Building a culture of entrepreneurship - starting with Education
Introduction

Building and sustaining effective governmental services and educational institutions has never been easy; providing useful and efficient services often takes more resources than budgets allow. The economic fallout from recent financial and governmental crises has only served to increase the difficulty of effective governance; in some regions lack of funding has eliminated many core government functions. Furthermore, in an increasingly connected global information society, citizen expectations tend to rise with exposure to ideas and practices from other regions.

Heightened exposure to information is just one example of how ICT has driven profound changes in global society over the last few decades. In fact, one can no longer question if ICT is appropriate in a particular context, one can only carefully examine its impact on provisioning of services and citizen expectations and plan or react accordingly.

At the aggregate level, the gap between the promises of government and what government can deliver appears to be widening. At a time when every region is struggling to define its role and position in the global economy, solutions or ideas that hold the promise of closing that gap and increasing global competitiveness are of critical importance. Klaus Schwab, Founder and Executive Chairman of the World Economic Forum states, “It is in difficult times when the power of collaboration bears fruit, helping us to better understand the challenges we face and encouraging us to unleash our imagination and capitalize on the opportunities ahead”.

Fortunately, ICT can also deliver tremendous bounty in the midst of great change. Policy makers have the potential to exceed citizen expectations through technology-enabled services and collaboration, but they must create strategies that drive effective use of the tools at hand. Making the most of a tool, however, requires exposure and training so that citizens from young children to mature adults know its limits and potential. Without contextual education, ICT can appear alien, expensive, and counter-productive. With proper education, ICT can empower citizens and governments to pursue individual dreams and regional economic competitiveness with equal success.

Furthermore, proper education means much more than just knowing how to use ICT to make digital versions of current processes or approaches. Closing the gap between rising citizen expectations in times of hardship requires a change in thinking, an “unleashing of imagination” as Klaus Schwab states above. The empowered citizen of the 21st century not only knows how to use technology, she knows how to use technology to turn innovation into services, goods, or efficiencies that contribute to the local and regional economies, and perhaps most importantly the economy of her own home. This ability to turn innovation into economic output under fiscal and often social constraint defines the meaning of the word “entrepreneurship”.

Finally, successful navigation through difficult times often depends on collaboration among disparate partners sharing a common goal. In fact, the willingness for stakeholders from different sectors to focus on a unifying outcome may be critical to unleashing more imaginative and productive solutions. If economic competitiveness at a local, regional, or global level is the goal, then policy makers can look to local, regional, and global partners as collaborators in delivering positive outcomes for every citizen.

The remainder of this document speaks directly to the potential of unleashing the power of imagination and collaboration through education, entrepreneurship, and multi-stakeholder partnerships. The voices of partners that have expertise in helping citizens turn innovation into economic success using 21st
Guidance for Policy Makers

The diagram above represents the steps/initiatives/strategies that policymakers can take to work towards more effective governance, economic success, and a delighted constituency. The remainder of this paper provides guidance on how every region can address, in a scalable and cost-effective fashion, teaching 21st century skills and building a culture of entrepreneurship by leveraging multi-stakeholder partnerships:

I. 21st Century Skills
II. Entrepreneurship Education
III. Multi-stakeholder partnerships
IV. Region-specific challenges
V. Best Practices
VI. Calls to Action

I. 21st Century Skills

In today’s digital world, students must adapt to new technologies and new social environments that continually evolve and change the way we communicate and work. To succeed in a knowledge-based economy, everyone must learn to collaborate and connect digitally — both in their local communities and around the globe. Regions that can use the classroom to impart “21st-century skills” have the potential to shape their economic and social development for years to come.

Assessment and Teaching of 21st Century Skills

In January 2009, Cisco, Intel and Microsoft announced the Assessment and Teaching of 21st Century Skills (ATC21S) research partnership. ATC21S is made up of governments, intergovernmental organizations, and educational institutions investigating best practices in getting these skills taught in a systemic and measurable fashion.

ATC21S is developing an assessment framework that focuses on how students learn two specific skills — collaborative problem-solving and learning in digital networks. The results will allow education jurisdictions to look at system-wide student achievement to identify gaps in development to see where they may need to invest in curriculum change.
In order to help others replicate the work, ATC21S will place a resource kit in the public domain that includes the following:

- **Policy framework:** These frameworks will include recommendations for effective policy changes to support 21st century skills and learning ecosystems
- **Conceptual white papers:** The whitepapers cover teaching methods, technical challenges of computer-based assessments, and formative classroom evaluation. The draft white papers are available to the public now on our website at http://atc21s.org/index.php/resources/white-papers/
- **Summative assessment data:** Any assessment data from the partnership efforts will be made available to help inform policy decisions
- **Case studies:** These documents will cover how different countries are implementing the assessment and teaching materials
- **Technical requirements:** Bandwidth, software, hardware and administrative procedures

A **country toolkit** will be made available to policy makers via http://www.atc21s.org.

As mentioned above, the development of 21st century skills requires system-wide efforts at understanding where students are and where they should be. However, student success in a knowledge-based global economy requires more than these skills alone – the skills must have a context and purpose beyond the immediate classroom.

**II. Entrepreneurship Education**

Success in our global, collective future will depend on the students of today using 21st century skills to develop innovative solutions to key societal issues. Entrepreneurs, in turn, are individuals who transform these innovations into economic goods using financial and business acumen. In the long-term, the economic health of every region depends to some degree on what it does to help these individuals succeed. The following sections outline challenges, recommendations, and metrics from the World Economic Forum’s Global Education Initiative (http://www.weforum.org/issues/education) to help build entrepreneurial capacity in key regions across the globe.

**Challenges and Recommendations**

**A. Promote entrepreneurship and its integration into education**

*Build awareness.* Entrepreneurship is not always viewed positively in all regions. Policy makers should focus on building greater awareness and access to role models and success stories (international, national and local) to encourage young people to pursue their potential.

*Embed into education.* Entrepreneurship and innovation also need to be embedded across all levels of education and should address the lifelong learning process, as well as critical links between primary, secondary, higher and vocational education.

*Put entrepreneurs in the classroom.* Entrepreneurs should be integrated into classroom discussions and hands-on projects with students so that they can add value in the learning process and also serve as role models for students. Engaging them as part of the learning environment also creates stronger links with the local entrepreneurial ecosystem. Academia should be encouraged to reach out to the business community and integrate them into the learning process.

*Teach using project-based learning.* Training educators to teach entrepreneurship requires the incorporation of interactive teaching methods and project-based work into the learning environment. This can be a challenge in regions that generally lack necessary resources for education and do not give the teaching profession high prestige and recognition. Students need to be given the opportunity to experiment and experience entrepreneurship.
B. Build political commitment for Entrepreneurship Education

Make a commitment at highest levels. Establishing entrepreneurship as a foundational aspect of education requires a clear and continuous commitment at the highest political levels. Policy makers should send a strong signal of support for entrepreneurship and also set the strategic framework in which schools and universities can work to implement programs and activities within their institutions in partnership.

Coordinate, plan, and address gaps. To do so, greater coordination is necessary across ministries and action is needed at the national, regional and local levels. It is also important to review existing policies to identify gaps and overlaps as well as to evaluate what has worked and what has not.

C. Ensure the appropriate metrics and incentives are in place

Measure inputs, outputs, and outcomes. Effective measurement and evaluation of the impact of entrepreneurship education programs and policies are needed. These should be based not only on inputs but also on outputs and outcomes. Data is critical for building evidence-based policies and increasing the chance that governments will adopt and maintain policies. For comparable data across countries, there needs to be agreement on the definition of entrepreneurial competency, the scope of what should be measured, and agreement on the process of data collection. Existing data collection efforts should be coordinated to enable the development of an agreed-upon framework and process for collecting entrepreneurship education indicators. At the same time, differences in the culture and business environments between countries must be taken into account.

Use a common framework. The following diagram from a June 2011 report by the European Action Group for Entrepreneurship Education suggests one possible framework for identifying measurable inputs, outputs, and outcomes that would allow regions to benchmark their efforts globally.

D. Launch pilot projects

Successful development and execution of the challenges and responses above will likely depend heavily on pilot projects so that good ideas can be implemented on a small scale to verify feasibility and impact in a particular region. Lessons from pilots can then inform more comprehensive activities within regions and across the globe, leveraging metrics and evidence to argue for greater resources and more partners to bring efforts to scale effectively.

Entrepreneurship education delivered on a foundation of 21st century skills, both within educational institutions and as a key element of lifelong learning, is necessary to drive innovation and therefore the
economic health of any region. Even those with good policies and plans, do not have the resources to implement systemic change; their ultimate success may depend on whether policy makers can bring partners to the table who can help.

III. Multi-stakeholder Partnerships

Policies and national strategies are not enough. The material engagement of all stakeholders in the entrepreneurial ecosystem – academia, business, the NGO community, international institutions and foundations – is critical to making sure that there are enough resources on hand to help develop relevant policies and assist in the implementation of impactful programs.

Cisco, Intel, and Microsoft believe in the positive societal effect that innovation and entrepreneurship can have on the world, and deliver programs and resources that can help students harness knowledge as a means of transforming the world around them. These programs, often in partnership with local governments and educational institutions, serve as an exemplar of multi-stakeholder partnerships that help the teaching of 21st century skills and entrepreneurship scale to entire systems and even regions. Through these programs, students can explore a range of resources that have the potential to put them on equal footing with any student in any region. Descriptions of these programs can be found later in this document, showing specific examples of how students can participate in a variety of forums and activities, gain expertise needed for innovation and entrepreneurship, test skills against others in their region and across the globe, and grow local capacity for innovation and entrepreneurship within their own region.

The example above is just one example of how scaling up the teaching of 21st century skills and entrepreneurship is possible with committed policy makers and partners. Each region, however, has its own set of challenges, and the next section looks at how to drive more effective policy action in different countries and cultures.

IV. Region-specific Challenges

The following section takes a look at specific challenges in Latin America, the Middle East and North Africa, and Europe to help drive more effective policy action in these regions.

Latin America

Skills gap. The gap between skills and jobs is widening further in Latin America and many countries in the region lag behind other countries around the world in terms of employability of youth. Entrepreneurship is not always viewed positively in Latin America; policy makers should consider ways to drive awareness of positive role models to all citizens.

Teacher resources and status. In general, the region lacks necessary resources for 21st century education, and the teaching profession itself is not given the proper status and recognition. Policy makers should leverage multi-stakeholder partnerships to increase the pool of possible resources and help elevate the status of the profession in the minds of the public.

Middle East and North Africa

Quality and Skills gap. The quality and relevance of education are critical in this region due to the rising number of children needing education and the need for them to find gainful employment beyond school. Although progress has been made in key areas such as basic enrollment, millions of youths leave school without employable skills, and millions more emerge from university lacking the capabilities needed to compete for entry into private sector employment. Youth unemployment in the region averages 25 percent, and there are deep concerns about existing education models being able to provide the skills required for economic growth and development in the 21st century. Policy makers should leverage multi-stakeholder partnerships to increase the pool of possible resources available to education while increasing the relevance and employability of graduates in the 21st century.
Europe
Driving sustainable economic development. Europe is facing challenges in terms of competitiveness as well as economic and sustainable growth. Competition is increasing from other regions around the world that have been quicker to adapt and pursue new opportunities, and the gap between skills and jobs is widening. Europe must invest in developing entrepreneurial and innovative skills to build sustainable economic development, create jobs, generate renewed economic growth and advance human welfare. Europe needs to equip future generations with the necessary skills for the 21st century. The new Europe 2020 Strategy (http://ec.europa.eu/europe2020) emphasizes skills and education, but the mandate needs to go beyond quantitative measures to qualitative outcomes.

Given the recommendations and regional guidance above, policy makers should look at a variety of these ideas in action across the globe.

V. Best Practice Examples
The following ideas highlight ways that policy makers can help to improve education, increase the capacity for entrepreneurship, and leverage partnerships:

Inspire students

Global
The Imagine Cup, now in its tenth year, is a platform on which students can develop 21st century and entrepreneurship skills as they create innovative solutions to solve real world problems.

Throughout the various stages of the competition, students develop:
• creative thinking to address problems they feel can be solved through technology
• technical skills to design software, games, tools, etc. to build the solution
• business plans so that the solution can be implemented in the “real world”
• presentation skills and public speaking to discuss the solution with a panel of judges from industry, government, and education

The competition is open to students around the world, and last year more than 350,000 students from 183 countries and regions registered for the competition. With the Imagine Cup as a starting point and catalyst, many past competitors have gone on to create successful businesses, with examples on the Imagine Cup website: http://www.imaginecup.com/CompetitionsContent/ImagineCupSuccessStories.asp

Cisco Networking Academy, our largest and longest running corporate social responsibility program, helps education institutions meet the need for students to be college and career ready. By providing comprehensive coursework in ICT literacy skills, students establish the foundation of knowledge needed for skills of the future http://www.cisco.com/web/learning/netacad/academy/index.html

2011 marks the 7th annual Intel Global Challenge which seeks to support and promote technology entrepreneurship around the world. In recognition of the innovative entrepreneurial research, real world implications, and replicable business model, the Intel Foundation awards $100,000 in prize money.

Founded in 2005, the Intel Global Challenge is a joint project of the Intel Foundation and the UC Berkeley Lester Center for Entrepreneurship that brings together entrepreneurial teams from world class engineering and business schools through Intel funded 12 affiliate regional business plan competitions to an annual event at UC Berkeley.
The Intel Global Challenge gives the entrepreneurs:
1) A silicon valley experience
2) An opportunity to go to the annual Intel Capital Global summit where they can network and learn from experienced entrepreneurs and VCs.
3) An experience identifying problems and developing innovative solutions with the help of world class mentors and VC’s
4) An opportunity to take their venture beyond the competition on www.intelchallenge.com.

The Intel Global Challenge and its affiliate competitions reaches over 100+ countries.

More information on http://www.intel.com/about/corporateresponsibility/education/GlobalChallenge/index.htm

More information on Intel Entrepreneurship programs on:
http://www.intel.com/about/corporateresponsibility/education/GlobalChallenge/index.htm
http://entrepreneurship.intel.com/

**Lobby governments effectively**

Serbia

The **Serbia Entrepreneurial Learning Partnership** was built on a joint commitment of 11 institutions from both public and private sectors to establish a nationwide entrepreneurial community in Serbia. The advocacy strategy was designed as a two-track process – public advocacy process and lobbying of stakeholders. The public advocacy process encompassed a high-profile round table under the auspices of the UN Mission to Serbia and a public hearing about entrepreneurial learning at Serbian Parliament premises. A parallel media campaign followed with numerous TV and radio appearances as well as press and media reporting. This campaign raised government and entrepreneurial community awareness.

**Partner with universities, industry and government**

Italy

The **Entrepreneurship and Business Planning course at Politecnico di Torino** teaches the basic principles of developing a plan for effective startups, including sales, marketing, product definition, operations, finance, accounting and management functions. Its scope ranges from a feasibility analysis to a more quantitative evaluation needed to attract investors. Students learn how to conduct effective primary and secondary research, define business models, understand technologies and their value, identify and evaluate competitors, develop market and technology strategies, understand organizational implications, and manage risk and time.

Northern Ireland

**Developing Entrepreneurship within Initial Teacher Education**

St. Mary’s University College introduced a BA (Hons) Liberal Arts with a strong focus on employability and entrepreneurship. The college borrowed on the principles and recommendations of the European Union’s ‘Oslo Agenda for Entrepreneurship Education’ with a view to ensuring that its graduates entering the teaching profession would be better equipped to play a more significant role in preparing young people for a more uncertain labor market and helping self-initiative serve as a defining feature of career success. Structured links with the business community are a central feature of the curriculum, and teaching involves academic staff and the business community, resulting in a Certificate in Entrepreneurship as a supplementary feature to the existing degree programs.
Develop an online platform to share entrepreneurship education materials

Finland

The virtual learning environment for entrepreneurship education (YVI) (http://www.yvi.fi) is an initiative aimed at developing both basic and vocational teacher entrepreneurship education. It is a unique learning environment in which teachers can develop methods for planning, implementing and evaluating Entrepreneurial Education. The Project is financed by ESF/ The National Board of Education, Centre for School Clubs and Centre for Ministry of Employment and the Economy. The partners include 7 Teacher Training Schools, 3 Departments of Teacher Education, 8 universities, and 10 other partners.

Mexico

UNESCO and the Monterrey Institute of Technology and Higher Education (ITESM) have agreed to partner to develop a web-based platform on entrepreneurship education for Latin America, which the Latin America “Action Group” of the World Economic Forum Global Education Initiative agreed to populate with the relevant information.

Ideas and examples are important, but their potential to change the world depends on whether or not action is taken. The following section outlines things policy makers, educators, and potential partners can do to drive 21st century skills and entrepreneurship education across entire systems and regions.

VI. Calls to Action

Understand how to maximize your region’s potential for delivering 21st century skills to its students:

- Download country-specific toolkit http://www.atc21s.org

Leverage Cisco, Intel, and Microsoft efforts to drive entrepreneurship education:

- Cisco's corporate social responsibility (CSR) programs are designed to provide long-term benefits to our employees, customers, shareholders, partners, and individuals in communities around the world. We focus on three main areas: Employees, Environment, and Social Investment.

  Cisco encourages you to explore our site, both to look for an answer and to get a broader sense of our activity in the community. http://www.cisco.com/web/about/citizenship/index.html

- Intel: Empowering Tomorrow's Innovators

  In our increasingly global economy, Intel recognizes that curiosity, critical thinking and a strong foundation in math and science are necessary for tomorrow’s workforce to compete for the jobs of the future.

  That is why Intel gets directly involved in education programs, political advocacy, and technology access efforts that enable today's young people to develop the skills they need to be the innovators of tomorrow. Over the past decade alone, the company has invested more than $1 billion, and its employees have donated more than 2.5 million volunteer hours, toward this cause.


- Microsoft’s mission is to help people and businesses around the world realize their full potential. Our Citizenship work plays a vital role in delivering on that mission as we apply our technology expertise and resources to help solve societal challenges on both a global and a local scale.
