

2012



# ASB / APPA TRAVELLING FELLOWSHIP

Recipient – One Term Award: David Rogers

Topic: The Digital Landscape

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## **Introduction**

We are in a state of constant flux when we provide for relevant up to date learning experiences, environments and approaches – and none more so than in the area that uses information and communication technology as a way to access and engage in learning.

The Reality is...

- “The dynamics of ICT developments imply that when a school is in the process of implementing one...there is a new one knocking at the door”  
(ELFE report on Innovative use of ICT in Schools)

We may be geographically isolated from the rest of the world but we are not technologically isolated. Our playing field is not bound by the fence around our schools. It is truly a global playing field in every sense of the concept. The only restraints on our engagement are those we fail to effectively address.

After talking with Principal colleagues and from personal experience I can see three constants familiar to our decision making notwithstanding our best intentions and endeavours.

One is that we are constantly in a catch-up paradigm. As leaders of learning we might be able to guess at what is around the corner but we don't have a thinking framework to adequately position ourselves optimally for resilience, sustainability, scalability, accessibility and cost effectiveness.

The second is that many NZ schools have a lot to offer in terms of how they have arrived at the point they are at but there doesn't seem to be any one point of contact as a resource for Boards of Trustees.

And the third constant and generally the most restricting is that we are financially constrained and as a result we have inconsistent approaches in our decision making with different schools having different priorities and beliefs about what is important.

If we look to overseas experience there are also things we can appropriate and assimilate into our systems and processes. This study has investigated some of those.

## **Acknowledgements**

It is with great humility and respect for my colleagues that I have received this award. It is important to acknowledge and thank the many people and organisations responsible for setting up and administering this Fellowship Award and to thank the Lord my God for opening up this opportunity for me personally.

Special thanks to;

- The ASB for committing financial support that enables this award to be given annually;
- The APPA for their commitment to sustaining such an important distinction award and making it available annually to Principals in the Auckland and Northland areas;
- Alan Jermaine, secretary of the ASB/APPA Trust Fellowship Board for timely and sagacious advice and support;
- The Ministry of Education for supporting this award with finance and staffing, a significant contribution that makes it possible for Boards to release Principals so they may take up this opportunity;
- The Paihia School Board of Trustees for supporting and approving this award;
- Deputy Principal Dairne Fitzpatrick and Assistant Principal Nikki Simmonds for taking on additional responsibilities during my study, and the staff and students at Paihia School for their enthusiastic support;
- Colleagues in Education who have supported the concept and contributed thoughts towards the compilation of this study;
- Experts and professionals (named further on in this document) who have contributed to this study

## **Abstract**

As a Principal I have always endeavoured to explore and use learning technologies that provide conditions conducive to optimum engagement and learning. Early in my career as a classroom teacher I quickly noticed how students were generally technologically literate, ready to embrace new technologies in the learning environment. There have been and continue to be several frustrations about this. The major one is that as educational leaders we are in a sense leading learning in a ‘catch up’ paradigm, often struggling to get up to date let alone keep up to date with learning technologies.

In my current situation we have just made a major investment in learning technology. The process we used to select and establish was fragile at best because there is no apparent blueprint for making decisions about such matters. I think it would be of great benefit to NZ schools if successful processes used in schools around the world were catalogued and shared. Currently NZ schools are by and large in a pioneering mode. General discussion with Principal colleagues indicates decisions around purchasing infrastructure and equipment particularly are not made uniformly – i.e. different schools use different processes. Factors influencing decisions include affordability, durability, practicality, the likelihood of obsolescence and maintenance considerations. However, different schools give different weightings to criteria in terms of their importance with affordability frequently featuring at the top of the list. In my discussions, there was little comment about how the new technologies would impact on learning however, it is understood that student achievement and engagement is the primary driver in any ICT integration/implementation process.

At the time of this study, the NZ Ministry of Education is establishing a “Schools Integrated Solutions Designer” whose brief includes developing and maintaining a school ICT infrastructure architectural model and providing advice and guidance around developing and implementing ICT infrastructure. This position will be useful in the long term but there are already good models of New Zealand and overseas experience that may be drawn upon to support NZ schools.

There is a sense that NZ Principals are not well supported with ‘best practice’ examples as they make decisions about ICT in their schools. The programme of study looked to the experiences of schools in other developed countries that have been the subject of a comprehensive study where... “A number of factors which seem to

influence the successful implementation of ICT could be identified:” [www.elfe-eu.net/files/30/paper\\_ecer\\_final.doc](http://www.elfe-eu.net/files/30/paper_ecer_final.doc)

### **Report Style**

This report does not set out to reproduce findings presented in other literature (of which there is a vast library), nor is it academically formatted. It is designed as ‘easy to read’ in a personal narrative style. There are suggestions and recommendations made where observation has indicated them as being worthwhile.

### **The Topic**

The topic related to Decisions about ICT in Schools and in particular those relating to infrastructure.

I mainly focussed on those things our schools’ Boards of Trustees would be primarily concerned with in order to provide the necessary conditions for the effective and sustained use of ICT in schools i.e. visioning, strategic planning and infrastructure.

With the support of ASB/APPA Fellowship Board and others listed in the Acknowledgements section of this report I was honoured with the opportunity to travel overseas and take a first-hand look at what was happening in other countries. I spent most of my time in England and was able to talk with a range of representatives from the educational community. Later in the programme I visited schools in Melbourne Australia whilst attending the NZPF APPA Trans-Tasman Conference;

Bob Duffin  
Head Teacher  
Cheselbourne Village School  
Cheselbourne  
England

Sue Quirk  
Primary and Early Years School Improvement Adviser  
Schools and Educational Improvement  
Children & Young People Services (CYPS)  
London  
England

Professor Jenny Morton and Professor Mike Edwardson (Hosts)  
Neuroscience and Biological Sciences departments  
Cambridge University  
Cambridge  
England

Lena Clark  
Principal  
Donvale Primary School  
Melbourne  
Australia

Ian Sloane  
Mitcham Primary School  
Melbourne  
Australia

I also ‘cold called’ several schools in England including Cottenham Primary and Histon Community College in Cambridge and Selsey Primary School in Chichester.

### **The Programme**

I conducted my study over term three 2012 and decided on the following approach;

- Study the research findings
- Visit schools in UK, Europe, Australia and New Zealand
- Talk with Principals and Educational Administrators
- Look for evidence (particularly relevant to the findings in question 4 below)
- Develop a simple ‘ready reference framework’ that could help NZ Boards of Trustees with future implementation plans for ICT in schools.

### **Research Base / Literature**

**My research project was based on the findings of the European eLearning Forum as presented in 2006**

**The European eLearning Forum for Education (ELFE) is a project initiated by the ETUCE (European Trade Union Committee on Education).**

- **A main objective of the project was to study good experiences with implementing the use of ICT in schools. This objective was broken down in seven operational research questions...**

1. What difference does the use of ICT make in schools where ICT is intensively used for instructional/pedagogical purposes?

2: To what extent are teachers' practices and outcomes changed?

3. What are perceived advantages and disadvantages of the use of ICT in teaching and learning?

**4. What factors influence the intensive use of ICT?**

5. How are the students influenced by this different way of teaching as compared to the traditional classroom education, both individually and as a collective?

**6. What are the possibilities to sustain and to transfer good ICT based teaching/learning practices?**

7. To what extent did the local discussions on and experiences with use of ICT have contributed to whole school development?

I was particularly interested in questions 4 and 6 in relation to how Boards of Trustees might plan and meet infrastructure requirements.

The ELFE report highlighted several factors that impact the successful implementation of ICT in Schools. I used these as discussion points when talking to educational leaders during my study. Each of the identified factors present things for Boards to consider as part of an overall ICT strategy.

**Something to Think About**

Although not part of the planned study I was also curious about expectations about learner profiles in the high stakes academic institutions so I spent time with two Cambridge University professors. Among other things I asked what the university's expectations were about student ICT competencies. "We don't have any", was the reply. Slightly puzzled I pressed on and asked what would happen if a student was not technologically literate. In a very matter of fact way the reply came, "They wouldn't get in".

### **The identified Factors impacting successful implementation of ICT in schools**

- A clear vision, policy and strategy on what a school wants to accomplish when it implements ICT supported teaching and learning;
- Good infrastructure and adequate support;
- A principal or school leadership that is supportive and monitors the processes of change;
- ICT becoming part of the school's culture;
- Introduction of learning and communication platforms;
- A policy on staff development;
- Support from national, regional or local authorities who have developed policies on using ICT in education and who provide schools (some) financial means; and
- Parents and local communities supporting developments.

Boards of Trustees will necessarily be concerned with the first two issues first. The above points can be seen almost in a linear way (one building on the other) although it would be unwise to address the implementation process in a linear manner – each of the identified factors are part of the process in total and are also a process in themselves, contributing to the full picture. The first two points will be discussed in more detail.

### **Implications for Boards of Trustees (Findings)**

Coming from the perspective of what processes Boards of Trustees adopt in decision making regarding setting up the conditions for effective implementation of ICT strategies into a school, the following summary points could be useful.

#### **Having a clear vision, policy and strategy on what a school wants to accomplish when it implements ICT supported teaching and learning**

Considering my main experiences during the study were in England, Australia and New Zealand I thought it might be useful to include a selection of vision statements from those countries...

##### Australia

- Effective eLearning requires a strong, whole school vision built on the belief that ICT can accelerate, enable, improve and transform student learning opportunities in all key learning areas and phases of learning (Queensland Government)

##### New Zealand

- To provide the e-learning direction for your school, it must be part of your school vision (New Zealand Government)
- The vision should (tki website);
  - describe how ICT enables improvement in teaching and learning to raise student achievement
  - be integrated across the school at all levels
  - reflect the school community's needs
  - be part of an on-going cycle of action, reflection and review.

##### England

Or nicely framed by the Joint Information Systems Committee (UK's expert on information and digital technologies for education and research)...

- *The vision is of a world where learners, teachers, researchers and wider institutional stakeholders use technology to enhance the overall educational experience by improving flexibility and creativity and by encouraging comprehensive and diverse personal, high quality learning, teaching and research.*

The quality of the vision statement for ICT in a school can determine how well the processes followed actually reflect what the vision is trying to establish. In my opinion the vision statement is better if it contains elements that can be expanded which describe a future preferred state. Excerpts from the JISC vision are appended at the end of this report as an example of how that might look on paper for NZ Boards of Trustees.

There is a helpful (short) video <http://www.youtube.com/watch?v=yA1a0khcuKo> that Boards could view prior to the visioning exercise. In it, John Cotter, formerly a Harvard business professor and now head of Cotter International discusses how successful organisations need to have a quality (change) vision. (The transcript is appended to the report.)

### **Developing a Clear Vision**

Clearly, establishing and implementing a vision is a process. On the tki website <http://elearning.tki.org.nz/Leadership/School-vision> there is a useful collection of ‘starter questions’ and ‘practical suggestions’ that can help in the vision-building exercise. The Victoria Government Department of Education and Early Childhood Development has been able to define what an e-learning vision might look like...

“An eLearning vision will provide the eLearning direction for your school. The vision should describe a desired outcome that inspires and energises you, and helps create a compelling picture of your school and community in the future, how it looks and how ICT enables improvement.

An eLearning vision needs to emerge from your school strategic plan, in particular from the school profile (purpose, values and context) and strategic intent.” © State of Victoria (Department of Education and Early Childhood Development) 2012

This is similar to MOE suggestions for NZ schools, i.e. alignment with the strategic plan, although the Board’s ‘vision’ per se would not necessarily be an ICT vision. The broader school vision would allow an ICT vision and development plan to be implemented.

A quality ICT / e-learning vision would cover critical areas for development in the school, starting with a student centred profile describing what success in its broadest sense looks like. It would allow for the development aspirational goals such as

enabling 21<sup>st</sup> century learning, modern learning environments, quality infrastructure, resilience and adaptability in a changing environment and of course quality systems and teaching.

Schools in New Zealand currently participating in the Blended e-learning PD contract collect baseline info according to where the school is placed in five dimensions of ICT integration/implementation/use – e-Learning Planning Framework (eLPF).

<http://elearning.tki.org.nz/Professional-learning/e-Learning-Planning-Framework2>

The information obtained in this process places the school on a continuum from Emerging through to Empowering for each of the five dimensions. In the section relevant to visioning, the continuum shows the hierarchy...

Enabling → Engaging → Extending → Empowering

- **VISION:** The school vision **refers** to e-learning and the **potential** of technologies to enable and support learning.
- **VISION:** School vision **describes** how technologies **will support** the school's curriculum.
- **VISION:** School vision **articulates** how technologies will **enhance** teaching and learning. It **aligns** to policy, curriculum, and appraisal.
- **VISION:** School vision **integrates** e-learning throughout. There is an **on-going cycle of review**.

### Quick Summary

The first and arguably the most important step for Boards is to define the future preferred state of the school. An excellent vision statement will enable a many faceted approach to ensuring a high quality, durable, responsive and flexible system that impacts positively on student engagement and achievement using learning technologies.

## **Good infrastructure and adequate support**

### **New Zealand**

Considerations and decisions about infrastructure are where Boards in NZ schools have a great deal of autonomy yet as far as providing guidance for Boards goes, the NZ government initially limited itself to listing services (below) and providing policy guidelines such as cabling standards.

The main support services are listed on the MOE Website;

#### **NZ MOE Infrastructure Support and Services**

- Video and audio conferencing bridge
- TELA (Laptops for Teachers)
- Principals' laptops
- Schools' network infrastructure upgrade (Stage 2)
- Software licensing
- ICT helpdesk for schools
- Recycled computers - learning power

These are important components in the total package of support for schools but there is still a need for practical advice for Boards as they work through the process from vision to implementation.

More recently more guidance has come by way of the tki website and through the Blended e-learning PD contract which has been rolled out to schools from the beginning of 2012. Within the scope of the environmental scan regarding school capacity, the blended e-learning review tool (eLPF) referred to in the previous section is of *some* use although once again the detail is lacking. Boards and Principals/School leaders can view the tool using the link above or in the references section. The relevant 'Infrastructure' Section is copied below.

<b>Technologies and Infrastructure</b>	<b>Technologies and infrastructure needs are investigated to support the physical environment.</b>	<b>Technologies and infrastructure to meet identified needs are trialed, within the physical environment.</b>	<b>Equitable, well-managed technologies and infrastructure support needs across an increasingly online environment.</b>	<b>Equitable, open access to reliable technologies and infrastructure that meet all needs is sustained across an online environment.</b>
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Again this is more aspirational than guiding so Boards need to go further.

Once again referring to the tki website, there is now some very helpful 'Procurement and Maintenance' advice for schools from relevant questions to practical steps.

<http://elearning.tki.org.nz/Technologies/Technical-support-and-procurement> copied below.

- Ensure there is access to school-based technical support and/or external technical support (response time less than 24 hours) to troubleshoot basic network and hardware issues.
- Provide for internal teacher support such as an ICT specialist/team. This could be a teacher(s) release or fulltime.
- Check your total budget for IT – often this is hidden in different budget areas, departments, one off purchases, and special grants from fundraising.
- Based on your e-learning strategy, set up realistic budgets for purchasing new technologies, maintenance, software, Internet/network connection, professional development, and staffing - technicians and ICT specialists.
- Consult with staff and students when planning infrastructure and tool upgrades, and purchases.
- Maintain e-tools and resources by:
  - updating or creating an inventory of all ICT resources
  - auditing current use of ICT resources. What is being used, how often, and what for? Does this align to your strategic plan?
  - making sure staff know what is available and find out if they know how to use it and how it might be used
  - removing any equipment that is not functioning, fix if cost effective, or sell/discard if not
  - making sure your network is appropriately secured including: password policies, filtering, firewall, backup, physical theft prevention, acceptable use policies, wireless authentication - Wi-fi Protected Access (WPA) or better, and ability to identify individual users network traffic
  - managing access to school/community network from personal devices – price a managed network and plan for its deployment if you are going to encourage or support student-owned devices on your network
  - making sure you understand Virtual Local Area Networks (VLAN) and plan for your network to be configured to make use of them
  - establishing Service Level Agreements (SLA) with your service providers
  - look to see which of your services can be moved offsite into the cloud for example: mail, document storage, backups, LMS
  - reviewing processes for procurement and maintenance throughout the school.

There are further links on the tki website to help with Ultra-fast broadband issues

- How to manage ultra-fast broadband
- Ultra-fast broadband and your school - what's happening?
- Ultra-fast broadband – what difference will it make?
- When ultra-fast broadband comes to you, where to start?

Also from the tki website, there are three links to infrastructure projects the MOE has underway; <http://elearning.tki.org.nz/Technologies>

Best practice e-learning requires a robust and reliable network connection. The Ministry is working to improve schools' internal and external infrastructure. Read about:

- the School Connection database - [Find out when your school will be connected to fibre \(ultra-fast broadband\)](#)
- [connecting your school to fibre \(ultra-fast broadband\)](#)
- [School Network Upgrade Project \(SNUP\)](#)

## **Overseas**

Two schools Donvale Primary and Mitcham Primary I visited in the state of Victoria Australia, have been involved in a project in which schools have been provided with a capital resourcing scheme to upgrade building and infrastructure. There were two paths schools could opt into – one was to select an ‘off the shelf’ design and have the construction work taken care of for the school, the other option was to take the money and have a more ‘hands on’ approach, with both options seeking to establishing a physical environment that would facilitate the integration of 21<sup>st</sup> century technologies into the learning environment. Each of the two schools I visited chose a different option. Both principals were happy with the option they chose but I was impressed more with the facility Donvale School ended up with. The main reason for this is that they ended up with a facility that is purpose built to high standard rather than a facility that has emerged from remodelling older buildings and having to stretch budgets. The Donvale facility is an engaging learning space allowing for multiple use and flexibility. ICT infrastructure is up to date and state of the art allowing for resilience and future-proofing. This is important and one of the areas of inconsistency in our school building/resourcing plans here.

In England the County (District) Councils and regional authorities take on more responsibility for providing guidelines for schools. I was impressed with the practical nature of advice and recommendations provided as opposed to the overly regulatory approach our MOE and Councils take – we seem to be bound with a raft of ‘minimum standards’ required without any tangible examples of what needs to be done.

I discovered an excellent publication produced by the Kent County Council in England that provides solid advice for schools under the following headings...

## **Kent Primary School ICT Design Guide (Kent County Council; UK)**

- ICT Principles
- ICT Design Process
- Structured Cabling
- Power and Data distribution
- Server Room
- Printing Strategy
- Laptop Storage and Charging
- Building Management Systems (BMS)
- Spaces
- Multi-agency sites
- Audio-visual – stimulus materials

This is the type of guide I was hoping to be able establish / adopt for our school's use.

It can be downloaded from the site listed here.

<https://shareweb.kent.gov.uk/Documents/business/council-business-services/property-group/primary%20school%20ict%20design%20guide%20-%20sep%2010.pdf>

Parts of this document are copied into this report below (appendix #2)

## **Other Areas**

### **Leadership that is supportive and monitors the processes of change**

Most of the discussions I had left me with the impression that the key driver for setting up an ICT strategy in school is the school Principal – the success or failure of a strategy seems to be quite dependent on the person in the lead role. The ELFE report covered some of the specific points that could help Boards participate meaningfully in the process. The report states that in all schools, the principal or the school's management (read Board of Trustees as well) was instrumental in getting ICT intensively used in schools. And also that administrative support seems to be one of the necessary conditions for implementing a change in schools.

This is certainly the case in Cheselbourne Village School in England where the Principal has worked with the Board of Governors to bring their school learning environment into the 21<sup>st</sup> Century and have given good effect to integrating learning technologies into the everyday learning process. There has been a purposeful and systematic programme to provide infrastructure that will allow for all students to be digitally engaged in their learning and this has had to be done in the context of quite old buildings. The key systems drivers for this were vision and leadership.

Another relevant point that emerged from the ELFE study is that Boards need a person in leadership who understands the technology, has insight into pedagogy and can see the link between the two. I think this is pivotal at the implementation edge of ICT in schools in New Zealand and actually has implications for principals and aspiring principals right now.

### **ICT as part of the school's culture**

From the Boards perspective the pervasiveness of ICT needs to be provided for at the policy level. The overall impression I had overseas was that there was an expectation from the governance area that the use of ICT would be a natural part of the educational process. In all of the classrooms I visited in England and Australia, every student was working on or had personal access to a tablet or a netbook and the classroom teacher used a digital media as an instructional tool.

The cultural aspect of ICT use (i.e. the expectations about how pervasive ICT is in our learning systems) in our schools seems to be less uniformly evident in NZ Schools. Boards and principals are concerned about finance and it can present itself as a major inhibitor to providing a policy framework guiding integration of ICT systems into the learning environment. Most of the NZ school policies for ICT are more about 'cybersafety' and user agreements than frameworks for integration of ICT.

### **A policy on staff development**

The ELFE report cited empirical data showing the single biggest threat to implementation at the classroom level was time and that... "teachers need time to learn how to handle and how to use the computer as a pedagogical tool as well as time to discuss the use of ICT connected with pedagogical issues. That is a reality that we encounter frequently, and not just with changes relating to learning technologies. An essential component for pedagogical development and change is providing options and time for teachers to meet in the everyday school life." The ELFE report recommend a generous time-scale as an essential requirement for implementing new technologies into schools and this has implications for Boards in terms of the annual PD budget.

### **Finally**

The following table is a brief flowchart containing the main elements discussed in the body of this report. It is far from an exhaustive, blow by blow' record of what Boards should consider when making ICT decisions for schools but it is a starter.

I have learned from participating in this study is that there is a wealth of experience in both New Zealand and overseas schools and there are many excellent examples to look at relevant to our own contexts that can help shape how we move change projects forward in authentic and meaningful ways, that can stand the test of time and allow for flexibility and resilience as we move through this decade and decades to come.

# ICT ROADMAP

## Quick overview for Boards of Trustees

### Vision

- Set a clear vision, policy and strategy on what a school wants to accomplish when it implements ICT supported teaching and learning
- Undertake an environmental scan (could use the eLPF from Blended e-learning PD, MOE)
- Key points - describe learner profile, enable development plans for infrastructure and equipment, embrace flexibility, set expectations about quality teaching and learning.

### *Infrastructure and support*

- Based on vision - strategic plan
- Consultative approach so deep knowledge about opportunities is achieved
- Realistic Budget (very important) allowing for equipment, maintenance, PD, software, network connection, staffing and technical support)

### Leadership

- Engage leaders with a strong commitment and capacity to develop an overall ICT strategy
- Ensure Board management systems accommodate timely reviews of progress and impact - e.g. Principals Appraisal
- Employ and deploy leaders who are knowledgeable about ICT, pedagogy and understand how the two are integrated and implemented

### Culture

- ICT permeates throughout the school in systems, practices and expectations
- Provide for this in Board Policy - describe expectations about "what we will see, hear and experiences" in the school as part of 'everyday business'

### Policy on Staff Development

- Set a generous PD budget. Teachers need time to learn how to handle and how to use the computer as a pedagogical tool as well as time to discuss the use of ICT connected with pedagogical issues

## REFERENCES / WEBSITES

### **Finnish Lessons**

#### **What Can the World Learn from Educational Change in Finland?**

Pasi Sahlberg, 2012, Teachers' College Press

### **World Class Learners: Educating Creative and Entrepreneurial Students, Dr**

Yong Zhao, 2012, Thousand Oaks, CA: Corwin

### **European eLearning Forum for Education (ELFE) Report [www.elfe-](http://www.elfe-eu.net/files/30/paper_ecer_final.doc)**

[eu.net/files/30/paper\\_ecer\\_final.doc](http://www.elfe-eu.net/files/30/paper_ecer_final.doc)

### **NZ Ministry of Education tki website The E-Learning Planning Framework**

<http://elearning.tki.org.nz/Professional-learning/e-Learning-Planning-Framework2>

### **NZ Ministry of Education tki website Technical Support and Procurement**

<http://elearning.tki.org.nz/Technologies/Technical-support-and-procurement>

### **Joint Information Systems Committee <http://www.jisc.ac.uk/>**

### **Kent Primary School ICT Design Guide (Kent County Council; UK)**

<https://shareweb.kent.gov.uk/Documents/business/council-business-services/property-group/primary%20school%20ict%20design%20guide%20-%20sep%202010.pdf>

### **How to Create a Powerful Vision for Change, John Kotter**

<http://www.forbes.com/sites/johnkotter/2011/06/07/how-to-create-a-powerful-vision-for-change/>

## Appendices

### Appendix #1

#### UK Visioning

Although not strictly speaking a school Governance example, this example illustrates nicely, the processes and procedures a board may go through after establishing their ICT vision.

The Joint Information Systems Committee has as its mission statement ... To provide world-class leadership in the innovative use of information and communication technology to **support** education, research and institutional effectiveness.

From the website; **Joint Information Systems Committee** <http://www.jisc.ac.uk/>

*The vision is of a world where learners, teachers, researchers and wider institutional stakeholders use technology to enhance the overall educational experience by improving flexibility and creativity and by encouraging comprehensive and diverse personal, high quality learning, teaching and research.*

- By 2010 within this environment:
- Learners and Teachers are using a mixture of institutionally-provided and user-owned technologies in a confident and effective manner;
- Course teams are effectively exploiting the available technology in all aspects of course design, development and delivery;
- Technology rich physical and online learning teaching and research spaces are accessible and flexibly designed to reflect an understanding of the learning styles preferences and diversity of their users;
- A wide range of learning resources is freely available, easily discovered and routinely re-used;
- There is widespread deployment by institutions of flexible technical infrastructures that take advantage of service oriented approaches and of shared services;
- Institutional decision makers are making realistic and effective choices about the deployment of proprietary and/or open source software;

- National, sectoral, and institutional e-learning strategies in further and higher education are aligned; and agencies are working confidently in partnership for the benefit of the whole sector;
- It is assumed that strengthening of the traditional face to face approaches to learning and teaching in higher education continue alongside an expansion of lifelong learning opportunities

I like this example because the bullet points show how the ICT environment can be 'pulled' from the vision's main elements.

## **Appendix #2**

### **Kent Primary School ICT Design Guide (Kent County Council; UK)**

(Excerpts from the full document that can be viewed using the link listed above)

Each of the main areas under the subheadings below go on to describe specific requirements and make sensible recommendations.

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#### **Introduction**

ICT is an increasingly important factor in teaching and learning. Effective ICT requires a structured cabling system with data outlets in the right locations and in sufficient quantities to connect equipment and services across the school. Cabling is part of the fabric of a building and defines a building's digital potential.

Capital building projects within the Primary school estate provide opportunities to uplift ICT infrastructure and make it fit for 21st century learning.

#### **ICT Principles**

- ICT infrastructure must support the use of a wide range of technologies in spaces that can adapt to future changes in technology and the curriculum.
- Co-location of multi-agency services on a single site will increase as maximum use is made of estate infrastructure. ICT infrastructure must be designed for shared use from the outset.

- Personal data handling and security requires schools to operate secure networks. Physical and virtual security must be designed into the ICT infrastructure.
- Personal ownership and use of devices by children will increase as government initiatives promote their use in education. This will increase the pressure for school networks to provide wireless connectivity and opportunities for charging.

### **ICT Design Process**

Designers and architects should consider the following documents when designing Primary schools ICT:

- The School's Educational Vision and Strategy for Change.
- Kent's Primary Strategy.

### **Structured Cabling**

Structured cabling is a term that describes a standards based data cabling infrastructure capable of handling voice and data services. It includes cables, terminations, data outlets, containment (i.e. conduit, cable runways etc), enclosures and fittings.

### **Power and Data distribution**

The Mechanical and Electrical (M&E) contractor will take into account a school's vision and legacy strategy when deciding on either counter-sunk floor boxes or wall mounted power and data.

It is important to establish the location, quantity and type of data and power outlet as soon as possible and to mark them on drawings. Once agreed they become part of the fabric of the building and change can be expensive. Flexibility is best achieved through an appropriate mix of floor and dado outlets designed to accommodate furniture and other fittings as well as ICT. It is recognised that sunken floor boxes are unlikely to be fitted into existing floors, and where this is the case consideration should be given to providing wire-management desks to ensure full use of space.

Where laptop trolleys are proposed, parking spaces must be planned and adjacent data and power provided. Trolleys should be able to be securely anchored when not in use, so parking spaces need to be sufficiently sturdy to allow anchor fittings.

### **Server Room**

Where a new or substantial build school is planned, a dedicated server room should be included in the design brief.

### **Printing Strategy**

One of three printing strategies is likely to be adopted by a school.

#### **Local printer in each space**

##### **‘Zoned’**

#### **Combined photocopier / printers**

### **Laptop Storage and Charging**

Typical mobile devices used in schools currently include laptops and mini notebooks. In addition the Home Access initiative may encourage schools to allow children to bring privately owned devices into school.

Schools may wish to provide secure storage and charging to allow children to use devices during social or lesson time, and this may require space and power outlets to be provided to accommodate either a storage unit or trolley.

### **Building Management Systems (BMS)**

Includes General requirements, Access and Security and CCTV

#### **Spaces**

A contractor’s design team will work with the Headteacher, curriculum leads, teachers and staff, and the Authority to produce a design brief that describes the school’s vision for learning ‘Learning Pattern’ adjacency diagrams and detailed notes for each area of accommodation within the school. This may be include visualisations of internal accommodation, furniture and suggested architecture.

#### **Multi-agency sites**

Capital projects may locate a number of external agencies on the same site, either to rationalise community services or as part of a wider social policy planning obligation

### Appendix #3

#### A Change Vision (John Cotter; Cotter International)

<http://www.youtube.com/watch?v=yA1a0khcuKo>

If you are part of an organization that is trying to drive a large change, whether that's implementing a new IT system or moving to a new go-to-market strategy, you need to have a [change vision](#). This is a picture for people of what the organization will look like after they have made significant changes, and it also shows them the opportunities they can take advantage of once they do that. It serves to motivate people, and it's essential to any successful change you're trying to make.

A change vision is not the same thing as a corporate vision. Both are important, but anyone who wants to successfully make a large-scale change in their organization needs to understand how they're different. I walk you through this in the video below and give you some specific tips on creating a great change vision.

Every successful large-scale change that I have seen has, as a part of it, a change vision. And what that means is a picture of after we have made the changes on whatever dimensions, this is what we're going to look like. And if we look like that we're going to be able to exploit, grab, take advantage of some big opportunities over here that are a function of changes that are happening in this increasingly fast-moving world.

The dimensions upon which a change vision could talk; whether it's about the processes we use, or it's about the kind of people we have, or it's about the technology, it can vary all over the place depending upon the nature of the change you think you need to make to take advantage of some big opportunity.

A great change vision is something that is easy for people to understand. It can be written usually in a half page, communicated in 60 seconds, is both intellectually solid but has emotional appeal, and it's something that can be understood by the broad range of people that are ultimately going to have to change—and that could be a secretary or an executive, it could be somebody from [Germany](#) or from the [United States](#). Which makes it easy to communicate and to

communicate it in a way that people will “get it,” if you will, and will, if you do it right, buy into it.

That is not necessarily the same thing as kind of a generic corporate vision. A generic corporate vision is where you think you need to look like out there on some fundamental dimensions to make you prosper. It’s not about one specific large-scale change, it’s about the future. And often, not always, that picture is about timeless values or principles, timeless behavior that makes organizations succeed. Increasingly, for example, one dimension of that timeless behavior is the embracing of change itself.

That could be an aspect of the way you are right now, and it could be a part of the vision that you say, we’ve got to be like that in 10 years, even though we’re going to (for example) hire thousands of people who aren’t like that, even though we are going to be operating in different countries where the national cultures aren’t much like that. That is our vision still, we will still maintain somehow this capacity and behavior that we have right now for embracing change.

But that talks in a broader sense about the company and not necessarily about one large-scale change in IT or in go-to-market strategy or whatever. They have to be aligned obviously if one is kind of going in this direction and one is going in this direction it doesn’t work. But they’re different and they’re both very, very important.