



Jisc

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## Does your IT support your AT?

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Jisc is the UK **higher, further education** and **skills** sectors' **not-for-profit** organisation for **digital services** and **solutions**

Jisc

We...

Provide trusted **advice** and **practical assistance** for universities, colleges and learning providers

Negotiate **sector-wide deals** with IT vendors and commercial publishers

Operate **shared digital infrastructure** and **services**

# Our customers and users



452

Colleges



160

Universities



956

Skills providers

18 million

Users

## Structure:

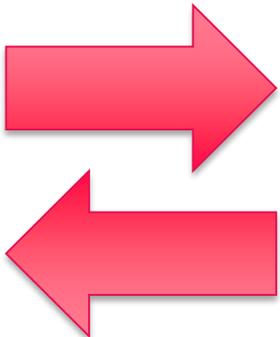
- » Context.
- » Evidence.
- » IT and AT working together.
- » Models for AT/IT delivery
- » Strategy and planning will help.
- » Options for technology delivery.
- » What can I do?
- » What support is there?

## A brief background ...

- » Employed by Jisc as a subject specialist from September 2015
- » Worked at Beaumont College for more than 15 years
  - › Developed an integrated Technology service at Beaumont, inclusive of:
    - › Mainstream technology (IT)
    - › Assistive Technology (AT)
    - › E-learning / Technology Enhanced Learning
    - › MIS (Management Information Systems)



nimblestorage



## It's about more than just having a reliable system

- » Colleges do need reliable basic IT systems
  - › Wired network, Wi-Fi, internet connections etc.
  - › Security is important, but should not trump usability.
  - › Systems configured in a supportive way.
- » It's also about a **timely, responsive and supportive service offer**
  - › The typical College IT team will have multiple pressures / priorities.
  - › The number of staff that they have may be a concern.
  - › The resources they have to hand may be low.

## Specialist Colleges should be specialist

- » Assistive technology provision allows students to:
  - › Access the curriculum at all (e.g. a communication aid user)
  - › Access the curriculum at a higher level (e.g. those needing literacy support software)
- » Allows students improved:
  - › Independence
  - › Access to communication
  - › Access to the environment
  - › Access to leisure opportunities, enjoyment and fun!

## Specialist Colleges should be specialist

- » Assistive technology provision should include:
- » A detailed needs based assessment
- » Inter, multi or even trans-disciplinary working
  - › SLT, OT, PT, AT social care staff and education staff working together
- » Support provided to the student and the staff they are supported by.
- » A process of ongoing review and improvement

- » The links between IT and AT are significant.
- » You cannot do one well without the other.
- » It is important that this is led from the top:
- » In Colleges where the senior management team understand and support this principle, outcomes in this area are improved
- » In Colleges that support this area with a senior post made responsible for technology delivery the service is radically improved:
  - › Resources, more staff.
  - › Better buy in, improved integration with the rest of the College delivery.

# EVIDENCE

# Large scale engagement with Jisc member Colleges

## Recent findings

- » Worked at ~50+ ISC's whilst at Jisc and at others prior to joining Jisc
- » Worked at around ~150 total Jisc member sites
- » Mix of strategic engagements and infrastructure reviews

Most of the work of the enterprise infrastructure team of subject specialists centres around infrastructure reviews for member sites, consultancy that is offered as *member inclusive practical support*.

This activity involves member site *staff who shape, deliver and manage the many essential components* of infrastructure that enable the success of their organisations.

Infrastructure review is welcomed by members as a useful friendly assessment and serves as *a vehicle to introduce additional Jisc services*.



- » Initial engagement, focusing on review overview document
- » Confirm review, agree dates, assign staff (two from team)
- » Arrange scoping online chat 4–6 weeks before visit date
- » Obtain any available relevant documentation and prepare
- » Meet range of member site staff during visit (at least one day)
- » Methodically discuss structured set of infrastructure related areas
- » Prepare review report, check draft with member, publish



1. Strategic considerations
2. IT support team
3. Networks
4. Servers and storage
5. Core enterprise services
6. Enterprise applications
7. Device management
8. Security
9. Governance

# Structure of discussions



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Review

1. Strategy

Background

How many sites  
 How many staff and part time  
 Hierarchy of top decision  
 Demography and inclusion

Strategy

Hierarchy of them—organ (TEL), support  
 Specific resourcing delivering staff  
 Use of IT to curriculum n assets  
 Ownership and

IT budget

Amount and leasing agree  
 Procurement  
 Refresh strategy

Sustainability

Long term plan

Key org

Technology

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Remote learning  
 Student experience  
 Enterprise systems  
 Staff enablement

Main issues

Main concerns

2. IT

Structure

Higher line management  
 Main management

Numbers

Total IT support staff  
 End user development support staff

Roles and responsibilities

Hours of support  
 Extent of resourcing  
 Segregation  
 Service level

Helpdesk

Face to face  
 First, second line  
 Daily checks

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Reports on user experience  
 Self-support workflows

Other people

Relationship in the organisation  
 Contractors  
 Support for organisation

Staff skills

Sufficient to support  
 Sufficient to support  
 Perceived gaps

3. Network

WAN

Janet, how many secondary),  
 Inter-site connectivity  
 Monitoring, management

LAN

Topology, routing  
 Core and edge  
 VLANs  
 Load balancing  
 Monitoring proactive, alerting

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Quality of service  
 IPv4 versus IPv6

Wireless

eduroam, IEEE 802.11  
 Access point management  
 Coverage, security  
 Authentication

BYOD support

Guest support  
 Public access

Telephony

VOIP  
 SIP channels  
 Unified communications  
 Mobile communications  
 SMS (Janet support)

4. Servers

Servers

Server room  
 Server structure (VMs), VM patching  
 Server OS—Windows, Linux  
 Any unsupported Linux

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Development

Storage

Types of storage (media)  
 Total storage  
 Data classification expiry dates  
 Dedicated storage courses...  
 Archiving and backup

Cloud

Remote infrastructure  
 Applications other...  
 Cloud service backup  
 Private cloud

5. Cyber

Identity

Central user directory  
 Processes and procedures  
 Single sign on  
 UK access management external resources  
 Awareness campaigns

DNS

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Locally hosted  
 Special requirements  
 Management

Web

Locally hosted  
 Locally managed  
 Server systems  
 Content management

6. Email

Email

Student and staff  
 Archiving management  
 Anti-virus and phishing  
 Email content forwarding tools  
 Privacy policy signature  
 Training about email

Other online

Office applications  
 Calendaring  
 Collaboration  
 Document management  
 Intranet

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Student

VLE  
 Eportfolio  
 Library systems  
 Media streaming  
 Mobile applications  
 Content delivery asynchronous  
 Different services

Administration

Student records  
 Human resources  
 Financial systems  
 Timetabling  
 Asset management  
 Estates management  
 Dynamic space  
 Analytics and reporting  
 Customer relationship

Enterprise

Data flows  
 Definitive software  
 Process mapping  
 Any concerns issues with a

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7. Data

Types of

Servers  
 Desktops  
 Mobile devices  
 Information

Asset tracking

How  
 Software licenses  
 Equipment tracking  
 Tracking usage

Management

SCCM or similar  
 Organisation (especially if BYOD support privileges)  
 Management access

8. Security

Business

Procedures  
 Backups (im

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Disaster recovery

Data security

Where are data content, user access, internet  
 Firewall—software access, internet  
 Anti-malware (different engines)  
 Encrypted libraries  
 Management drives etc. user  
 Destruction available  
 Separate address

Physical

Locks, logs, policies and training

9. Governance

Policies

Acceptable use  
 Data protection  
 Safeguarding  
 Web filtering  
 Remote telephony  
 Accessibility

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Information security awareness (including passwords)	
Notifications of privacy statements and changes to data (how is this done)	
GDPR preparation	

Certifications

Cyber Essentials, and Plus	
ISO 27001 (controls as checklist)	
ITIL	
TOGAF	

Other comments

## Key points

# Infrastructure review

## South West College

### Executive summary

South West College presents an integrated IT support service across all campus sites, commendably maintaining a network and hosting infrastructure with teaching facilities that enable the College to attain outstanding achievements. There is a very real threat of decreasing local student numbers, which is partly mitigated by a commitment to providing and developing an element of virtual learning for every course on offer.

The IT support staff to user ratio is alarmingly low. The sense of continual "firefighting" and consequent lack of development capability is reinforced by the backlog of helpdesk tickets. Small projects to improve planning and delivery of support, such as documenting strategic aims and objectives, developing a service level agreement, and more, have not been possible due to the high volume of infrastructure support requests.

One of our main conclusions is that the appointment of a Head of IT Services (drawn from the current staff) with a cascading fill of the vacancy this would create, will provide extra resource and sufficient authority to more tightly co-ordinate support practices across the three main sites, and allow the introduction of different approaches to support delivery that could significantly increase efficiency. In addition, this role would serve as an important direct interface between IT Services and many other College groups, ensuring that technology is leveraged optimally in pursuing College strategic aims.

In parallel to this appointment, we have recommended that further structure should be introduced across the IT Services team to assign more specific responsibilities and specify dedicated time for work in particular areas (support versus development) rather than the current generic roles with all staff responding to helpdesk tickets on a continual rota basis.

Other recommendations have been suggested below relating to network topology and monitoring, operational details, email security and certifications. Wherever possible we have signposted resources that we believe would be of useful interest.

### Key points

A description of priority considerations recognised and discussed during the site visit.

Key point	Jisc notes
<p>1. Strong focus on "virtual" learning</p> <p>The College actively promotes the development of course material that can be delivered remotely, reinforcing a leading position in attracting a diverse range of learners both locally and from afar. It is highly desirable that this strategic approach is maintained and enhanced and all possible technical improvements in the packaging and delivery of a virtual student environment are of interest.</p>	<ul style="list-style-type: none"> <li>South West College is the only Grade 1 college in Northern Ireland and considered to be in the top 4% across the UK. Benefitting from approximately 65% of available EU funding for the sector, there are nevertheless very real concerns about decreasing local student recruitment, not least because of the relatively higher deprivation demography of the region, exacerbated by pending legislation that will erode or remove student transport subsidies and education maintenance allowance (EMA).</li> <li>The College already supports more international students and staff than other colleges, 300 staff and 300 students, often delivering courses remotely in other countries, with notable successes in Zambia.</li> <li>A commitment to virtual learning is evidenced by the College's Virtual Services department and a stated target of 20% course material deliverable remotely across all subject areas (currently averaging around 7.5%). This increases the attraction of the College to a wider range of prospective local and overseas learners.</li> </ul>
<p>2. IT Services team resource</p> <p>The ratio of IT support staff to supported users is greater than 1:1,000, making SWC one of the least resourced organisations in UK education in this regard. The support function is further taxed by the distribution of support staff across four sites.</p>	<ul style="list-style-type: none"> <li>The College has around 15,000 active user accounts—approximately 10,000 part-time students, 4,000 full-time and 1,000 staff. IT Services manage around 4,000 College-owned user devices.</li> <li>Each main site has an IT Services supervisor and two technical officers plus student helper four days a week. An extra technical officer is available at the Skills Centre satellite to the Enniskillen campus—ten staff in total plus three student helpers (who do change every year or more frequently).</li> <li>Support is made available 08:45-20:00 Monday to Thursday and 08:45-17:00 Friday. Evening cover is provided by a single team member on a rota basis.</li> </ul>

### Next step recommendations

#### 1. Strategic considerations

##### 1.1. Transnational education resources

Jisc's transnational education initiative (TNE) aims to support members engaging in international activities by identifying and negotiating optimum network routes, assisting with software licensing for international students, creating a UK special interest group for sharing useful TNE experiences and knowledge, and participating in other global forums such as the GEANT SIG-TNE. In addition, the team endeavours to assimilate the most useful market intelligence for "borderless" education projects in different parts of the world. We recommend that relevant staff should be encouraged to utilise the expertise and skills these resources may afford.

##### 1.2. Leadership within IT Services and staff resource

Much of our observations suggested that there is an important management gap, missing, namely Head of IT Services. The current head of IT Services is unable to effectively manage the team, and is less able to work within the IT Services team. For some time, the three supervisors have managed to lead IT Services, although the democratic approach may have led to a degree of "separate site jurisdictions" that is not always conducive to the most efficient single central service. We believe that an authoritative role, intimately familiar with the present environment and staff, should make decisions about varying practices at each site and introduce consistent, and probably unified, processes where these are currently disjoint (device management, applications software management, prescribed training, and so on). Therefore, we recommend promotion of one of the IT Services supervisors to Head of IT Services, still reporting to Head of Corporate Services, but also able to exercise authority across the team and represent IT Services in a more formal way in the College. Such a move, if accompanied by a replacement appointment of another site supervisor, would partly address the relatively small number of IT support staff at SWC. It would also provide a channel, via the Head of IT Services being involved in more "senior" meetings and deliberations, for valuable expertise to be brought to bear directly on the development of the SWC virtual environment and other important planning and decision making, such as appropriate networking and server room inclusion and design in new builds, and general IT expenditure. The Head of IT Services would also act as the interface with other College groups, particularly with curriculum staff, to better transfer teaching needs into practical solutions.

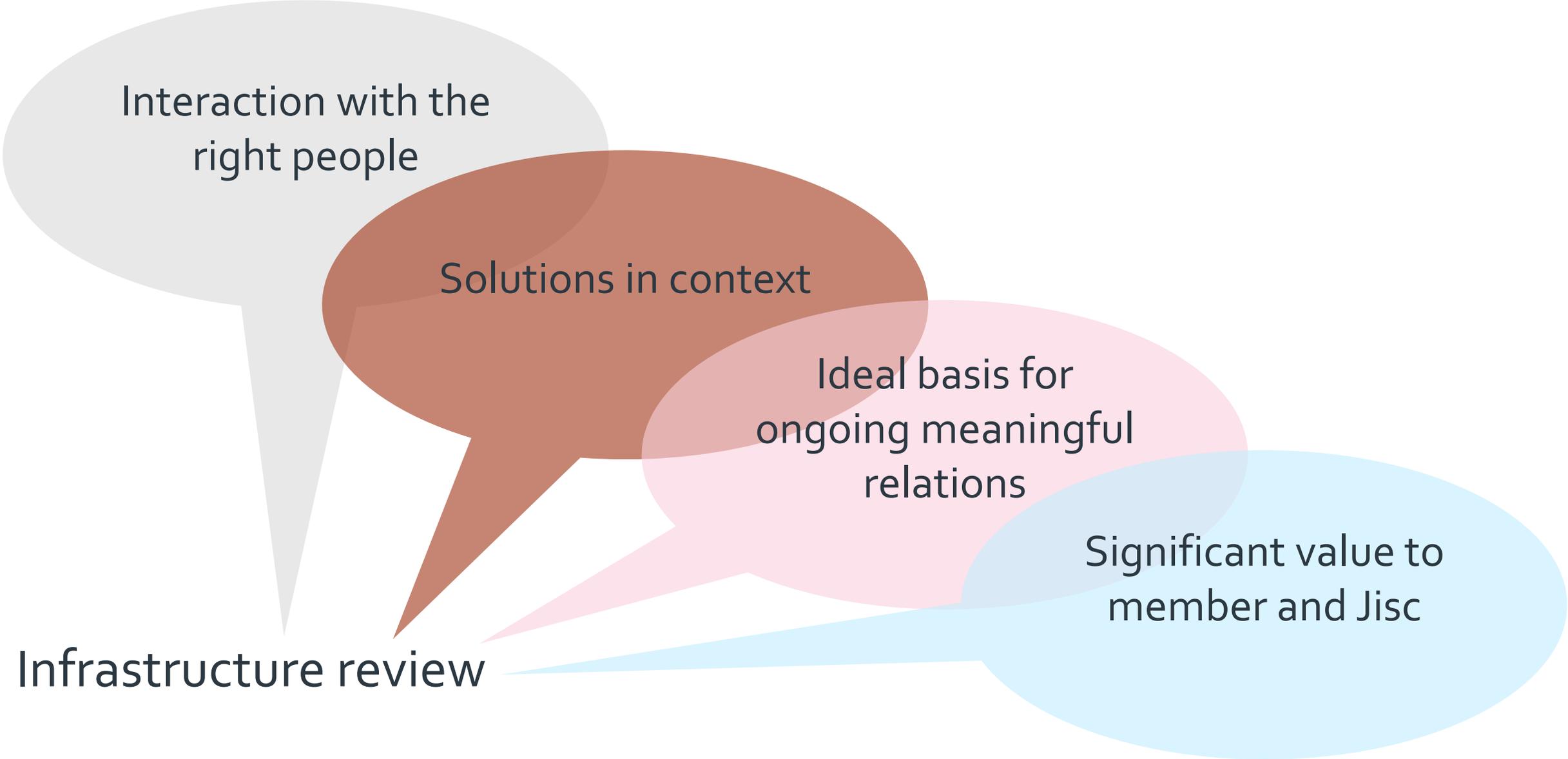
##### 1.3. Service level agreement

We recommend that some form of service level agreement (SLA) is created with representatives of the user body (curriculum staff and not just Corporate Services) and implemented as soon as possible. This should be reviewed at regular intervals to confirm that metrics are appropriate. This would "set" expectations for users and provide for priority responses under appropriate circumstances. It would also supply a framework for measuring support service performance against perceived user needs.

## General observations from ~100 reviews

- » Welcomed by member representatives, with strong engagement
- » Emerging benchmark metrics, e.g. IT support staff to users ratio
- » Identifying funding, staffing and leadership pressures on members
- » We can mediate effectively between parties at a member site
- » Often a group wants objective confirmation of what they know
- » Well endowed server room resources exist and also the opposite
  - › Opportunities for Jisc “match-making”, member savings and DR facilities
- » Some uncomfortable realities uncovered
  - › Poor security, inadequate backups and disaster recovery arrangements

- » Resources are highly constrained
  - › Many IT Teams are too small
  - › Difficult to maintain refresh schedules
  - › Project work constantly delayed or not initiated
  - › Strategic thinking takes a “back seat”
  - › In some cases leading to high organisation viability risk
- » A large number of dedicated and highly skilled colleagues
  - › Often working under substantial pressure
  - › Lack of (recent) training, sometimes due to pressure of work, or lack of budget



# Dart project findings

- » 2010/12 DART<sub>1</sub>, an LSIS funded project
  - › Beaumont College and National Star College worked with 8 colleges, in a 'deep support' capacity
  - › Beaumont and Star are ISC's : Independent Specialist Colleges
  - › One of those DART<sub>1</sub> colleges was Henshaws
  
- » 2012/13 - DART<sub>2</sub>, a JISC Advance funded project:
  - › Beaumont College, National Star College, Henshaws College, Colleges Scotland, Natspec, Jisc all working together
  - › 10 deep support colleges, 2 in Scotland
  - › 3 workshops, delivered twice, once in Birmingham, once in Stirling
  - › A Natspec authored [Research report for Dart 2 \(2014\)](#)
  
- » 2014-2015 DART 2.1, Jisc funded FE and Skills project
  - › 10 deep support colleges, 2 in Scotland
  - › Three workshops, two for the sector delivered twice in Birmingham and Stirling and one for Jisc staff
  - › A Natspec authored [Research report for Dart 2.1 \(2015\)](#)

## » 2014 Dart research:

- » Over half of the providers who responded to the questionnaire had a person (either full or part time) in a designated 'assistive technology' role.
- » This was positive, although there were also indications that the level of awareness about assistive technology was very mixed with some college's way ahead of others.
- » Very often positive developments had occurred as a result of one particularly committed individual.
- » Respondents felt overwhelmingly that a co-ordinated approach which brought together different college departments was a key to successful assistive technology support.
- » **Most providers felt there were good relationships between those providing assistive technology and learning support departments, but worryingly many felt that their relationships with IT departments were less good.**
- » Respondents recognised the need for on-going training and support and for easier ways to keep abreast of new developments in the area of assistive technology.

- » **2015 Dart research:**
- » A larger number of students making use of AT than ever before
- » A number of organisations identified Dart and Jisc support that had allowed them to develop an AT role and as a result to greatly enhance their provision.
- » Scottish GFEs spoke positively about links with BRITE (☹)
- » Half of survey respondents had a designated AT role
- » **There was a marked improvement in the number of Colleges reporting good relationships between AT and IT**
- » A minority of Colleges have AT assessment kits
- » Concerns were noted around a shortage of time and resources for AT
- » One of the main lessons learnt from an analysis of the questionnaires was what a positive change the development of an AT role could bring

**» Since 2015:**

- › Nothing has replaced Dart (until this year!)
- › A large number of AT's have left the ISC sector
- › Gone to various contexts, mainly outside of education
- › Jisc has restructured, TechDis and the RSC's have gone, Brite has closed
- › Fewer staff in Colleges are working in this area
- › My impression is that things have moved backwards as a result
- › Part of the reason that the Natspec TechAbility project has been created
- › Partly why the Karten Trust has funded the TechAbility AT positions

# IT and AT working together

## Information Technology enables AT (Assistive Technology)

- » If your basic IT fails, your AT fails
- » If your IT service does not support AT properly what you are able to do with AT is seriously curtailed
  - › This could include software licensing issues
  - › Hardware procurement problems
  - › System configuration issues, e.g. firewall settings
  - › Problems with supporting equipment, staff or students
- » Therefore having a good relationship between those delivering IT support and AT support is vital

## Ways IT teams can help

- » Deploy 'roaming profiles' – this is very important!
- » Manage software centrally.
- » Devolve AT hardware / software purchasing to the people who support AT, with support and testing in place.
- » Have a named support person in the IT team linked to the AT support staff:
  - › Regular meetings between IT team and the AT support staff, education team and therapy team.
  - › Resource AT properly and see AT as a 'core activity'.
  - › Jisc can help: digital technology strategy review / infrastructure review

# Models for AT/IT delivery

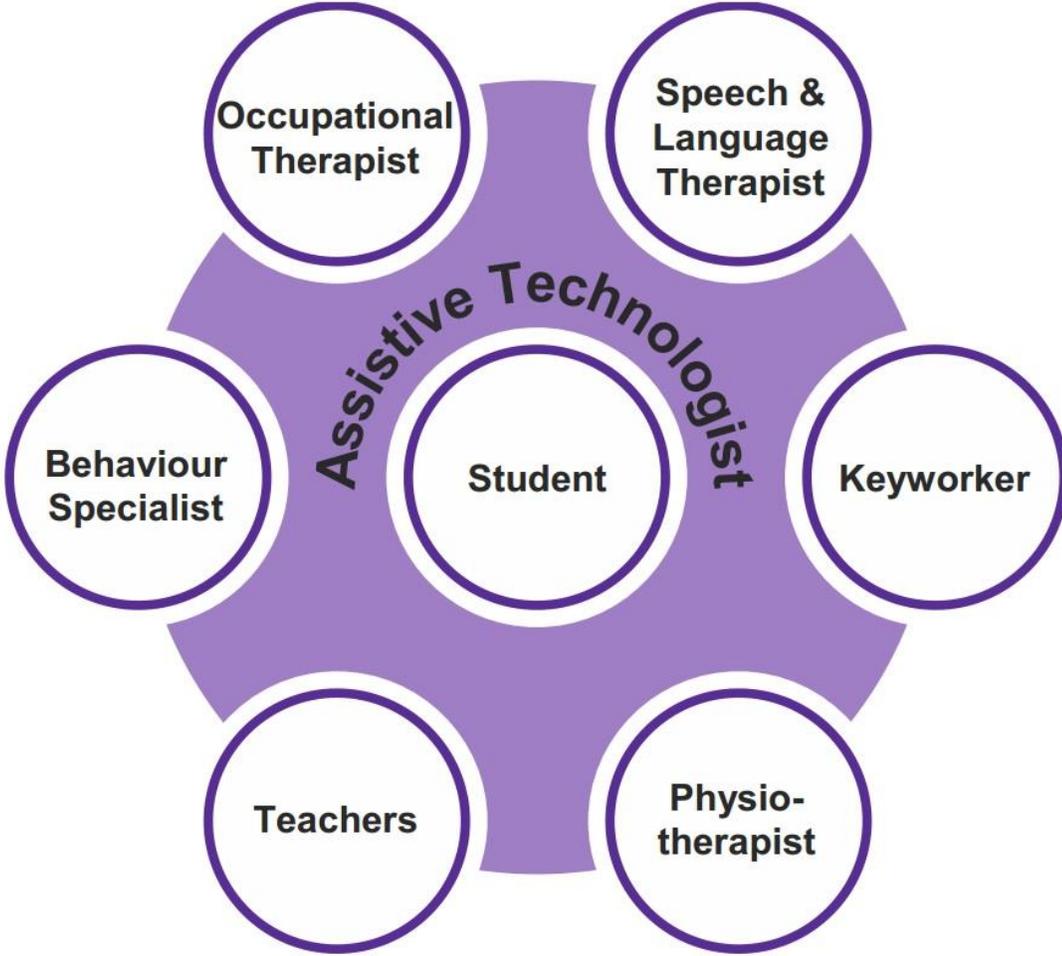
## Structure matters...

- » One unified team with a 'head of technology' type role, IT manager and AT lead report into them = good outcomes
- » IT and AT in different teams = difficulties, especially if the line management trees are different...
- » AT under education management may result in a focus on the student but disconnect with what is technically possible
- » AT under therapy management may result in a narrow focus for the post holder
- » AT under an IT manager, can be good, or bad...

# Example structure



# Community of practice



# Recruiting Assistive Technologists

- » Recruiting AT's is a challenge
- » There is no obvious professional qualification or route into this role
- » Often have to train up people based on a strong experience in one of the three key domains
  - › Therapy
  - › Education
  - › Technology
- » It is very rare to recruit someone who is instantly able to fully undertake this role
- » Should emphasise we are looking for people with strong interpersonal skills first
- » The first step is a skills audit to identify strengths / weaknesses.

# Activity: Your contexts

## » How are things done in your context?

- › Where are the IT and AT teams located?
- › What works well?
- › What is difficult?
- › What would you like to see changed?
- › What support do you need?

## » Share points back to the rest of the group

# Strategy

- » **Develop an INTEGRATED digital technology strategy**
- » Is your strategy / planning joined up?
  - › Separate IT Strategy?
  - › Separate teaching and learning / e-learning / technology enhanced learning / information learning technology strategy?
  - › Separate AT / communication / AAC / therapy / Environmental Control Systems (ECS) strategy?
  - › If not consider changing course.
- » Help is available: technology strategy development tool
  - › Developed from Jisc TechDis tool by RS and Lisa Featherstone

# Options for technology delivery

- » Larger Colleges do have the required scale to have an internal team.
- » Very small Colleges may not be able to do this:
  - › Small teams cannot cover all the required areas sufficiently.
- » **Groups of smaller colleges could consider getting together and developing some shared services.**
- » Tensions in both:
  - › Privately run Colleges.
  - › Colleges run by larger / national charities .
  - › In some of these cases, where the IT team is remote and their work is directed and controlled by corporate priorities rather than the local priorities of the College. This generally leads to sub-optimum outcomes.
- » Outsourcing is usually unsatisfactory (no good examples).

**What can I do?**

**» Senior leader:**

- › Review the structure of your IT/AT staff, does it work?
- › Do you have a strategic technology understanding, if not consider how to put someone into a leadership / management position who does.
- › Consider steering the organisation towards an integrated digital technology strategy development.

**» IT Manager:**

- › Speak to teachers, therapists, AT's, ask them what you can do to make things easier, if not sure - contact me.

**» Specialist teacher / therapist / assistive technologist:**

- › Spend some time with the IT staff, find out what their pressures are, and help them understand yours.

**What support is there?**

## Jisc members can access a range of support

Jisc member Colleges, inclusive of specialist colleges and mainstream general further education colleges can access the subject specialist team for support in various areas:

- » Support on Accessibility and Inclusion: [Alistair McNaught](#) and [Margaret McKay](#)
- » Wider support with strategic use of technology, infrastructure and assistive technology: [Rohan Slaughter](#)
- » Support for teaching, learning, assessment and the 'digital student experience': [Chris Thompson](#)

## Jisc members can access a range of support

- » Direct support and assistance

- » Consultancy services

'Diagnostic support' is included in Jisc membership, e.g.

- » Infrastructure review

- » Digital strategy development support

General advice and guidance and critical friend support is always available to members on request, via your account manager

## Natspec Colleges can access a range of support from TechAbility

- » TechAbility is an assistive technology and information technology (AT/IT) service to improve outcomes for SEND learners in mainstream and specialist further education.
- » Now supported by Karten Trust
  - › Neil Beck and Fil McIntyre appointed as Assistive Technologist for the project, support visits taking place now
- » Services include training, direct support, inclusive of assistance with complex AT assessments



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