Skills Strategy Options for the OECS

A Report to the OECS and the World Bank

DRAFT FOR DISCUSSION

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ACRONYMS

AVC	**Area Vocational Center**
CA	**Carder Academy**
CSEC	**Caribbean Secondary Education Certificate**
CCSLC	**Caribbean Certificate of Secondary Level Competence**
CTE	**Career and Technical Education**
CVQ	**Caribbean Vocational Qualifications**
CXC	**Caribbean Examination Council**
EMIS	**Education Management Information System**
KRIVET	**Korea Research Institute for Vocational and Technical Education and Training**
LMI	**Labor Market Information**
NAEP	**National Assessment of Educational Progress**
NTA	**National Training Agency**
OECD	**Organisation for European Cooperation and Development**
OECS	**Organization of Eastern Caribbean States**
PISA	**Programme for International Student Achievement**
TVET	**Technical and Vocational Education**

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Executive Summary

The Caribbean states of Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines have achieved middle income status since gaining independence from the UK in 1974-1983. Anguilla, the British Virgin Islands and Montserrat, self-governing states that have the status of British Overseas Territories have seen similar economic progress. The first six are Member States of the Organization of Eastern Caribbean States (OECS), a sub-regional organization for cooperation and development; the latter three are Associate Members. With the Revised Treaty of Basseterre expected to be ratified by Member States in 2011, the OECS is to create a new Economic Union that will have a stronger legislative role in sub-regional collaboration.

Fully integrated into the global economy, the OECS States rely on economic growth in tourism and financial services to create employment, raise incomes and continue to reduce poverty. Competitiveness matters to these small countries, yet despite significant investment in education the productivity of the workforce has not been growing over the past decade and economic growth has slowed.

The principal barrier to competitiveness and growth is that the skills of the workforces have not kept pace with rapid changes in technology and markets even as the structure of the economies changed. Both agriculture and manufacturing have declined sharply as share of the economy; most jobs are in now in services and growth in that sector has fallen as well. Open unemployment hovers around 20 percent, and can be twice as high among youth, leaving work in the unregulated informal sector as a last recourse. Unfortunately, the international drug trade and other forms of crime are flourishing under these circumstances, raising a further threat to competitiveness.

Employers rate lack of appropriate skills in the market as the major constraint on growth and expansion, in contrast to many other lower middle income countries where lack of access to finance and government regulation are seen as higher barriers. More than half of employers provide training, but find that inadequate skills of new employees make it quite costly.

OECS education systems now enroll nearly all youth in secondary school, about a third of them in vocational education programs. Automatic promotion into secondary education is now largely in place. Learning achievement levels as measured by the Caribbean Examination Council tests are average for the Region. Most States have community colleges and there are branch campuses of the University of the West Indies, but less than fifteen percent of secondary school graduates go on to post-secondary education. Of those that do many migrate in search of better economic opportunities in the USA and Canada and elsewhere in the Caribbean.

Recognizing the need to adapt education systems to the skill demands of the global economy, the OECS States have sought strategic direction from donors and on their own over the past five years. Much of the advice has been consistent in setting improvement in the quality of secondary education as the highest priority; some of it has focused on improving technical and vocational education systems. With donor support, initiatives to improve the quality of secondary education and vocational training for out-of-school have been put in place in some of the States. .

In anticipation of the strengthened sub-regional collaborations promised by the pending Economic Union, the OECS Secretariat is preparing a new education strategy with the broad goals of improving economic competitiveness, expanding employment and reducing poverty. The present Strategy Paper is one of several being prepared to support the OECS strategy.

Other relevant topics are being addressed in separate papers for the OECS Education Strategy, including curricula and education finance.

The focus here is on secondary education, the last stop in formal education for the largest share of new employees. The strategies offered are benchmarked on the changes in skills demand in OECD countries and the changes that such countries have made to adapt their education and training systems to these skill demand changes.

In the USA demand for higher order skills in analysis and interpersonal communication (called "non-routine skills in the research) has risen by factors of 4 and 7 respectively, while demand for routine cognitive and manual skills, and for non routine manual skills have fallen considerably. Jobs that require data analysis, creative thinking, interpretation of information for others, and guiding and motivating subordinates have grown substantially, while those that require accurate performance of repetitive tasks and controlling machines and processes have contracted. These changes have been driven by the digitization of work, with computer programs doing the repetitive work and the internet lowering communication costs and facilitating the outsourcing of low skill work to countries with low labor costs. This pattern appears across the OECD, and as research in Brazil shows is spreading with economic integration.

Along with other OECD countries, Korea has steadily adapted its education and training system to these economic changes over the past five decades. Early equal weight was given to vocational and academic secondary education to build for expansion of universities on the one hand and move relatively uneducated youth from rural areas to urban manufacturing jobs. The Korean economy continued to change through capital intensive manufacturing to technology intensive businesses, and then on towards a knowledge economy and industrial convergence. Along the way vocational enrollments were capped and began to fall while academic secondary education expanded to drive growth in post-secondary and university education. By 2007 ninety percent of secondary graduates, general and vocational, enrolled in post-secondary or tertiary education before entering employment. Korean students have been scoring in the top five countries on the international PISA examinations.

Other OECD countries adapted differently. Scandinavian countries consolidated occupation-based vocational education into a dozen career curricula offered after ten years of general education, Germany consolidated the dual system while enrollment in academic secondary education increased. In the USA and UK career academies were formed as schools-within-schools that prepared students for careers in health care, tourism and hospitality, and technical subjects such as robotics in close collaboration with employers. Higher education enrollments were expanded, doubling in Australia and Austria and increasing by more than 40 percent in Germany, Mexico and the USA.

The key to these changes was development of effective schools. This required increasing school autonomy accompanied by strong measures of performance, giving priority to teacher pay over small classes, and providing students with similar educational opportunities, regardless of socio-economic background.

Currently the education systems of the OECS States remain locked in the kind of centralized, top-down system that tracked children early to vocational education tracks based on test scores: not surprisingly, these students tended to come from lower income families.

With access established, it is now time for OECS States to change their education systems to enable youth to gain the skills needed for success in the global economy, for contribution to economic growth and for competitiveness. Strategies for change will need to be accompanied by capacity building for the decentralized management that facilitates linkages between school and work while ensuring that all students master the skills of the new global economy. The recommended strategies are: a) to enable primary graduates to choose their secondary course of study, rather than track them into vocational courses; b) improve the quality of teaching to focus on non-routine critical thinking, problem solving and communication skills across all areas of the curriculum; c) experiment with models of employer/school cooperation that give all students work experience during secondary school; d) consolidate vocational education into separate institutions, reducing enrollments while working with employers to develop the cognitive and behavioral skills in demand.

To carry out such reforms, OECS education systems will need to build capacity to a) establish effective collaboration with employers, b) improve governance for flexibility and accountability, and c) improve incentives by moving from routine budgets toward targeted performance-based public financing.

Skills Strategy Options for the OECS[1]

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OVERVIEW

Despite small populations and economies, the Windward Island Caribbean states of Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines have achieved middle income status since gaining independence from the UK in 1974-1983. Anguilla, the British Virgin Islands and Montserrat, self-governing states that have the status of British Overseas Territories have seen similar economic progress. The first six are Member States of the Organization of Eastern Caribbean States (OECS), a sub-regional organization for cooperation and development; the latter three are Associate Members.

The Economic Union is expected to have a stronger legislative role in sub-regional collaboration: this includes the responsibility for developing an education strategy that will address issues of improving competitiveness. This Strategy Paper (SP) is a contribution (among others) to the emerging OECS education strategy.

Because of difficulties with access to data, this study deals only with the six Member States. It is hoped that the findings and recommendations will be of service to the Associate Member States as well.

How is this Skills Strategy Paper Organized?

By taking a skills development approach the Strategy Paper (SP) looks at international experience in adapting education systems to changes in skills demand. The focus is on the strategies that have been developed and on the institutional capacities needed to implement strategies. Improving skills, productivity and earnings are the guiding goals. To the extent that the poor acquire better skills poverty should fall.

Other relevant topics are being addressed in separate papers for the OECS Education Strategy, including curricula and education finance.

As the largest source of skills for employment, comprehensive secondary schools are the focus, although post-secondary education is considered insofar as it creates incentives for change on the other. Vocational education and training at the secondary education are important topics.[2]

The first section draws on current international economic research to show how the skills in demand from employers have changed to meet the challenges of globalization and competition. In sum, the changes are profound and rapid and transcend the occupational structures that served as the basis for the design of the TVET systems three to four decades years ago.

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[1] The views and recommendations of the paper are those of the author and do not necessarily reflect those of the OECS or the World Bank.

[2] Skills training for unemployed youth outside of the formal school system is in early stages in the OECS, and is not treated in this study.

The second section uses international experience to show how different countries are adapting their education systems to meet changing skills demand. Strategies vary, but in all cases enrollments in traditional TVET decline relative to academic secondary education as universal secondary education is achieved, post-secondary and tertiary education expands, and the role of employers in continuing education and training is explicitly recognized and encouraged.

The OCES context for economic growth, employment and skills demand is discussed in Section III. The assets of OECS education systems, and the challenges to change, are the subjects of the fourth section. Much has been achieved and there are many assets, but institutional capacity to plan, manage and finance change at the national and school level needs to be strengthened: this is likely to require changes in governance, accountability and funding procedures.

The fifth and final section offers -- for consideration -- strategic options for educational change in the OECS and identifies the capacity building strategies that are needed to implement changes. These options are intended not as ready-made solutions, but as a partial framework for consultation and debate. Too simply put, general secondary education would be strengthened to provide the cognitive and behavioral skills in demand by employers, and linked to work through several curricular and institutional options; TVET would be strongly linked with employers, consolidated into stand-alone technical vocational institutions, and strengthened for quality. Current skills training initiatives, such as the Caribbean Vocational Qualifications (CVQ), training for unemployed youth and adaptation of the Caribbean Examinations Council (CXC) examinations to new skills would be further integrated into broader sub-regional strategies. Although not the main focus of this SP, it also makes sense over time to remove bottlenecks between secondary and post-secondary education.

The study draws on previous work for description and diagnosis of the current economic and employment situation in the OECS, and for description of current education systems. The sections on the skills required in globalized economies, and on the strategies used to adapt to these changes in other countries, are new. The recommendations for strategy choice and implementation owe much to previous work, but are those of the present author.

preparing young people for entry-level jobs. The Table shows five skill categories together with sub-skills and examples of occupations that demand high levels of the skills in a given category. The data are based on large scale surveys of employees regarding the skills that they use at work.

Table 1: Categories and Components of Skills

Skills	Non-routine cognitive: Analytical	Non-routine cognitive: Interpersonal	Routine cognitive	Routine manual	Non-routine manual physical
Sub-skills	Analyzing data/information Thinking creatively Interpreting information for others	Establishing and maintaining personal relationships Guiding, directing and motivating subordinates Coaching/developing others	Importance of repeating the same tasks Importance of being exact or accurate Structured work	Pace determined by speed of equipment Controlling machines and processes Spend time making repetitive motions	Operating vehicles, mechanized devices, or equipment Spend time using hands to handle, control or feel objects, tools or controls Manual dexterity Spatial orientation
Examples of occupations demanding high levels of these skills	Lawyers, College, university and higher education faculty Teaching professionals, Public and private sector managers medical doctors, Training and development managers		Telephone operators, Bus drivers, Bookkeeping, accounting and auditing clerks, meter readers-utilities, cashiers.	Industrial truck operator, Cutting and Slicing Machine Setters, Operators and Tenders, Shoe Machine Operators and Tenders, Food Cooking Machine Operators and Tenders, Construction Carpenters.	

Source: Acemoglu and Autor (2010)

This specification of skills takes forward the earlier work on the new basic skills. A clear advantage for education and training strategy is that these specifications provide immediately useful guidance to how content should be taught in education and training programs. To take a simple example, non-routine skills require modeling and practice of key processes: analysis, creative thinking and interpretation of information. These can be incorporated into teaching of any formal curriculum: history, language, science and mathematics. Non-routine interpersonal skills can also be learned across the curriculum (even in sports and physical education) if the subjects are taught in ways that require the skills to be practiced and formative feedback is provided.

The analysis also suggests why the technical and vocational curricula and programs of the 1970s and 1980s are rapidly becoming less relevant. These were – and continue to be in many countries – focused on routine skills.

repetitive and accurate work following rules may increase, but as computers take over more and more of this work demand will begin to decline. A key difference between Brazil and the OECS economies lies behind this: in Brazil more than 20 percent of Brazilian employment is in agriculture and an additional 20 percent in industry where routine manual and cognitive skills are in demand. OEC employment share in each were six and seven percent in 2000; the services sector (including government employment) stood at eighty percent. Digitization of work changes skill needs rapidly in the service sector. Equally, non-routine interpersonal skills are in great demand in the tourism industry, where communicating with customers as part of nearly every job.

Given this, education authorities need to think again about the value to students and to the economy of narrow vocational education programs inherited from the 1960s and 1970s. These programs were designed for the occupational structure of economies 50 years ago, where most workers operated alone. Craft and trade skills are still needed in every economy, but the number of employment opportunities has fallen sharply relative to jobs requiring non-routine skills for thinking and working in teams.

Second, the new basic skills (Box 2) should be learned in primary and lower secondary education, not for employment for school leavers, but to better prepare students for upper secondary education.

Third, it seems clear that when non-routine skills are learned in general secondary education the employability and trainability of graduates improves. We know from recent research on PISA examination scores across 60 countries that the quality of teaching is the most important determinant of cognitive achievement, and also that higher autonomy of individual schools in curriculum and teaching decisions also matters to learning outcomes.[6] Investments in the quality of teaching and the governance capacity of schools would go in the right direction.

Fourth, and last, post-secondary education has become increasingly important for the higher levels of non-routine jobs. As we will see in the next section, expansion of post-secondary education has been a common strategy for skill development in many globalized countries.

[6] OECD (2010)

In the same period, in countries with high levels of State control (Singapore now, most of East Asia earlier) and rapid and sustained economic growth public TVET was reasonably well managed and most graduates were employed. High recurrent costs could be afforded. It is worth noting that in all East Asian economies employers provided a great deal of training with varying levels of subsidies provided by payroll taxes or from government budget; with globalization post-secondary and higher education have received enhanced priority.

The rationales for State involvement in vocational education were both economic and social, with vocational education often seen as an option for poorer and lower class students. A consequence of streaming student to vocational programs based on test scores in which social class differences had the unfortunate effect of establishing a public image of vocational education as a second rate choice.[8]

A different approach was taken in Brazil, Chile, Colombia, Mexico and nine other Latin American countries, including the Dominican Republic, beginning in the 1940s in Brazil. Employer associations took responsibility for organizing technical and vocational training along with productivity services to firms. Financing has been provided by a payroll levy on private companies that governments in turn rebate to the associations. The training institutes are governed by Boards representing enterprises, workers, employee unions and the government. Fully autonomous, these institutions have been able to respond quickly and effectively to changes in economy, employment and skills demand.[9]

What strategies have been used to adapt education to global competition?

As technological change accelerated wages for employees with non-routine cognitive and interpersonal skills expanded rapidly while wages for routine and manual skills fell, energizing a second phase of education reform. Enrollments in secondary vocational education and training declined as a share of total enrollments. Though relatively smaller, vocational education became more closely linked with employers and employment and increasingly focused on learning of non-routine cognitive and interactive skills.

The history of economic and educational change in the Republic of Korea provides a useful and concrete example of the stages of a strategy that links economic change and skills development (Box 3). During Korea's early drive toward industrialization during the 1960s and 1970s the challenge was to move relatively uneducated youth from rural agriculture to urban manufacturing jobs. Vocational high schools and non-formal training centers, public and private, were the mechanisms. The transition to a second stage began in the 1980s as the agriculture sector declined and both the manufacturing and service sectors expanded. By the mid- 1990's the education and training system had made major adjustments. Enrollments in TVET were capped and began to fall while enrollment in general secondary education expanded rapidly.

As junior colleges and universities expanded, the share of general secondary graduates enrolling in tertiary education reached 90 percent and the share of vocational graduates entering post-secondary education began to rise. By 2007 more than 90 percent of all secondary education graduates (general and vocational) entered post-secondary education. Low skill and technician jobs decreased as a share of employment while jobs requiring tertiary degrees in engineering and technology increased. By 2010

[8] The classic study on this is Phillip Foster (1965), "The Vocational School Fallacy in Development Planning." In C. Anderson and M Bowman (eds). Education and Economic Development. Chicago: Aldine Publishing Company.
[9] Middleton,et.al (1993); Wolf and de Moura Castro (2000)

confirmed in a recent survey to TVET in the Caribbean by the Association of Canadian Community Colleges.[29]

There is consensus across the available studies that the low quality of workforce skills are a major constraint on competitiveness, growth and employment. With the evolution of OECS economies toward the services sector, it is also clear that the skills in demand are not adequately provided through traditional technical and vocational curricula.

Skills demand in OECS economies is changing in the same way as those in other globalized economies, toward non-routine cognitive and interpersonal skills and away from the narrow craft and trade skills taught in TVET curricula designed in the 1970s and 1980s. OECS education and training systems are facing the same need to change that has characterized competitive economies world-wide.

[29] Association of Canadian Community Colleges (2009).

cost of training.[39] Other studies suggest that about half of employers provide training, with higher proportions of large, foreign firms providing more than average.[40]

By comparison, in Indonesia in 2010 40 percent of manufacturing and 38 percent of services companies provided training for skilled workers and a third of training was provided for workers under age 30.[41] By this one standard, employers in the OECS are providing a substantial amount of training. At the same time, as noted earlier, they express concerns that low levels of cognitive and behavioral skills raise the costs of training.

Table 3: GRENADA: Amount of Training Provided to New Workers

Sector	Number of companies providing training to new workers	Amount of Training Provided to New Workers			
		Less than 1 month	1-3 months	3-6 months	More than 6 months
Tourism/ hospitality	16	4	7	5	-
Agriculture	8	3	4	1	-
Information/ Communication	5	-	3	-	2
Construction	5	2	2	-	1
Marina	4	1	1	-	2
Totals	38	10	17	6	5

Learning Outcomes. Competency-based examinations administered by the Caribbean Examination Council (CXC) are the principal means of assuring the quality of secondary and post -secondary education for seventeen countries and territories in the Caribbean region.[42] The Caribbean Secondary Education Certificate Examination (CSEC) is the gateway to post-secondary and tertiary education. Beginning in 2007 CXC also offers the Caribbean Certificate of Secondary Level Competence (CCSLC) which measures learning of basic knowledge, competencies and values that all secondary students should master, but at present is not accepted for entrance to post-secondary education. The CCSLC is intended to provide a certificate useful in finding employment, and represents an important step toward recognition of general skills. CXC is also leading development of a Caribbean Vocational Qualification (CVQ) system.

A high stakes test, the CSEC has significant impact on the formal curricula of secondary schools and the expectation of students, teachers, parents and wider society. That the CXC annually sends to teachers a

[39] Hickling (2008). These are the averages ratings of 38 companies, half with 50 or more employees, a third with less than 10 employees, and six with 10-50 employees. The companies are doing business in tourism/hospitality, agriculture, information/communications, construction and marinas. Half of the companies hiring graduates were not satisfied with the quality of their skills.

[40] Blom and Hobbs (2008)

[41] World Bank (2010). INDONESIA SKILLS REPORT: Trends in Skills Demand, Gaps and Supply in Indonesia. Human Development Department, East Asia Region. Draft.

[42] http://www.cxc.org

report that analyzes student examination performance on the CSEC is formal recognition of this influence, and a laudable effort to improve teaching and learning.

Concerns have been reported that the overly "academic" focus of the CSEC and its corresponding impact on secondary curricula reflect a bias towards those students continuing on to post-secondary education and that secondary education is therefore not relevant to the world of work.[43] As discussed in Section I, the changing skills required in global economies do require the skills that can be learned in academic secondary education. And while the concerns expressed might be relevant to skills demands of the past, they are likely to reflect a general dissatisfaction with the outcomes of secondary education.

More relevant to the future is what CSEC results reveal about the levels of learning in secondary education (Box 6). Available data show that CSEC scores have been rising, at least on the pivotal English A test that measures language skills.

Worrisome, however, are the reports of poor student CSEC performance on test items that require critical thinking, analysis or communication. Responses of this kind indicate that students who fail to qualify for post-secondary education lack basic skills; these are the young people that seek to enter the workforce. The CSEC data confirm employer views that they lack skills and are therefore costly to train.

[43] Blom and Hobbs (2008)

the private sector, principals and teachers, social and religious organizations, parent teacher associations, teacher unions and experts.

But perhaps because of size, Member States have been slow to develop and use effective monitoring and evaluation systems, with the possible exception of St. Lucia. The legal and policy basis for education management varies across Member States. These instruments are important to planning for school effectiveness and efficiency when systems operate at steady state. They are critically important for investing in and managing educational change.

As most reports on OECS education have noted, governments, employers, schools and families do not benefit from labor market information. Most hiring of low skill workers takes place informally with social networks playing a large role. The lack of labor market information makes it very difficult to adapt education institutions to rapidly changing markets for skills. One report notes that in St. Lucia in 2005 there were 145 students enrolled in sewing courses but only 390 people were working as machine operators in the economy, many of whom did not operate sewing machines.[44] A very large proportion of the 145 students would not have found jobs for which they were trained.

School counseling has recently been introduced in St. Lucia and St. Vincent and the Grenadines. This is an important step toward providing students with information about education and career choices, but without labor market information career advice is likely to be based more on student interests and aspirations than on job openings.

Formal collaborative relationships with employers appear to be at the early stages where employers complain about the skills available from the education system but aside from very high level Councils and Committees lack forums through which their positive ideas can be communicated. Incentives to principals, teacher and parents to initiate such partnerships may not be clear or effective.

Progress has been made, but the level of school autonomy and authority characteristic of effective education change has not yet been achieved.

Data also suggest that States use different criteria in allocating budgets between levels of education (Figure 9). The data show the budget cost per student at different levels of education. Antigua & Barbuda spends twice as much annually for a secondary student than for a primary student; in St. Kitts & Nevis the expenditure ratio of secondary to primary is more than 3:1. Less is spent per pupil at the secondary than at the primary level in St, Vincent & the Grenadines and Grenada. These differences are too large to be accounted for by variations in teacher salary levels. Nor do they seem to be related to CSEC examinations results, or to the age of teachers, which might be a proxy for salary levels (Figure 10).

[44] Blom and Hobbs (2008).

IMPLICATIONS FOR EDUCATION CHANGE

OECS Member States have established the capacity to manage steady-state education systems but as currently configured the capacity of education systems to change and adapt to new skill needs needs to be strengthened.

Member States have succeeded in improving flows of students into secondary education. But even as nearly all students enter secondary education, most do not now acquire the knowledge and skills needed to pass the Caribbean Secondary Education Certificate (CSEC) examination at the level required for entry into post-secondary education. Perhaps as a consequence of low demand, OECS capacity for enrolling students in formal education after completing high school is small relative to potential demand if the quality of education improves.

Excess physical capacity exists in the OECS schools. With near zero population growth, enrollments are falling in primary education everywhere and growing at the secondary level in some but not all Member States. Student: teacher ratios are low at both levels, and the schools are small in terms of enrollments.

Despite the many policy studies there is very little data available on the TVET programs. What is available suggests that the quality and relevance is low. Most programs are in secondary schools, where the majority of teachers are not qualified and there is little evidence that schools collaborate with employers. There are post-secondary programs, such as the Area Vocational Education Center in St. Kitts & Nevis, and in the community colleges. But these programs remain to be mapped and analyzed. Employers train a substantial percentage of new employees (perhaps more than half), but find it a costly venture because of the low entry skills of young workers. There are a small number of training programs for unemployed youth, a costly second-chance option for those that the schools have failed.

For practical purposes, the examinations of the Caribbean Examination Council are the main measure of quality assurance. These assess both academic and vocational outcomes, and a new certificate for secondary school leavers is now in place. Data on examination performance is regularly fed back to teachers who operate with curricula determined largely by examination requirements. Work is underway to develop local skills standards as part of the region-wide Caribbean Vocational Qualifications framework, but these are some way from being operational.

CSEC examination reports to teachers consistently show that those sitting the examinations lack skills in problem-solving, communication, applying concepts and analyzing information. Among TVET subjects, only textiles and business courses (including IT) seem popular among students, possibly reflecting either low employment demand in the other occupations.

Education systems appear to be managed largely without data on inputs, outcomes or costs. Labor market information is absent in the OECS, with the consequences that employers and employees have difficulty finding each other, that vocational teachers don't know where employment opportunities for their student will be nor the skills that graduates will need to be hired