



Comments of the
Computing Technology Industry Association (CompTIA)
On the Third Strategy on IT in Education

Introduction

In 1998, the Government of Hong Kong published the first Strategy Document promoting IT in Education, updated in 2004.

Recently The Education Bureau published consultation document on the '**Third Strategy on IT in Education**' (ETI 3) for public comment. We note that one of the aims of the document is to provide initial funding for IT in Schools for both teachers and IT support, including training and assessment. The use of current and emerging collaboration tool online – generally referred to as 'Web 2.0' is also be examined as to the relevance of mainlining Hong Kong's education system as being relevant and up to date in an increasingly connected world.

We further note that the Digital 21 framework for IT in general in Hong Kong is committed to maintaining Hong Kong as a leading international economy. Education with a focus on IT is core to D21 being successful as is a well educated and trained workforce that have had their IT skills verified to international standards are vital to Hong Kong as its position as a leading entrepot and financial centre in Asia.

We believe that the success of ETI 3 will be to ensure that both teachers and IT support staff also have skill sets that are independently certified to globally accepted International Standards that are accepted and accredited by the IT Industry.

The Gartner Group reports as IT moves east and south, it will mostly affect the growing areas of the industry. End-user spending will globally move towards software, services, and all aspects of mobility. These categories made up 57 per cent of spending in 2006, will become 60 per cent in 2008, and will grow to 63 per cent in 2011. The analysts explained that 2007 is on pace to be a milestone year for the IT industry: IT spending worldwide will reach \$US3.12 trillion, an eight per cent increase over last year. Spending for 2008 is forecast to grow 5.5 per cent to a total of \$US3.3 trillion and is expected to grow to \$US3.79 trillion by 2011.¹

The Computing Technology Industry Association (COMPTIA, www.comptia.org) hereby submits the following comments regarding the 'Third Strategy on IT in Education'. We look forward to working with the Hong Kong Education Bureau's office to develop and implement a successful IT Education and Skilling strategy.

Background – COMPTIA

COMPTIA is the world's largest information and communications technology (IT) business trade association with over 22, 000 member companies in 102 countries, serviced by offices in 15 major cities on all 6 continents. CompTIA's members consist of software developers, hardware manufacturers, application service providers, Internet service firms, distributors, retailers, resellers, training, service providers, educators and telecommunications companies. The Association's members collectively employ thousands of people and produce billions of US dollars worth of goods and services each year as part of the global \$3 trillion IT industry.

The promotion of policies that enhance IT Education, economic growth and competition within the computing world is central to CompTIA's core function. Further, CompTIA's mission is to facilitate the development of workforce development and IT workforce certification, vendor-neutral standards in e-commerce, customer service interoperability. These policies enable government, educators and businesses to simplify practices, reduce expenses, and compete more effectively in an increasingly complex and competitive world.

More than one million It professionals worldwide have earned COMPTIA IT skills certifications in PC service, networking, document imaging, training, security, Internet and server, RFID and VoIP technologies.

Thus CompTIA is a world leader in vendor neutral validation of IT skills training and has worked with numerous governments and education authorities in advancing IT education that is aligned with the fast moving commercial world of IT. Our members are building the technologies of today and researching tomorrow, thus we are uniquely positioned to share this information with educations

¹ Gartner Group, November 2007 <http://www.computerworld.com.au/index.php?id=138917048&eid=-255>

authorities globally without any favour to a particular technology or vendor. CompTIA has a total of 170 staff in 16 offices worldwide, the vast majority – over 100 – are directly involved in the IT skilling filed and this will be of relevance in the recommendations within this submission.

CompTIA also recognizes four principles to achieve the above which urge governments to: promote broad availability of government funded IT research; promote interoperability through platform-neutral standards; procure software and hardware on their merits, not through categorical preferences and maintain a choice of strong intellectual property protections.

COMPTIA has an active Public Policy Department with a regional office in Hong Kong since December 2003. The Public Policy Department works to protect and advance the interests of the international technology community in policy initiatives that deal with workforce skilling and education, intellectual property protection, standards, security, trade and market access including e-commerce, and other issues that are vital for technology innovation before legislative, executive and judicial branches of government, and regulatory agencies globally.

CompTIA's Comments and Recommendations

The Prologue

The ETI 3's prologue recognizes the contribution of industry to 'web 2.0' in creating the physical connectivity – the networks - that enable peer-to-peer sharing of information using commonly adopted industry standard software protocols.

Further, the opportunities for 'always on' technology has applications to learning, so called 'm-learning' is available and will become mainstream in most advanced economies within a very short period of time. The 'third screen' (Computers) and increasingly the 'fourth screen' (Mobile Phones) are in fact converging into devices that have both communication and entertainments value, and thus are also suited to education.

One of the challenges however as seen in other advanced societies is that the students are often more knowledgeable about technology than their teachers as they are open to new technologies and services such as social networking, than their parents – and teachers. Therefore a program of continuous education - and validation of such education - is required for teachers to keep up with, and preferably ahead of, their students. This is now applicable across all grades/forms, with a particular emphasis for teens onwards as they increasingly have access to both fixed and mobile IT devices. Moreover the teaching of IT skills is in itself, becoming specialized. Like in school physical education, a teacher needs to know the rules and physics of the sport to be an effective communicator, rather than just deliver a set curricula. The embedding of IT in the post school world is a fact today; therefore it also has to be embedded within the school system.

Just as Information technology is inseparable for the commercial world – from airlines to banking to government itself – it is also inseparable from the education process, and this starts with the human factor – the teachers.

The Physical Infrastructure.

The overview provides a clear picture of where we are today. The overview states that there is adequate hardware and software available and that also that 90% of students also have access to computers and internet access at home. However with the rapid advance in both hardware and software in terms of performance and utility, combined with significant decrease in energy usage – both in manufacturing and for end users - existing hardware installations, in particular those more than 5 years old, may not be able to support 'Web 2.0' services also newer graphic heavy (both still and streaming/video) software and services. In addition CRT screens consume up to 10 times the power of equivalent sized LCD screens with a corresponding heat output, which in a classroom environment with many machines on at the same time, will raise temperatures in the room thus straining existing air-conditioning and ventilation systems. The teacher's feedback outlined on page 17 supports this recommendation.

Thus whilst the proposal for a significant one off investment is welcome, it will be severely diluted. Considering there are over one thousand primary and secondary schools in Hong Kong, each school will receive less than hk\$200,000 from the hk\$200 million one-off grant. We would recommend that this be considered a 'jump start' sum to bring existing installations in line with computer to pupil density similar to advanced OECD countries, as well as connectivity, and hardware upgrades as above. Similarly to equip pupils for the real world of commerce, software will need to also receive sufficient investment to bring installations up to commercial levels.

The Human Infrastructure

We note the figures quoted on page 14, which shows that in terms of the pupils that they have wide ranging exposure to access computers, comparable to other advanced economies, however there is no data on the experience of teachers and their qualifications to use computers in a learning environment. Moreover only slightly over half teachers feel confident about selecting appropriate digital material or resources. If teachers are unable to be consistent with selection, then it stands to reason that delivery will be inconsistent across the school system. This is an area that we believe has to be addressed.

We also agree with the views of Hon. Sin Chung Kai, Legislative Council Member for the IT Constituency, that It should not become a workload on all teachers per se as their responsibilities are for education their pupils, yet It is complex, so a position within each school dedicated to one teacher who will receive additional training (and salary) to concurrently hold the position of School Information Officer – SIO – similar to commerce. Such a position should be well versed and certified in areas such as network connectivity and security. Overall within the Educations Bureau there should be a Chief Information Officer that is both highly experienced in IT as well as the education process that can assume the responsibility of keeping the physical and human infrastructure up to date and working within the top levels of the EB to ensure that curricular is both current and relevant.

The next step and proposed action plan

Action is of course the desired outcome of any review and to this end based on the observations and recommendations of the above as to an initial upgrade of the hardware, we would

recommend a separate annual 'education IT budget' ('Eitb')be provide for that will allow for progressive upgrading of hardware and software and training/HR development.

Innovation in the IT industry is continuous and accelerating. A current model full featured mobile phone has more computing power than went to the moon with the first humans. A desktop and high end notebooks can now perform tasks that were mini or mainframe 10 years ago; the Internet was hardly used by anyone in Asia 10 years ago, and access speed have exponentially increased in the last 5 years. There is every indication that advances will continue into the foreseeable future, and provision will need to made accordingly to take advantage of these.

Recommendations

The addressing of capacity building – teacher human resources is probably the most important factor in the immediate to short term and as a leading provider of vendor neutral Certifications for industry, CompTIA would be willing to work with the EB on constructing a comprehensive certification package in two phases. Initially, the teachers then for each school including bundling and integrate some e-learning/courseware materials from our partners into a packaged solution that could be incorporated into this new strategy.

As the consultation document notes in its concluding tables of expenditure, a great deal of money has been made available, however in the document there does not appear to be any reference to the validation of the training of teachers – the empirical measurement of the success of such training by means of examination.

We would like to specifically address action point 2 (page 24) regarding training to sharpen teachers IT skills. We believe that training should be followed by validation and in the IT field, that this be based on globally accepted standards that are recognized by industry.

Such validation already exists in the form of CompTIA's entry level vendor neutral certification programmes. The first Certification we would recommend would be to measure the ability of teachers to in fact teach IT related subjects. This is a logical starting point as there needs to be a baseline in place from which to build teachers IT skills so they may impart their knowledge effectively to their students.

Please refer to the appendices and www.comptia.org for teachers our Certified technical Trainer + (CTT+) is an industry recognized standard that will ensure teachers possess the skills required to teach effectively. The suggested curricula for the certification and trainers are available from CompTIA partners. Following CTT+, then basic IT knowledge of PC's, being the front line interface to IT is the next logical step. CompTIA's A+ is the most popular vendor neutral entry level IT certification in the world with over half a million people certified worldwide.

This can then be flowed by selected teachers per school gaining additions qualifications in networks (Network +) and Security (Security +). We would recommend at least one teacher per school

to have had their knowledge verified by our industry driven certifications, which themselves are regularly updated by our subject matter experts as this will ensure relevance in their teaching.

CompTIA does not do any training or prepare courseware per se; we work with our 2000 member companies that specialize in this area and do suggest curricula that will enable training facilities to increase their success rate in the exams.

For examples of what is available, a search on Amazon.com under 'CompTIA A+' will return more than 40 results of courseware references alone for these single certifications. With respect to CTT+, we are developing a simplified CTT+ program, which will have just a proctored exam (CTT+ currently also has a video exam). This could be packaged with content to provide self-study or an e-learning CTT+ solution for the teachers.

With respect to technical support, in particular the ITeHelp centre's, we would recommend at a minimum that all technicians that work there be qualified with CompTIA A+ and one other Certification from Network +, Security + and within the next 3 years, Convergence + (for data/video/voice networks)

For learning in general we would recommend that the technical standards for education as encompassed by the International Standards Organization's Joint technical Committee 1, (ISO JTC-1) be adopted in particular the deliberations of working group 34 that has as its remit the construction by consensus of global IT standards for education be examined in detail. 34 (The writer is an appointed expert on JTC-1 SC 34 and was recommended by the Hong Kong IT Federation – HKITF - endorsed by the Innovation and Technology Commission, HKSARG).

We also recommend that the EB work with our members on an individual basis, in particular software vendors who also have training and educational program for their specific products.

6 Conclusion

COMPTIA would like to thank the Education Bureau and the Government for preparing their vision of IT in education, ETI 3, in which we agree is vital for the digital future of Hong Kong and for

asking for public comments. We stand available as always to assist in providing industry views for building a robust IT Infrastructure and a knowledge-based economy for Hong Kong.

Hong Kong's unique position and success in the region is based on its openness and acceptance of market driven solutions, as such the views of industry, both within Hong Kong and outside play a vital role in shaping policy.

It is therefore commendable and vital that Government should exercise caution and consultation with all stakeholders on any action in the IT arena to ensure a level playing field for all players, both businesses and consumers. Policies that inhibit innovation, limit choice or development of new technologies in a connected world would be a step backwards for Hong Kong, which is a proven dynamic and forward-thinking economy.

We look forward to hearing your response to our above comments in due course.

Submitted with respect.

Sincerely,

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