



**CAYMAN ISLANDS
GOVERNMENT**

Statement to the Legislative Assembly

**First Meeting of the 2015/2016 Session
of the Cayman Islands Legislative Assembly**

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Minister of Education, Employment and Gender Affairs

Accomplishments in ICT and STEM

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Madam Speaker,

It is with great pleasure that I present to this Honourable House the outstanding accomplishments of the Ministry of Education, Employment and Gender Affairs in the area of Information and Communications Technology (“ICT”), and the notable efforts taken to strengthen STEM provision in the schools. The focus and provision of ICT and strengthening of STEM in the schools is a priority for this Government and for myself, as Minister of Education. The Government has invested and continues to invest in charting a course where technology is thoroughly embedded and integrated across the curriculum and in our schools. As it relates to Education, the goals of the Government are to establish the Cayman Islands as a centre of educational excellence, and to prepare students to take advantage of employment and entrepreneurial opportunities that exist in order to excel in the local economy and compete in the global economy. To this end, the Government, through the work of the Ministry of Education, is striving to create learning environments where the ICT infrastructure is strong, and where the use of ICT in the classroom is embedded in all parts of the learning process, in order to create confident and engaged learners.

Interactive Whiteboard Technology (“IWB”)

As a result of the targeted investments made during 2014/15 fiscal year, the first, and perhaps most exciting initiative to be rolled out for the 2015-16 academic year is that every primary school classroom will be provided with an Interactive White Board (“IWB”). Interactive White Boards have been steadily added to government primary and high school classrooms over the past several years. We currently have 192 classrooms with interactive white board technology; however, additional interactive white board technology for schools has been procured earlier this year and will be installed for the 2015-16 school year. The Ministry tendered for interactive white boards in March 2015, and 117 interactive white boards have been purchased, which will increase coverage to 100% of primary school classrooms. By September 2015 every public primary school classroom will have access to this technology, and so will 60% of all public high school classrooms; and the Ministry was able to successfully source this technology at significantly lower than expected cost. At a cost of CI\$108, 576, this initiative came in well under pre-tender estimates of \$170,000.

Interactive White Boards have become more common place in the modern classroom and are in fact, requested more often by educators who wish to produce and utilise engaging content with their students. Through software which allows for the fast creation of interactive activities using templates, IWBs provide the opportunity for teachers to show, and have their students demonstrate, aspects of their learning. The software brings an additional element into the teaching and learning dynamic, by allowing students to create content for use by other students. This is another strategy to demonstrate learning; it is also a good way to teach students to be more than just consumers of information, but to be creators of content as well.

Specifically, in the core areas of literacy, numeracy and science, educators have developed a plethora of content to be used interactively. Students have the opportunity, for example, to manually adjust variables and see the impact on a graph or the environment; or engage in logical sequencing for story-telling. Students also have the ability to work collaboratively, as the modern IWBs allow for more than one touch input at a time, which means potentially, two students can be at the board working on different parts of the same problem or activity.

In addition to adding collaboration and interactivity to lessons, the Ministry of Education has purchased software that will allow collaboration between classes and schools using Interactive White Boards as a videoconferencing tool. Software for use with interactive white boards has also been purchased to allow videoconference connections between schools and internationally.

To provide savings to the Government, the Ministry's ICT Unit has worked with Public Works to install projectors and projector arms in each classroom. The tender was for the interactive white board only to be used with the existing projector and projector arm. In order to further save costs, the tender was for supply only of the interactive white boards as the ICT unit is working with Public Works Department to install the interactive white boards before or during the Summer 2015. Several of the IWBs have already been tested at one of the primary schools earlier this month.

Research has shown that IWBs are most appropriate for interactive teaching at the primary school level, therefore, while we have equipped our high schools with

some interactive white boards, the focus is for high school students to have access to laptops and other educational technology.

Upgraded School Websites, Teacher and Parent Portals

The second exciting initiative is that upgraded School websites for all schools will be launched in 2015-16 (<http://schools.edu.ky>). These public facing websites will take advantage of social media and be integrated with SIMS Learning Gateway (SLG), which is the web-based, online portal for teachers connected to the schools central information management system (SIMS). This upgrade will also create a much needed intranet for the internal sharing of information within schools. During the 2015-16 school year, these web-based online portals will also be made accessible to Students and Parents. Parents will be able to view their student's profile, view any school announcements, and view relevant statistics like attendance and academic achievement to date.

Use of SIMS (Management Information System) in all schools

The use of SIMS as a school management system is now embedded in all schools. All schools and teachers are expected to use SIMS to record pertinent information. SIMS provides much more than school database or a system to record attendance and grades. SIMS is now integrated into our school websites using SIMS Learning Gateway and Microsoft Sharepoint. SIMS Learning Gateway will integrate with the school databases and will provide a web-based online teacher portal with student portal and parent portal coming in 2015/16 school year.

SIMs is the most popular school management information system (MIS) in the UK used in over 22,000 schools. The SIMs solution has been developed by Capita specifically for the education sector and has been refined to meet the changing needs of schools over the last 24 years. SIMS has become the key piece of software for managing schools, especially at the high school level and includes the following features:

- The admission of students and monitoring of enrolment places available in schools;
- The maintenance of student records and easy transfer between schools as children move about our system;

- The ability to search historical student data when queries arise;
- The ability to extract information when requested by policy makers to allow for better informed decision making;
- The recording and analysis of attendance information by schools and education staff;
- The recording and analysis of behavioural information by schools and education staff;
- The recording of special educational needs (SEN) data;
- The recording and analysis of external examination results by schools and education staff;
- The recording and analysis of assessment data and internal test results;
- The creation and maintenance of timetabling and student curriculum data;
- The maintenance of staff timetables;
- The ability to cover absent staff and arrange substitute teachers;
- The ability to use SIMs to contact parents about their children; and
- The compliance of the database to international data protection laws.

ICT Infrastructure Improvements: Education Wireless & Network Upgrades

The Ministry's ICT team has also implemented some much needed infrastructure improvements to the networks. They have upgraded the campus Wi-Fi to be appropriate for educational environments at East End Primary School, Edna M. Moyle Primary School, Sir John A. Cumber Primary School, Lighthouse School and the Cayman Islands Further Education Centre (CIFEC) in the 2014/15 school year. During the Summer months, wireless network upgrades for George Town Primary School, Red Bay Primary School, Savanah Primary School, Prospect Primary School, Bodden Town Primary School, Creek & Spot Bay Infant and Junior School sites, West End Primary School, John Gray High School, Layman Scott High School, Department of Education Services and Teachers Centre Cayman Brac are scheduled and will be ready for the 2015-16 school year. This significant upgrade improves the strength, reliability and security of the education wireless network, and also provides a Guest Wireless network that can be accessed by guests of the school, while maintaining the integrity of the network security. Network equipment upgrades are planned for all schools during Summer 2015, which will improve the stability of the education network, and increase the reliability and speed of the network. In terms of the technical upgrades, the ICT team will be

upgrading network equipment in all schools, will be completing cabling and fibre upgrades, and providing some new servers.

Online Library System

Another initiative for the 2015-16 year is The Destiny online library system by Follett, which will facilitate the consolidation of all school library systems with one web-based library portal for all schools. This national online library system will be integrated with existing school libraries and will improve access to e-books and digital resources in schools. In addition to this online system, the ICT team has begun implementing laptops in the libraries in our IB schools for access to digital resources and e-books.

Increased Bandwidth for Schools

Increased bandwidth for accessing online resources by students and teachers will be implemented for all schools during the 2015/16 fiscal year. With various service providers now running fibre across Cayman, the Ministry's ICT Unit is now in a position to provide more bandwidth in each school with new fibre connections. The Unit is now working to provide a separate Internet connection in each school, instead of a shared internet connection.

1:1 iPad initiative at Lighthouse School

I am also happy to provide an update with respect to the first ever 1:1 initiative for government schools which was launched in 2014. Thanks to a generous private sector donation of 106 iPads, every student at Lighthouse School has access to an iPad and appropriate educational apps. Ministry ICT staff have been instrumental in installation, maintenance and management of all software to ensure that our special needs students attending the LHS have access to appropriate resources.

EMPS Laptop Donation

I would also like to acknowledge another private donation of 10 laptop/tablets to the Edna M. Moyle Primary School by a resident of the area. These laptops will be primarily used to set up an assisted reading and writing programme for some of

our Special Education Needs students at EMPS who would be better able to access the curriculum with this support. These machines will also be used for e-reading and book club activities for the students at EMPS, as well as for research throughout all classrooms. In addition, the laptops will be used as pilot devices for deploying Windows 8 and Office 365 at EMPS before rolling the systems out to the other schools. These tablets will also be compatible with the new online library solution mentioned earlier.

Increased Inter-Island School Connectivity

Additional and upgraded videoconference equipment has been purchased which will allow for improved videoconference capabilities between Grand Cayman and Cayman Brac. This will increase collaboration between educators in Grand Cayman and Cayman Brac and will reduce the necessity for inter-island travel, thus reducing the costs associated with such travel.

Improving STEM Instruction

Education must prepare children for the jobs of the future. The U.S. Department of Commerce released a study in 2011 which reported over the past 10 years, growth in Science, Technology, Engineering and Mathematics (STEM) jobs was three times greater than that of non-STEM jobs, and STEM jobs are expected to grow at a faster rate than other jobs in the coming decade. Likewise, according to the study STEM workers are less likely to experience joblessness, command higher wages (earning 26% more than their non-STEM counterparts). STEM degree holders earn higher earnings regardless of whether they work in STEM or non-STEM occupations.

The Business Roundtable, an association of chief executive officers of leading U.S. companies whose aim is to promote sound public policy and a thriving U.S. economy, recently conducted a survey of member companies to determine where the biggest gaps are in skills. The survey found that 97 percent of member CEOs sees the skills shortage as a problem, and that job vacancies in science,

technology, engineering and math fields often attract far fewer applicants. According to the U.S. Department of Education, only 16% of American high school seniors are proficient in mathematics and interested in a STEM career – at a time when STEM jobs are growing three times faster than non-STEM jobs.

The Ministry of Education is focusing on ways to strengthen the STEM teachings and provisions in our schools and at UCCI. In an effort to address the local STEM skills shortage, the Department of Education Services is also implementing a new ICT-related initiative in the classroom itself. Lego Education WeDo and Lego Mindstorms Education EV3 robotics kits were purchased for government primary and high schools respectively. The kits combine the creativity of Lego to construct and build, while adding the dimension of problem solving, logic and programming to the various projects students undertake. Both kits have a variety of projects based on the Lego Education 4C philosophy of “Connect, Construct, Continue and Contemplate”. The projects initially allow students to CONNECT with a familiar concept, whether it is a problem where there is a need to generate air from a fan, or a sensor that prevents a car from crashing. Students are then required to CONSTRUCT the project using the Lego bricks and the various motors and sensors. The CONTINUE phase occurs through an extension project; possibly controlling the fan by a sensor, or allowing the car to turn at a particular angle when it reaches an obstruction instead of stopping. Finally, students are encouraged to CONTEMPLATE what they did and think of the implications not only for real-life applications, but hypothesise on the outcomes if various variables are adjusted and then test those hypotheses. The intended outcome for government schools is to incorporate the robotics kits into the delivery of instruction in maths, science, literacy and ICT, through the various projects, and also start students thinking about the logic and problem solving involved in programming the robots. Schools have received kits already and will have enough to serve up to 16 students in a class at any given time. Individual schools are planning for the use of the kits and are considering both classroom use and after-school clubs.

The push for increased STEM awareness and skills development extends to post-secondary educational endeavours as well. In March 2015, the Ministry of Education sponsored and UCCI delivered the third staging of the STEM Carib

Conference: “The Next Big Thing” gathering local and international STEM experts to the Cayman Islands to discuss a plethora of topics that served to expand the knowledge base of local children and adults alike. In addition, with the support of corporate sponsorship, the year-long STEM Ambassadors Club hosted at UCCI was piloted during the 2014/15 academic year with monthly meetings catering to over 50 students in the high school and tertiary levels. Students were engaged in various activities and seminars with topics ranging from fractals to alternative energy.

Madam Speaker, this Government recognises the need to continue to invest in our students and our education system as a whole in an attempt to create a centre of educational excellence, and to prepare students to take advantage of employment and entrepreneurial opportunities that exist in order to excel in the local economy and compete in the global economy. Since taking office it has been a priority of mine, as Minister of Education, to improve the ICT provision and STEM related programmes in our schools. I am delighted to deliver this report on behalf of the Government showing that numerous considerable advances have been achieved this year in this regard, in order to support the learning processes of our students and to help them to achieve their full potential.

Thank you, Madam Speaker.