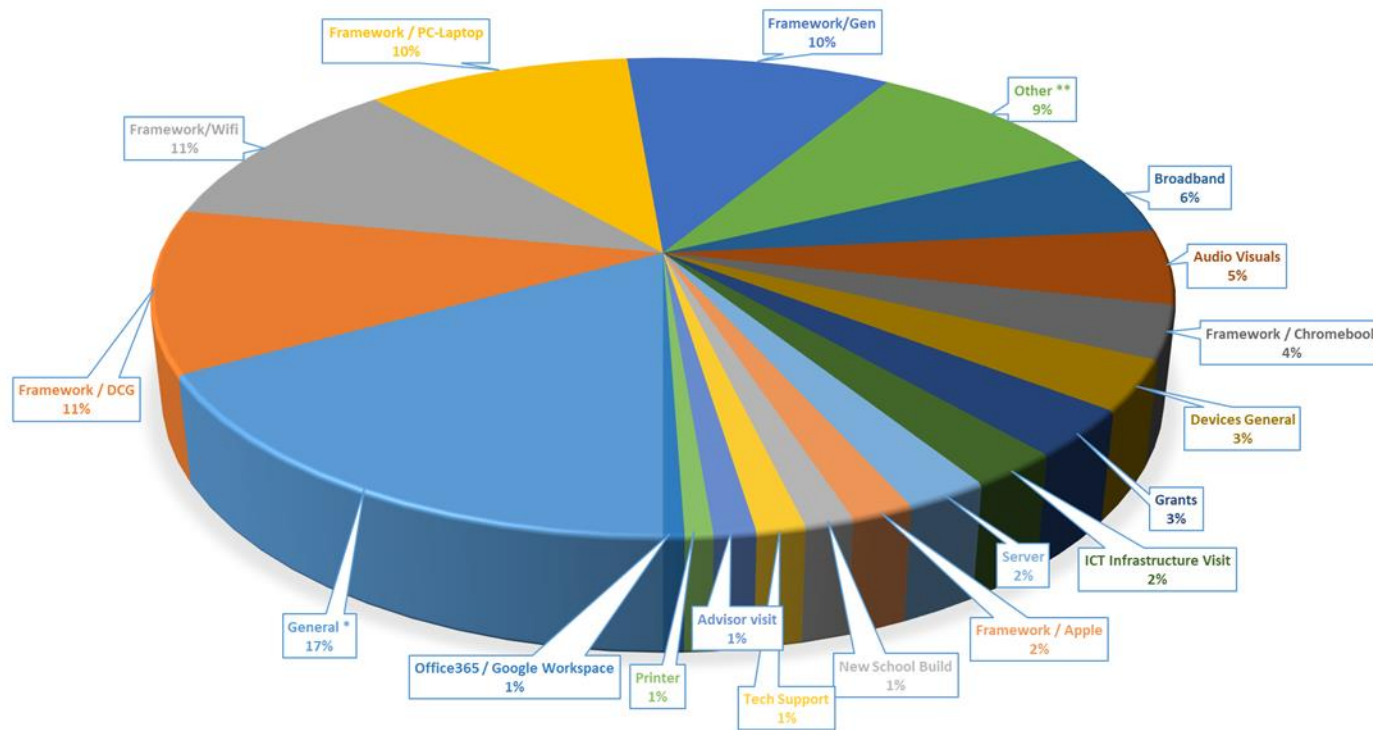
Digital Learning
Planning Guidelines



Digital Learning
Plan

Digital Technology Infrastructure (DTI) Overview

% OF TOTAL CALLS BY CATEGORY
SCHOOL YEARS 2017/2022

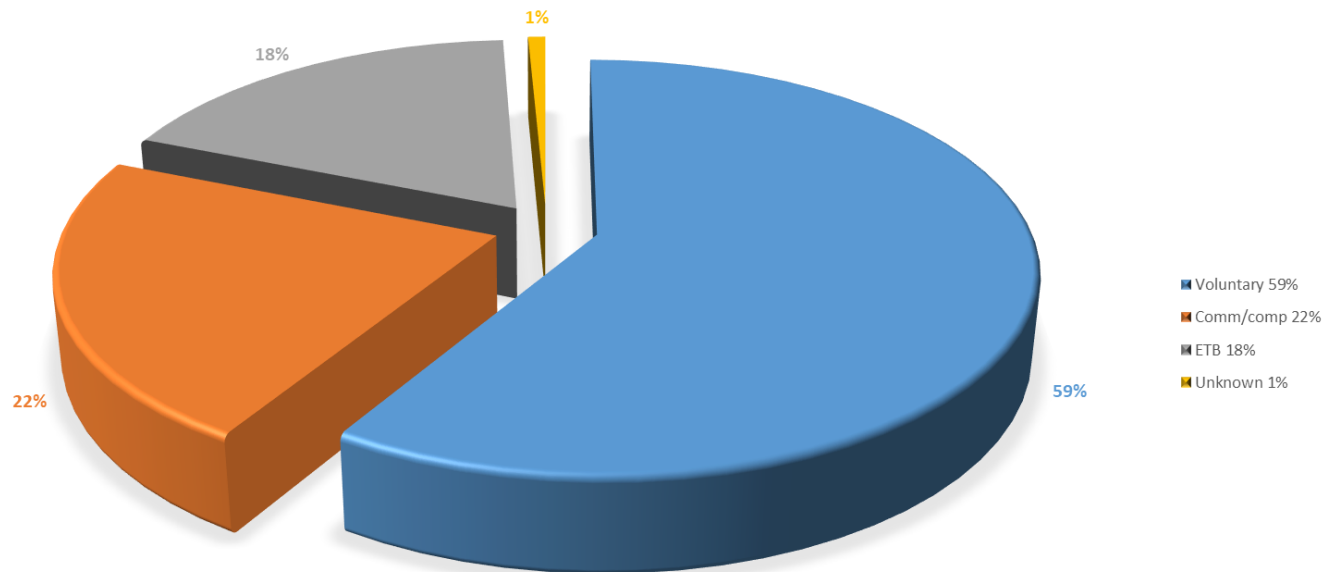


*Gen = combination of above categories ** Other = e.g. MDM's, Website.

Digital Technology Infrastructure (DTI) Overview

PERCENTAGE OF REQUESTS BY SCHOOL GROUP

SCHOOL YEAR 2017 - 2022



Vision

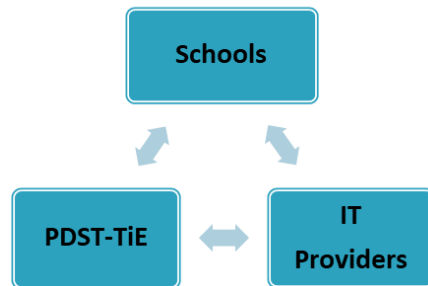
- **Raising the quality of Digital Technology Infrastructure (DTI) and Technical Support for all schools, as this is the most effective way to support teaching and learning**

Strategy and Planning

- All parties including PDST-TiE, Schools & IT Providers need an agreed approach
 - An agreed understanding of school needs, and of the role of DTI in improving teaching and learning
 - A agreed set of priorities
 - An agreed approach to addressing issues
 - Agreed roles and responsibilities

Actions: Raising the quality of DTI by:

- DTI minimum technical specifications, templates, procurement frameworks
- **Engaging with Schools** to increase awareness of good DTI practice, improve DTI related processes, including technical support
- **Engaging with IT providers** to increase awareness of schools needs, improve consistency of services and improve processes



Blended Learning - Learning Platforms:

- Increased use of blended Learning, enabled by cloud based Learning Platforms.
- Influenced 'positively' by Covid related factors since March 2020.
- Increased use of 'servers/services' in the cloud



Flexibility: Wifi enabled school

- Mobile devices increasingly the norm for schools
- Decrease in use of 'traditional' computer rooms, innovative use of space for DTI



Increased access via student devices:

- Desktops > Laptops > Trolleys, Tablets, Hybrids, phones
- School shared devices > personal devices, 1:1, BYOD

Presenting in the Classroom:

- **New Projector Framework (May 2022):** Support 5 types of Projectors
 - Mobile, Short-Throw, **Laser**, Interactive, **High Lumens**
- Interactive Flat Panels (IFPs), Mirroring devices, Present from anywhere in class



Cybersecurity:

- Increased risk of cyberattack, requires more focus on cybersecurity to protect school data



Longer delivery / delays with DTI equipment

- Due to global Covid ongoing impact, global manufacturing and logistics issues



Teacher / Student Devices

School Network/ Wifi

Learning Platforms, Cloud based services

Projectors, Visualisers, Interactive Flat Panels Screen Mirroring

Printing



Broadband Connection



Technical support of 'existing' DTI

Procurement of 'new' DTI

Minimum Specifications

CyberSecurity

Goal: Improving DTI to support Teaching and Learning

Student devices cannot consistently connect to the learning platform – I don't know why?

How should we protect important school data. How and where should it be backed up.

Do we need new projectors or can the existing ones be upgraded?

Why does 'procurement' have to be so difficult?

How do we check if there are 'weak points' in our school network/wifi

Is School Broadband slow sometimes or could it be something else?

What 'improvements' did our technical support provider carry out last week. We haven't received an update, Did they work?

Our IT Provider said that a new server is required – How do we know if this is the case?

Is our Learning Platform set up correctly, could it be improved?

Is Managed Print Services a better approach to having multiple printers in the school?

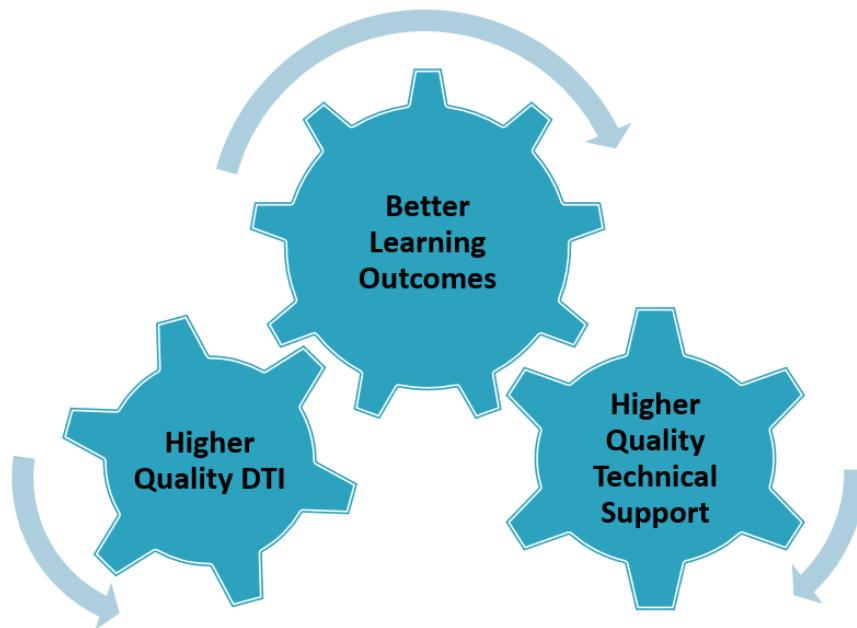
We're concerned that our IT support provider doesn't have the technical expertise to resolve key issues

We keep hearing more about cybersecurity, what do we need to do?

- DTI should **always support & improve learning outcomes**
 - Firstly consider teaching and learning **outcomes in school planning**
 - **Only then** consider **suitable DTI to support these outcomes**
- Overall objective is to **improve the school DTI** to make it fit for purpose, **more robust** and **more effective** in supporting learning outcomes
- **Simplifying DTI technical aspects** for schools
- **Each school is different** (size, level of DTI, staff capacity etc)
 - Different learning **priorities and challenges**
 - Different levels of **expertise/capacity in DTI**

Benefits of high quality, robust DTI

- Supports improved **learning outcomes**
- **Allows teachers to** focus on teaching and learning rather than on technology issues
- Facilitates **school leadership and digital learning teams** to focus on teaching and **learning**
- A high quality, robust DTI requires **lower levels of technical support**, leading to cost savings
- Setting minimum technical specifications helps **improve quality of DTI**
- Allows more time for schools and IT providers to **focus on preventative maintenance & process improvement rather than on 'firefighting'**
- Facilitates better working **relationships with IT providers - less stressful** for all



Managing DTI - Roles and Responsibilities

DTI Roles	Responsibilities regarding DTI	Technical Role (*)
School Principal	Provide overall leadership and priorities to all parties, overall decision maker, funding approval, non-technical role	No
Deputy Principals, Digital Learning Team, ICT Coordinating teacher	Support Principal leadership, provide input regarding priorities, may involve some technical responsibilities, where this capacity exists within a school	Where capacity exists
IT Providers	Technical role, respond to school priorities and requests, provide technical solutions based on schools priorities	Yes
PDST Technology in Education - Digital Technology Infrastructure Team	Provide objective technical and non-technical advice and guidance to schools, respond to school priorities and requests	Yes
Other	As may be necessary	

- (*) **Some schools may have technical IT expertise within their staff**, for example where a staff member may have IT qualifications, worked in IT, or has a particular interest in technical aspects of IT, however in general **most schools don't have that level of expertise**.

Technical Support – Roles and Responsibilities

Examples of Technical Support activities that could be carried out by school staff, where capacity exists to do so	Technical Support activities which are typically carried out by IT providers
Basic troubleshooting regarding a wide range of situations where problems occur including broadband . Carrying out activities as directed by the Schools Broadband Service Desk.	Detailed troubleshooting regarding a wide range of situations where problems occur
Checking cabling where issues occur. Double-checking that problems exist before they are escalated to IT providers	School Network troubleshooting, network upgrades, Network segmentation using VLANs; WiFi troubleshooting; IT upgrades and configuration changes
Ensuring that school Anti-Virus software is up to date and that scanning runs are being run regularly outside of core school hours	School Server related issues. Firewall related issues. Updating/re-configuration of network, WiFi, server, firewall etc
Regular checks that software is up to date	Security checks on devices, network and WiFi
Basic level of support for Printers , checking power and cabling, error codes, paper blockages, toner cartridges, consumables	Managed Print Services (MPS) . Second level support on Printers. Remote monitoring of DTI
Basic level of support for Projectors , checking power and cabling, error codes, lamp unit. Facilitating remote access (RA) for IT providers	Second level support on Projectors.
First level support for a number of agreed technical support activities.	Second level support for all agreed areas.
Updating content to the school website	Ensuring school website is securely hosted, backed up, and software is up to date

On Technical Specifications

'If schools knew the specifications to use when seeking quotes that would help a lot'

'Is there recommended specifications for the different technology areas, that schools can use'

On evaluating Responses from IT Providers

'How can we evaluate technical responses from IT companies if we don't have the necessary technical expertise'

'For example if three companies provide 3 different technical solutions, how are we supposed to know which one best meets our needs'

On Technical Support

'There's a lack of consistency with IT companies, both in terms of the advice they give, the quality of services they provide, and the prices they charge us. How do we know if our provider is providing a good service'

'What should we be looking for in a good tech support supplier'

'How can we decide between good and poor IT companies so we can select a good one'

On checking current IT set-up

'is there recommended advice from PDST on how we can get our IT set-up checked out'

Challenge of managing the technical aspects of DTI

- **Understanding technical aspects** of DTI remains a **major** challenge and a **‘barrier’** in planning and development
- When **specifying and evaluating DTI**, it’s difficult for schools to understand the **technical aspects including DTI specifications**
- Different IT providers may recommend **different ‘solutions’, which can confuse schools** as to which one is best or **more suitable** for their school
- How can **‘non-technical’ schools select appropriate ‘solutions’** without having technical expertise **within the school?**
- Schools may **delay** or postpone decisions if they are not **sufficiently confident** in taking action, resulting in **no improved DTI or learning outcomes**

Two main challenges for schools:

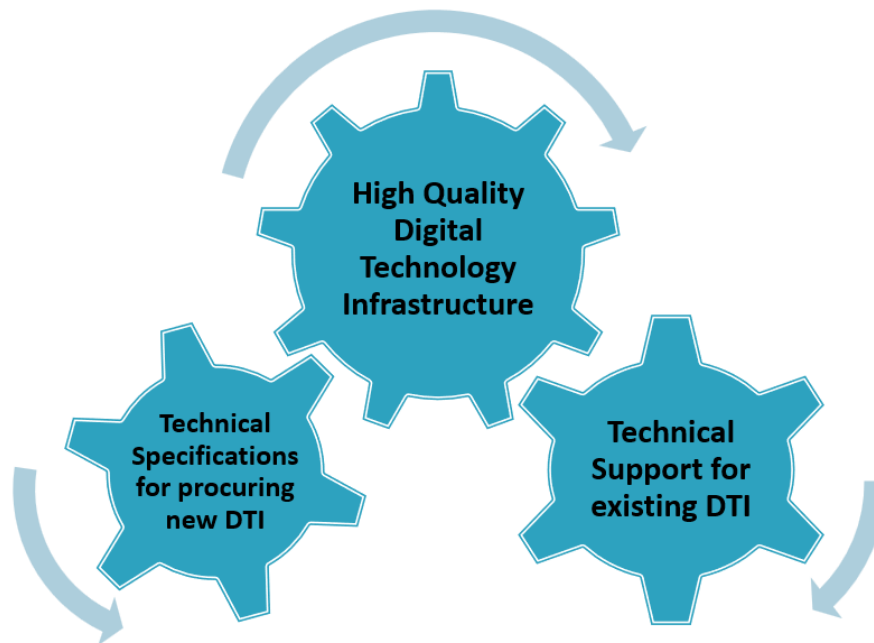
1. When procuring new DTI:

- What **minimum technical specifications** to use when **specifying** equipment
- **After receiving responses/quotes** from IT providers, schools need to **evaluate** the responses including the **technical aspects**

2. Technical support for existing DTI

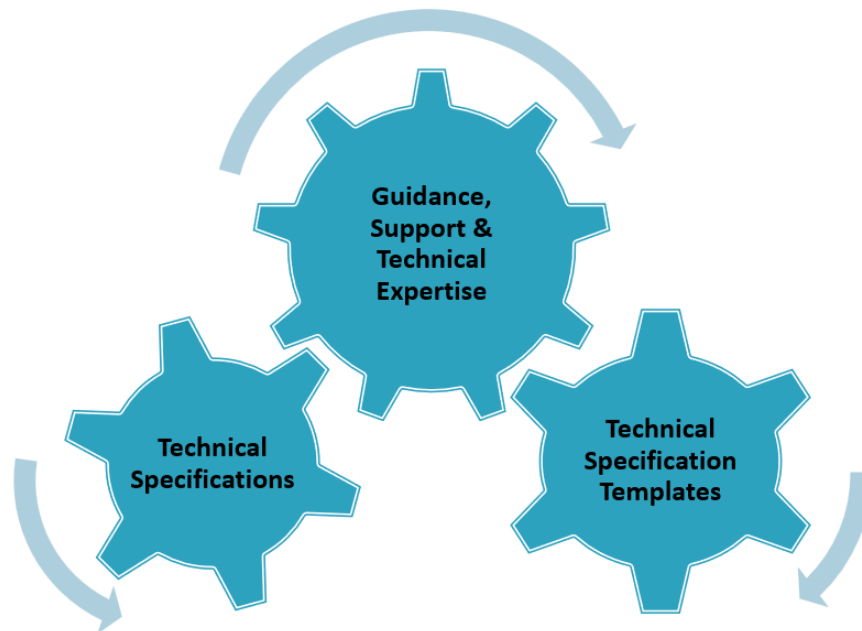
- Managing the technical aspects
- **Lack of consistency** from IT providers

How can schools **who don't have the necessary technical expertise effectively** manage these challenges?



Simplifying the technical aspects of DTI Procurement

- PDST-TiE objective is to **simplify** the technical aspects of **specifying** and **evaluating** DTI for schools
- PDST-TiE recommend **technical specifications** for all DTI areas
- PDST-TiE provide technical specification **templates** for all DTI areas
- Schools are recommended to use these technical templates as a basis to **seek quotes from IT providers**
- **Technical advice** is available from PDST-TiE to support the **evaluation** process
- Link: <https://www.pdsttechnologyineducation.ie/technology-infrastructure/technical-and-purchasing-considerations/>



Having clear objectives for each DTI area helps clarify its purpose

DTI Area	Objective specific to this Digital Technology Infrastructure (DTI) Area
School Network, including local firewall	The school network is the 'internal connectivity backbone' for all other ICT infrastructure within the school. A reliable, future proofed school network is critical.
IT Cabinets, Cabling	Well organised, tidy, well maintained and professional set up will reduce IT issues
Network Diagram	This helps the school better understand their school network
School WiFi	WiFi is required throughout the school so that teachers and students can access online content from anywhere. A reliable, future proofed WiFi system is critical.
Teacher Computing Devices	Teachers devices need to be fit for purpose to support high quality teaching and learning outcomes
Student Computing Devices – which are owned by the school	Suitable devices need to be available to meet the learning needs of students throughout the school day
Learning Platform set up and configuration	A suitable Learning Platform is required to meet teaching and learning objectives
School Projectors, Interactive Panels, Visualisers (Audio Visual)	High quality technology for 'Presenting in the Classroom' is critical in classrooms so that teachers/students can present high quality engaging content
School Server (if applicable)	School Server may be required to support specific IT activities
Printing in the school	A high quality Managed Print Service (MPS) helps support teaching and learning
Data Backup and restore process, Cybersecurity / Data Management review	Ensuring that school data is protected from a range of risks including cyberattack, equipment failure, and other related data loss risks
Anti-Virus (AV) Software	Anti-Virus software for Windows devices helps protect devices from 'malware' attack

Recommended minimum specifications for each DTI area helps achieve its objective

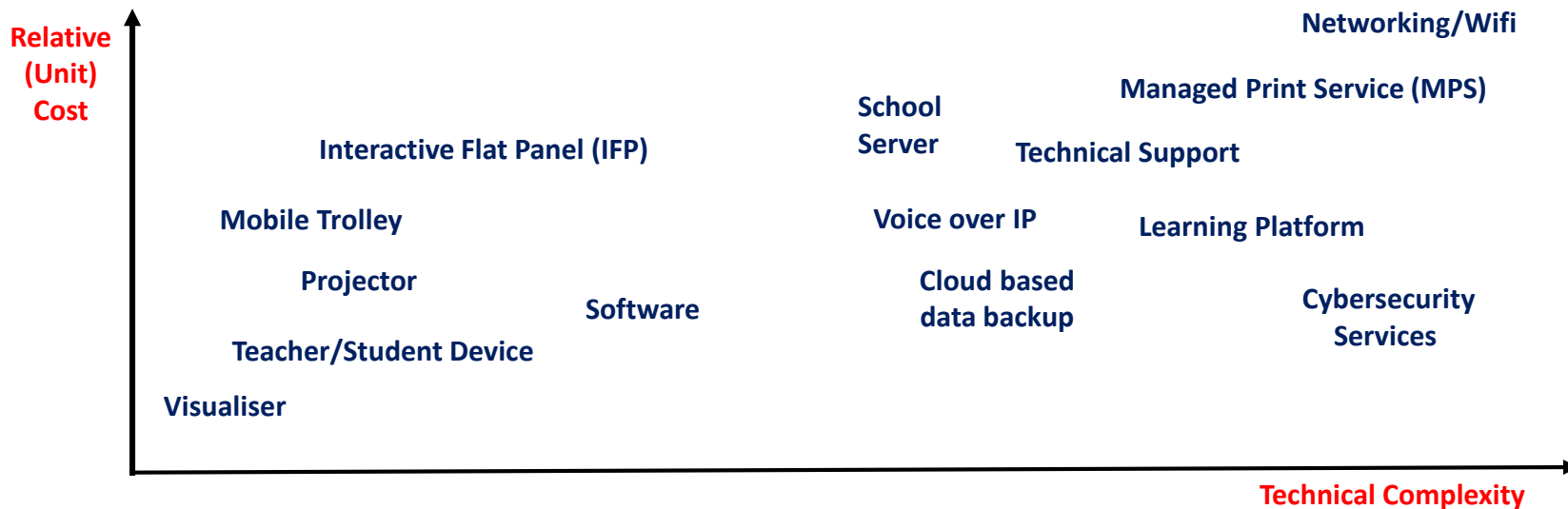
Digital Technology Infrastructure Area	Summary of Recommended Minimum Technical Specifications in each area
School Network, including local firewall	Gigabit Ethernet throughout the school; No daisy-chaining of switches, Ethernet LAN cable runs not to exceed 100Metres; Fibre between buildings; Firewall set-up/configuration to be reviewed; Network segmentation / VLAN structure is recommended where appropriate
IT Cabinets, Cabling	General cabinet and cabling areas to be organised, tidy, with clear labelling for equipment, switches, cables, patch panels
Network Diagram	A school network diagram to be provided
School WiFi	A modern centrally controlled (ideally cloud based) WiFi system; Schoolwide coverage; Separate SSIDs to be in place for Admin, Staff, Students, Guests
Teacher Devices	Teacher devices to be checked to ensure they are fit for purpose and up to date ; Windows devices should be a minimum of Windows 10 Professional, 8GB memory; SSD Drive of minimum 512GB; Specs provide for Chromebooks and iPads/Apple devices
Student Devices – which are owned by the school	Student devices to be checked to ensure they are fit for purpose and up to date; Windows devices should be a minimum of Windows 10 Professional; 8GB memory; SSD Drive of minimum 256GB ; Specs provide for Chromebooks and iPads/Apple devices
Learning Platform	Learning Platform set up and configuration to be reviewed; Recommendations to improve processes to be outlined to the school
School Projectors, Interactive Panels, Visualisers (Audio Visual)	Projectors and other AV equipment review to be carried out and any recommendations provided
School Server (if applicable)	Server to be set up securely to reduce risk of cyberattack; Server hardware to be checked to ensure it has the resources to support school demand; Server software to be up to date; Server backup to be reviewed.
Printers	Printer review to be carried out and any recommendations provided. A high quality Managed Print Service (MPS) helps support teaching and learning
Data Backup and restore process (Cloud service to be recommended)	Data Backup set up and configuration to be reviewed; Recommendations to improve processes to be outlined to the school
Cybersecurity Review, Data Management review	Cybersecurity set up and configuration to be reviewed; Recommendations to improve processes to be outlined to the school
Anti-Virus (AV) Software	Anti-Virus software for Windows devices to be checked to ensure it is licenced, up to date and fit for purpose, and that anti-virus updates are happening as planned
For more detailed specifications	More detailed specifications on some areas can be accessed at www.pdsttechnologyineducation.ie/technology

PDST-TiE DTI Support Matrix: Advice, Specifications, Templates, Frameworks

Digital Technology Infrastructure areas	Advice and Support	Technical Specifications	Technical Specification Templates	Technical Advice on Evaluation	Procurement Framework in place
Laptops, Desktops (Windows devices)	☑	☑	☑	☑	☑
Chromebooks	☑	☑	☑	☑	No
iPads	☑	☑	☑	☑	☑
School Wifi	☑	☑	☑	☑	No
Schools Network	☑	☑	☑	☑	No
Projectors	☑	☑	☑	☑	☑
Interactive Flat Panels (IFPs)	☑	☑	☑	☑	**
Managed Print Service (MPS)	☑	☑	☑	☑	No
Telephone System (VoIP)	☑	☑	☑	☑	No
Cloud based back-up system	☑	☑	☑	☑	No
Technical Support	☑	☑	☑	☑	No
Learning Platforms	☑	☑	☑	☑	No
Data Management / CyberSecurity	☑	☑	☑	☑	No
Other Specific Areas (eg Servers)	☑	☑	☑	☑	No
Digital Technology Infrastructure Audit	☑	☑	☑	☑	No
** (Currently in Progress)					

Link: www.pdsttechnologyineducation.ie/en/Technology/Purchasing-Frameworks/

- Procurement: Ranges from relatively **straightforward** to **more complex**
- From easy to **specify** and **evaluate** to more challenging
- Cost depends on quality of existing school DTI and school size
- **PDST-TiE technical specification templates are** available for **all situations**



Summary: Issues, Impact, PDST-TiE Supports

DTI related issues affecting schools	Potential Negative Impact	PDST-TiE Supports
Schools may receive different technical DTI advice from different parties including IT providers	The different technical advice they receive may confuse schools, which may negatively affect their DTI related decisions	We provide schools with supports including recommended minimum technical specifications, templates and processes
Schools lack technical DTI expertise, including technical specifications when trying to 'specify' their requirements	Schools may be unable to clearly specify the technical aspects of the DTI that they are seeking to procure	We provide schools with recommended minimum technical specifications and templates which they can use to 'specify' their requirements
Schools may have difficulty in 'evaluating' proposed technical solutions from IT providers	Schools may make poor choices in selecting solutions	We provide advice and support to schools to assist in 'evaluating' technical aspects of proposals from IT providers
Ad-hoc / different technical requirements/specifications being used by schools when seeking quotes from IT providers	If schools issue ad-hoc specifications which are inconsistent with the PDST-TiE recommended approach, they risk receiving proposals, and implementing 'solutions' which may not meet their needs	We provide schools with recommended minimum technical specifications, templates and processes which they can use to seek quotes from IT providers
Different technical 'solutions' being proposed to schools by IT providers	The different technical solutions may confuse schools as to which 'solution' is most appropriate for their situation.	We provide a 'Guide for IT Providers on supporting DTI in Schools'. This includes recommendations to IT providers as to how to more effectively support schools
Lack of consistency from IT providers in providing high quality a) technical expertise and b) services and processes	This can lead to a wide range of problems, poor advice being given, poor 'solutions' being put in place, poor solutions lead to increase in levels of technical support required, which in turn is poor value for money,	PDST-TiE plans to engage more proactively with IT providers, promoting the 'Guide for IT Providers on Digital Technology Infrastructure in Schools', to assist them in providing more consistent services to schools



- **Reactive, fire-fighting, 'break-fix' only**
- **A low-medium level of technical expertise**
- **Ad-hoc, unplanned**
- **Lack of process (logging, tracking)**
- **Poor communications, vague, lacking detail**
- **Expensive, unclear billing**
- **Poor track record**
- **Stressful, poor relationships, lack of trust**

- **Strategic, planned, proactive approach**
- **Preventative maintenance**
- **Strong technical team and expertise**
- **Clear processes (logging, tracking)**
- **Good verbal and written communications,**
- **High quality track record with other schools**
- **Good value for money, itemised billing**
- **Strong relationships, high level of trust, less stressful**

- There's a lack of consistency from IT Providers, **which affects the quality of DTI**
- **'Quality'** IT Providers
 - High levels of **technical expertise across a wide range of areas**
 - **Professional approach**, strong customer focus
 - High quality processes in place
 - Transparent, clear verbal and written communications
 - **Good value** for money, though not cheap, clear itemised billing
 - Objective: A **reliable and trusted partnership** approach with IT providers
- **'Other'** IT Providers
 - **Poor or inconsistent levels** of technical expertise
 - Ad-hoc, un-professional, lack customer focus
 - Poor quality processes in place
 - Not transparent, poor verbal and written communications
 - **Poor value** for money, **unclear billing**
 - **Alert:** Consider seeking a new 'quality' IT provider
- **PDST-TiE to engage more proactively with IT providers**, promote the DTI guidelines, including recommended minimum technical specifications, templates and processes

- **How can schools know** if their DTI is fit for purpose, meets min' technical specifications
- **If everything seems to be working OK, is that sufficient ?**
- Schools need expert technical input to check DTI
- Even if everything is 'working', that's good, but there may be other **'hidden' issues**
- **DTI instability can result from factors such as:**
 - increased usage/demand, degraded performance, external factors, undiagnosed problems, configuration errors, out of date software, hardware issues, increased cybersecurity threats etc
- Unless all DTI areas have been checked / audited, risks remain
- **An Audit of DTI is necessary to ensure stability**
- **It supports the objective of achieving recommended minimum technical specifications**
- **DTI Audits need to be carried out by professional IT provider(s)** with the relevant levels of technical expertise, and who have a good track record with schools

- An DTI audit **is the PDST-TiE recommended process** to review/check school DTI status
- The audit is necessary to ensure DTI **stability** and **meeting min' technical specifications**
- **Following the audit, an audit report is generated by the DTI provider which should include:**
 - Details of the **work recommended to resolve issues**
 - Details to bring each ICTI area up to **recommended minimum technical standards**
 - **Each DTI area to be classified** as either 'fit-for-purpose' or highlighting the level of work required (eg., minor/significant upgrade, software upgrade, further investigation etc.,)
 - **Assign priority/urgency levels** to the recommended changes (eg., P1, P2 etc)
 - Providers provide itemised **costed quotes** on the recommended changes in each area

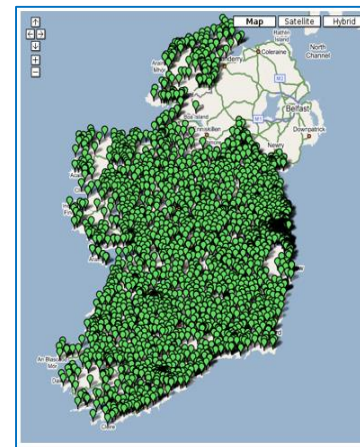
- This example shows a **one page summary overview** from a typical DTI audit report.
- A **one page snapshot** of costed recommendations

Digital Technology Infrastructure (DTI) Audit: Summary Checklist	Fit for purpose	Minor upgrade	Needs software upgrade	Significant upgrade	Not fit for purpose	Further investigation may be required	Urgency / Priority	Notes: Details of recommended changes	Estimated Cost
School Network				X			P2	5 switches need upgrade to 1Gbps	
School Wifi			X	X			P1	WiFi APs need to be upgraded	
Teachers Devices						X	P1	Six teachers devices need upgrade	
Student devices						X	P3	A number of options provided	
Learning Platform	X					X		Microsoft 365/OneNote	
Projectors	X							All projectors checked and OK	
Printers / Photocopier					X		P2	Managed Print Service (MPS)	
Cloud based backup			X		X		P1	Upgrade recommended	
CyberSecurity / Data Risk			X	X		X	P1	Recommendations detailed in Report	
Overall Costs									Totals

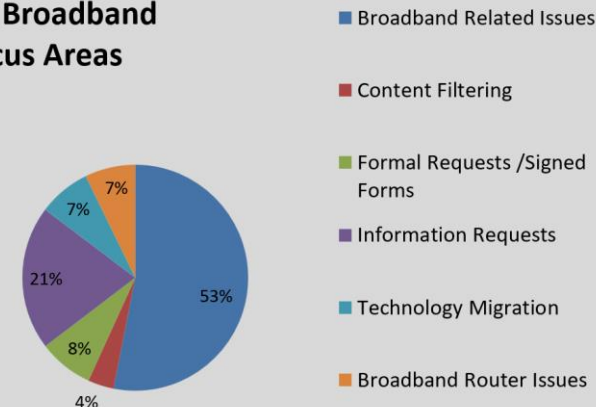
- The audit report provides **details of the work necessary**
- Details to bring each DTI area to **recommended minimum technical standards**
- Recommendations and **costs** in each of DTI areas
- Highlights urgent or priority issues**

P1: Priority 1
P2: Priority 2
P3: Priority 3

- **Post-Primary:** Min 200Mbps, upgraded based on usage
- **Technologies** - Fibre, cable, high quality wireless
- **Content Filtering**
 - Choice of 6 content filtering levels
 - Two levels with a school (eg. staff and pupils)
- **Integrated Firewall**
 - Filtering of malware, viruses
 - No need for expensive local firewall
- **Support for Voice over IP (VoIP)**
- **Schools Broadband Service Desk**
 - 1800 33 44 66
 - Email: broadbandservicedesk@pdst.ie



Main Broadband Focus Areas



- Recommended computing devices available for teachers & students
- Minimum technical specification templates for devices are available to schools to seek quotes**
- Procurement Frameworks available** for laptops, desktops, and iPads; minimum specifications template available for chromebooks



iPad (iOS)
(Apple)



Chromebook
(Google)
(Available from
a range of suppliers)



Windows
(Microsoft)
(Laptops, Surface)
(Surface available from
Microsoft, Laptops from a range
of suppliers)



Hybrids
(Available from a
range of suppliers)
'Hybrid' devices

Digital Technology Infrastructure areas	Advice and Support	Technical Specifications	Technical Specification Templates	Technical Advice on Evaluation	Procurement Framework in place
Laptops, Desktops (Windows devices)	✓	✓	✓	✓	✓
Chromebooks	✓	✓	✓	✓	No
iPads	✓	✓	✓	✓	✓

Link: <https://www.pdsttechnologyineducation.ie/technology-infrastructure/computing-devices/>

- **A new Projector Procurement Framework** has been put in place to make it easier for Schools/ETBs to purchase high quality, fit for purpose projectors from approved quality providers.
- **Five type of projectors are included**, including Portable/Long Throw, Ultra Short-throw (both interactive and non-interactive), Laser Projectors (long lifespan), and High Lumens (for school halls or larger areas).
- **Schools can order Projectors from approved suppliers**, without having to seek quotes from other suppliers.
- **Technical Specification templates are available to seek quotes**
- **For more details go to <https://www.pdsttechnologyineducation.ie/projectors>**

Digital Technology Infrastructure areas	Advice and Support	Technical Specifications	Technical Specification Templates	Technical Advice on Evaluation	Procurement Framework in place
Projectors	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

- **Flexibility of presentation and engagement options** for teachers and students
- **Present from anywhere in the classroom (mirroring)**
- Increases collaboration and engagement in class
- While Interactive Flat Panels (IFPs) are an option for post primary schools, their use is limited due to their cost
- In terms if interactivity IFPs compete with interactive projectors as a tool to increase interactivity in classrooms

Link: <https://www.pdsttechnologyineducation.ie/technology-infrastructure/presenting-in-the-classroom/>





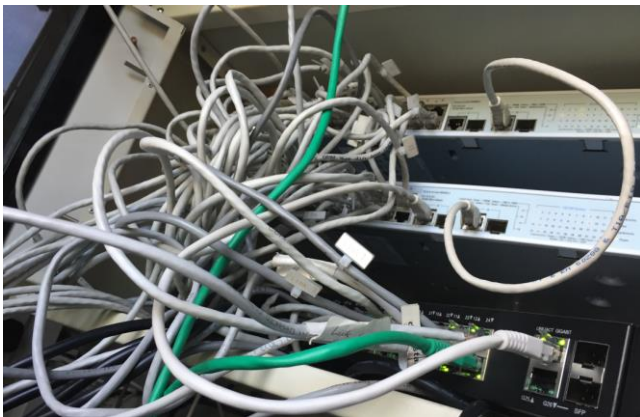
Poor Quality WiFi System

- Unreliability issues, sometimes unable to connect
- Not available throughout the whole school
- Unreliable supporting **full classrooms** of mobile devices
- May be an older system
- Needs a **high level of technical support** to keep working
- Low levels of staff and student satisfaction
- Ad-hoc technical support system

High Quality WiFi System

- Modern WiFi system (cloud based controller)
- Highly reliable
- Available throughout the whole school
- Reliably supports full classrooms of mobile devices
- **Scalable, future proofed**
- Requires **low levels of technical support**
- High levels of staff and student satisfaction
- Supported by a high quality IT Provider

- **Fit for purpose WiFi** connectivity is critical for schools
- **Post Primary Schools are one of the most demanding environments for WiFi**
- **WiFi systems must be fit-for-purpose for a school multi-user learning environment**
- **WiFi systems suitable for home/domestic use are not suitable for schools**
- **Suitable WiFi providers need to have a good track record with schools, and be able to supply references from other schools where they have installed and support similar systems.**
- **The Department of Education's WiFi procurement framework was in place from 2016 to 2020, however it has expired, as frameworks are generally not allowed to be in place for more than 4 years. Planning is underway for a new WiFi procurement framework which is hoped to be in place by mid-2023.**
- **Recommend schools use PDST-TiE technical specifications and templates**
- **Schools seeking advice or considering purchasing a new WiFi system may contact PDST-TiE at ictadvice@pdst.ie**



- **Unplanned, ad-hoc, unprofessional**
- **Firefighting** when problems occur
- **Difficult to troubleshoot**
- High operational cost (TCO)
- Lack of ownership
- Unstable
- Negative impact on whole school

- **Recommended minimum specifications**
- **Planned**, organised, professional
- Uses **best practice approach**
- Documented – updated **network diagram**
- Designed to reduce downtime
- **Low operational cost (TCO)**
- Stable, future-proofed

Most Post Primary schools use these two Learning Platforms

PDST Website: Google link:

<https://www.pdst.ie/DistanceLearning/Platforms/google>

Direct link to Google:

<https://edu.google.com/workspace-for-education/editions/overview/>

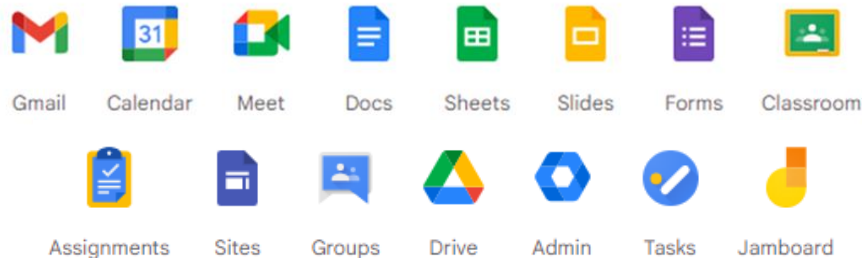
PDST Website: Microsoft link:

<https://www.pdst.ie/DistanceLearning/Platforms/Microsoft>

Direct link to Microsoft:

<https://www.microsoft.com/en-ie/education/products/office>

Google Workspace for Education



Microsoft 365/ OneNote





- Limited range of platforms, applications
- High **initial and ongoing costs**
- Requires significant levels of tech support
- **Physical security** risks
- Power & licence costs
- **Limited scalability**
- Limited access from outside of school
- Increased **CyberSecurity** risks

- **Simpler model-enabled via high speed broadband**
- Wider range of platforms, **applications**
- **Access** anytime, anywhere, on any device
- **Scalable** model, secure
- Range of **cost models** including 'free'
- Reduces tech support & licence issues
- No power required
- Lower **CyberSecurity** risks

Improving Printing Services



<http://www.isbssiteseller.com/managed-print-services-mps.html>



<http://www.managedprintuk.com/managed-print-solutions.php>

- Printers are **purchased as required** (range of manufacturers, models ..)
- **Low initial printer cost, high running cost** (consumables)
- No control on level of printing, metrics
- **Lack of standardisation** - consumables
- **Firefighting** as problems occur
- Waste

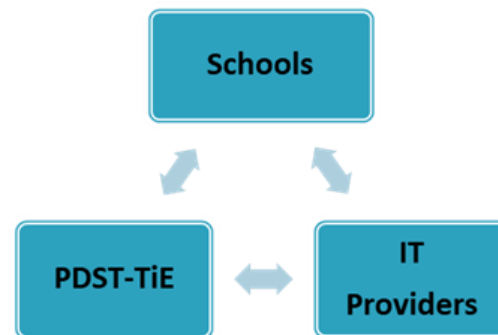
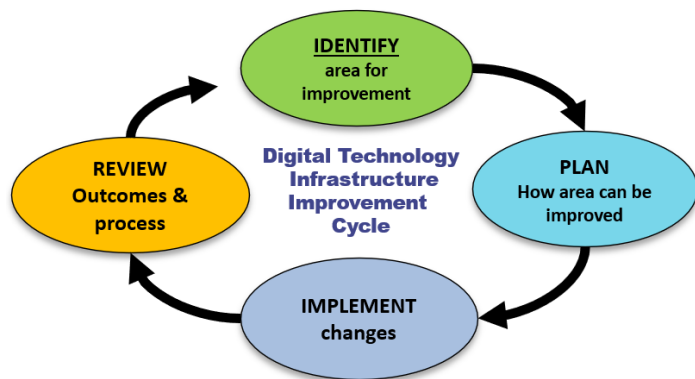
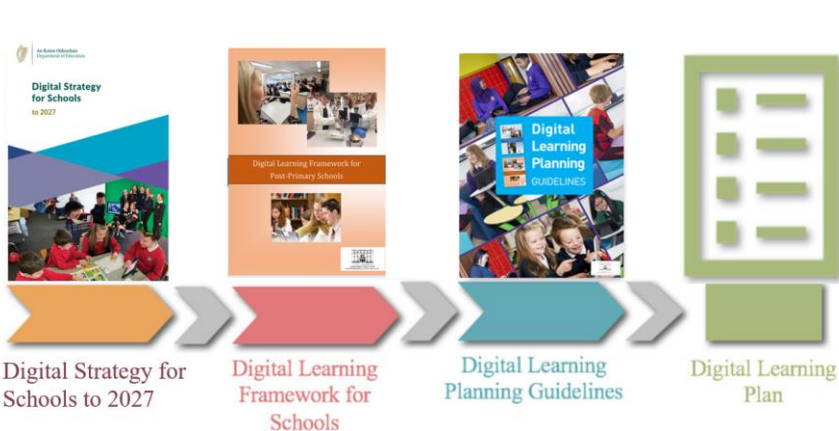
- Managed **Print 'Service'**
- Printers are **not purchased**
- Lower and more predictable costs
- Control on level of printing, metrics
- Free print audit
- **Environmentally friendly**

- **Data and cybersecurity are concerned with managing school data to make sure it is secure, and to protect it from being deleted, lost or stolen.**
- From a school perspective data security aims to protect school systems, devices and the data stored on these systems from data loss, damage or theft.
- **Cyberattacks are attempts carried out over the internet by third parties to steal or compromise systems or data.**
- Cybersecurity uses technologies, processes and controls to protect systems, networks, devices and data from cyberattacks. It aims to reduce the risk of cyberattacks and protect school data from attack.

Servers in Schools

- **Having a school based server can increase the risk of a cyberattack.**
- PDST-TiE Website Link:
- <https://www.pdsttechnologyineducation.ie/technology-infrastructure/data-security/>
- For additional advice and guidance schools can contact PDST-TiE at ictadvice@pdst.ie

Summary: A planned approach to improving DTI





Technical and Purchasing Considerations ▶

Networking & WiFi ▶

Data and Cybersecurity ▶

Computing Devices ▶

Presenting in the Classroom ▶

ICT Grants ▶

Online Learning ▶

Schools Broadband Programme ▶

Technical Support ▶

[Home](#) » Digital Technology Infrastructure

+ Advice and support for schools

We provide guidance and support for schools on suitable digital technology infrastructure, including computing devices, school networking and wifi, projectors & interactive flat panels, learning platforms and technical support. We also provide a single point of contact and support for 'Schools Broadband' via our Schools Broadband Service Desk.

Technical & Purchasing Considerations



Guidance and support on purchasing digital technology infrastructure

[FIND OUT MORE](#) ▶

Networking & WiFi



Guidance on Networking and Wifi for schools

[FIND OUT MORE](#) ▶

Data and Cybersecurity



Guidance on Data and Cybersecurity

[FIND OUT MORE](#) ▶

Link: www.pdsttechnologyineducation.ie

Thank you

For Digital Technology Infrastructure Guidance and Support:

www.pdsttechnologyineducation.ie/technology

Internal School DTI queries: ictadvice@pdst.ie

Broadband specific queries: broadbandservicedesk@pdst.ie

PDST-TiE Digital Technology Infrastructure team:

- Helen McKeon, Susan Sainsbury (Schools Broadband)
- Deirdre Redmond (Schools DTI)
- Tom Lonergan (both areas)

**PDST Technology in Education,
Based in Dublin City University (DCU)**