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BYOD and the new demands for group collaboration in Education and Corporate

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BYOD and the new demands for group collaboration

Contents **Page**

Technology is facilitating collaboration in classrooms and conference rooms

Emerging audio-visual and ICT technologies are rapidly changing our workplaces, schools and higher education establishments. Wireless technology makes it possible to share content from various participants using their personal tablet or smartphones and combine this on a centrally projected screen for discussion. New presentations tools are introduced to make this sharing and collaborating from personal or company devices of all sort a reality. The result is a collaborative work and learning environment which is stimulating, fun and guarantees participant engagement and satisfaction.

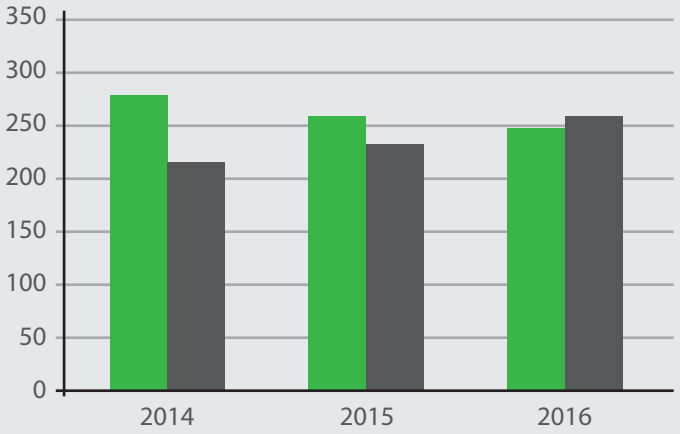
At home, people are making use of wireless screen sharing systems such as Google's Chromecast and Apple TV for streaming content from their smartphones and tablets to their TV. In the education and conference room sectors, the growth of the tablet sector has also seen a significant increase and subsequently, the need for wireless screen sharing and collaboration has brought systems on the market now from various suppliers including Barco, Christie and Vivitek.

Such collaboration and meeting systems allow wireless projection from tablets, laptops and even smartphones to share screens among multiple persons and cross operating system platform support.

What drives the need for 'collaboration solutions'

There are a number of factors behind the rapid introduction of such technologies in recent years. The success of tablets is a massive influence. According to the latest figures from Gartner, sales of tablets will outstrip traditional PCs and ultra-mobile laptops for the first time in 2016 (see figures below). This is driving the trend towards what is known as Bring Your Own Device (BYOD) practices in business and education.

Global Shipment: Tablet vs PC



Unit: Millions	2014	2015	2016
Traditional PCs and Ultra Mobiles	279	259	248
Tablets	216	233	259

Source: Gartner August 2014

BYOD refers to the policy of permitting employees to bring personally-owned mobile devices (laptops, tablets, and smartphones) to their workplace, and to use those devices to access privileged company information and applications. The term is also used to describe the same practice applied to students using personally-owned devices in education settings.

A recent study by Cisco into BYOD practices stated that the education industry has the highest percentage of people using BYOD for work at 95.25%. A study by IBM says that 82% of employees think that smartphones play a critical role in business. The study also shows benefits of BYOD include increased productivity, employee satisfaction, and cost savings for the company .

BYOD benefits

Increased productivity

Increased productivity comes from a user being more comfortable with their personal device; being an expert user makes navigating the device easier, increasing productivity. Additionally, personal devices are often more cutting edge as company technology refreshes don't happen as often. This of course applies in both the class- as well as conference room.

Employee/teacher-student satisfaction

Employee satisfaction, or job satisfaction, occurs with BYOD by allowing the user to use the device they have selected as their own rather than one selected by the IT team. It also allows them to carry one device as opposed to one for work and one for personal use.

For students and teachers alike, the current systems usually require lots of data to be transferred on USB drives and presented from a single source in the classroom. In many cases information cannot be shared quickly, and has to be verbally transferred instead of using visual aids. The ability to share any information visually, without the need to prepare in advance will give great satisfaction in any class setting.

Efficiency and Cost savings

The growth in use in smartphones and tablets in education and business has been assisted by ever faster and easier internet access and cloud storage, with Dropbox, Google Drive and so on allowing easy storage of high data presentation files, video files etc. outside of a company's IT network. This remote access supports home working and multi-site operations in a more efficient manner than ever before and therefore reduce costs.

In addition, the BYOD shifts the purchase requirement of new equipment from the company to the employee – with smartphones being the overwhelming choice of BYOD employees, who own an average of 1.7 devices for work and have paid $965 in out-of-pocket costs for them. The ability to choose for the employee/student to select their own device delivers mutual benefit as it gives the user the ability to select their preferred device to use both at home and work/study.

Applications and key benefits

Classrooms

Across the US, UK and Europe, there has been massive investment in campus and schools' internet access, especially Wi-Fi. Indeed, the average expenditure on education in OECD countries across public and private sectors was 6.2% of GDP.

The NMC (New Media Consortium) - an international community of experts in educational technology states that "education paradigms are shifting to include more online learning, blended and hybrid learning, and collaborative models" . Institutions that "embrace face-to-face, online, and hybrid learning models" have the potential to engage with students who "already spend much of their free time on the internet", learning and exchanging new information.

These findings are supported by a study carried out by the North Carolina State University. The study looked at schools that use educational technology through the adoption of 'one-to-one' (1:1) computing initiatives. The 'one-to-one' means a situation in which each student and teacher has a personal wireless digital device and up to-date software and access to the Internet at school.

The study showed that since the implementation of the initiative, in many participating sites there had been a shift from teacher-centred to student-centred instructional practices in the classroom. This resulted in teachers facilitating more and presenting less, and many students becoming more self-directed learners.

All these studies point to the fact that, the creation of a collaborative environment in the classroom can only increase efficiency and improve the learning process. Faster network access and wider availability of computing devices are only the first step to facilitate this environment. The second step to get all these devices work together seamlessly in a classroom is a much bigger challenge. School administrators are looking for practices and products to enable teachers to manage multiple devices of various kinds (laptops, tablets, Chromebooks, etc.) while at the same time creating engaging and collaborative classroom sessions. This new learning include increased teacher-student interaction via real-time assessment, computer-screen sharing, etc. As a result, selecting a proper collaboration product can boost the effectiveness of BYOD and/or 1:1 initiatives implementation.

(Cisco study May 2013 http://blogs.cisco.com/news/new-analysis-comprehensive-byod-implementation-increases-productivity-decreases-costs)
NMC - Horizon Report: 2014 Higher Education Edition, published in February 2014 NCSU - (Laptop Initiatives: Summary of Research Across Seven States, March 2011)

Conference rooms

The benefits are equally applicable to the conference room sector, where increased collaboration is transforming meetings by bringing greater engagement and interaction. The latest presentation tools allow wireless projection from tablets and screen-sharing among multiple persons and include basic collaboration software tools such as on-screen annotation, cross-screen annotation, screen-capture and sharing. Such tools are easy to operate without the need for complicated software and can be accessed by both visitors and employees (via guest WiFi and employee WiFi/LAN). If there is a concern about adding software to the corporate network, or allowing visitors network access, they can be easily eliminated by the use of USB drives with QuickLaunch software, or Ethernet cables for secure access.

Common concerns

Costs

The perception that collaboration tools are expensive is an entirely false one. At the domestic level, Google Chromecast can cost as little as $50 and a top-end system with full functionality will cost in the range of $1200-3500 (see examples below).

Security

It's true that BYOD practices can result in data breaches. For example, if an employee uses a smartphone to access the company network and then loses that phone, untrusted parties could retrieve any unsecured data on the phone. For this reason, it is advisable that organisations consider the risks and adopt a BYOD policy. Several market solutions and policies have emerged to address BYOD security concerns, including mobile device management (MDM), containerisation and app virtualisation.

User-friendliness

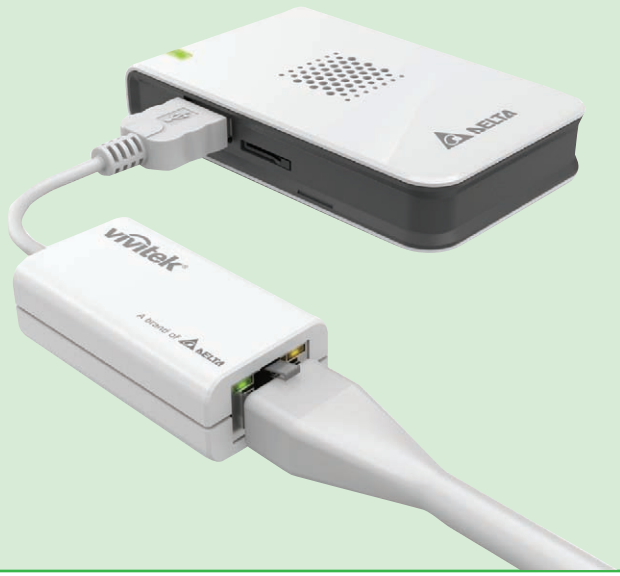
Wireless screen sharing and collaboration tools can overcome many of the problems seen in current class- or conference rooms, where setting up presentations and demos can turn into a cable mess when multiple people need to present. In older collaboration systems, often display adapters, resolution, firewalls and network security policies may prevent you from setting up presentations quickly.

Wireless systems offer 'One-Click' presentation management that provides the teacher or meeting host a quick and effective method to hand over control to participating individuals. The systems available now are designed to be fully secure and only individuals who are logged via PIN can participate and contribute. Some systems also provide instant access to common Cloud-based resources so that content stored remotely can be used and shared.

Different types of implementation

Four tiers

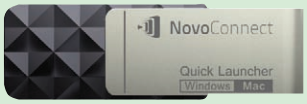
Application	Major functionalities	Products	Price Point
Collaboration	Wireless screen sharing and collaboration Cross-OS platform support Multiple projection screens More collaboration activities		Euro 1200 – Euro 3500
Interactive Class/Meeting	Wireless screen sharing and collaboration Cross-OS platform support More collaboration activities	Vivitek NovoConnect	Euro 300 - Euro700
Formal Class/Meeting	Wireless screen sharing Cross-OS platform support Minimum collaboration activities	Vivitek NovoConnect	~Euro 200
Screen Sharing	Wireless screen/content sharing Single-OS platform support Mainly for phones/tablets		~Euro 100



Vivitek's NovoConnect

Vivitek's collaboration solution is a small box packed with rich features.

- NovoConnect main unit.
- Ethernet Dongle: enabling NovoConnect to be plugged into a wired network. With this, you can install NovoConnect in GUEST-EMPLOYEE network environment.
- Quick Launcher: a USB dongle that can plug-and-play immediately, eliminating the need to install software on your PCs.



How to plan implementation

It is important to plan in detail when looking to procure a wireless collaboration system. A useful checklist might look something like this:

(1) What are your goals?
- a. Objectives of using this type of product
  What are the features you really need?
  These can be the differentiators between available products. You might consider features like
  - i. Ease of setup
  - ii. Preview content before display
  - iii. Annotation, mark-up and distribution of these documents
  - iv. Audience feedback and voting/polling
  - v. Audio support
  - vi. Number of participants expected in average workgroup sessions
- b. Deployment and maintenance efforts
  - i. How well does it work with existing equipment (compatibility) and networking infrastructure
  - ii. How to manage these devices
- c. Financial considerations
  - i. Unit cost
  - ii. Cost of ownership / cost per user (for example, does it require an annual subscription fee?)

(2) Involve all the appropriate stakeholders
- a. Network integration by IT department
- b. Training for instructional technologists and teachers
- c. Software deployment and maintenance

(3) Decide how to implement the solution:
- a. Do-it-yourself
- b. Professional AV integrators

Solutions

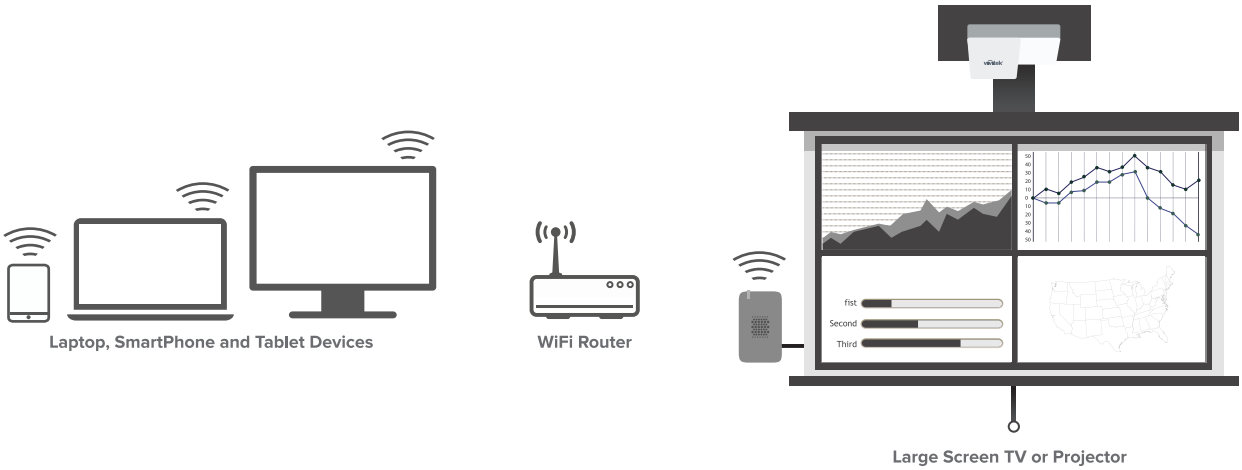
There are many cost-effective solutions for AV/IT managers looking for a feature-rich presentation and collaboration system for classrooms and conference rooms. Perhaps the best value for money can be achieved from mid-range solutions which have a lot to offer but at a fraction of the cost of some high-end products.
Things to look for include:

- Cross-OS platform support - for example, Vivitek's NovoConnect is the industry's first product to support Chromebook in addition to Windows/Mac/iOS/Android
- Display quality, such as XGA or high-definition, etc.
- Number of users that can be connected simultaneously (like, class size or maximum participants accommodated in conference rooms)
- Requiring moderator or not, or both
- Can the moderator control the presentation from a tablet?
- Video playback capability (Can users play it from a tablet?) and quality (like lip-sync).
- Security in data transmission and settings modification (preventing unauthorised users from changing the settings)
- The need to support Guest network and Employee network

Vivitek's NovoConnect is one such solution. It costs a fraction of some high-end products but offers comparable functionalities, resulting in an excellent return on investment. This makes it ideal for classrooms and regular conference rooms. It has been developed with a strong focus on the education sector and supports all popular devices in schools (including Chromebook) and includes a range of classroom tools in its software.

Integration into the corporate/school network environment is straightforward. With its dual network connections (WiFi and Ethernet), NovoConnect can be easily shared between visitors (students) and employees (faculty) at the same time, making collaboration more seamless whilst fitting in to existing network infrastructure and providing the required security. With the native WiFi hot spot support within NovoConnect, you can set up a collaborative session in no time, giving participants an easy way to share, compare and interact with each other, whether in the classroom, conference room, or auditorium, without touching the corporate or school network.

Connect your NovoConnect device to your exisiting WiFi network.



Conclusions

Increasing use of tablets is driving the trend towards what is known as Bring Your Own Device (BYOD) practices in business and education. The growth in use of smartphones and tablets in education and business has been assisted by ever faster and easier internet access and cloud storage such as Dropbox or Google Drive allowing easy storage of high data presentation files, video files etc. outside of a company's IT network. The next step is now to integrate the BYOD practices and faster internet infrastructure with a more streamlined way to collaborate and engage when people walk into the classroom or meeting with their personal devices.

The latest wireless collaboration tools allow wireless projection from tablets and screen-sharing among multiple persons and include basic collaboration software tools such as on-screen annotation, cross-screen annotation, screen-capture and share and so on. Most of the new collaboration tools are easy to operate with no complicated software and can be accessed by both visitors and employees (via guest WiFi and employee WiFi/LAN).

NovoConnect is a cost-effective yet feature-rich presentation and collaboration system for classrooms and conference rooms. At a fraction of the cost of some high-end products, this product is packed with features ranging from wireless presentation, 4-to-1 projection, and cross-OS (PC/Tablets) support, through to on-screen annotation, interactive white-board capability and host user control of presentation. This enables participants to collaborate in an engaging way without having to waste time when connecting and sharing content, while it also allows for 2-way communication via polling and audience feedback. BYOD and Wireless Collaboration tools will change the way we interact in the class- and conference room to a truly collaborative instead of directive model.

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