#SMARTer2030

ICT Solutions for 21st Century Challenges

GeSI
GLOBAL e-SUSTAINABILITY INITIATIVE

accenturestrategy

3.2 Learning – Education on your terms

Emergence of E-Learning – The Context

With the size of the global middle class predicted to reach nearly five billion people by 2030[1], the demand for access to affordable education will continue to increase. Better access to education and learning is essential in lifting people out of poverty, providing income opportunities and improving their quality of life. However, many people in developing countries, especially those living in remote areas, do not yet have access to education and are missing out on the opportunity to improve their lives. In addition, the rising costs of university and college education both in developing and developed countries are barriers to better education.

Education should become increasingly accessible and affordable in order to raise earning potential and quality of life for people globally.

While access to education is a challenge in the developing world, a second trend in the educational sector emerges in both developed and developing countries. Learners are increasingly looking to expand the boundaries of the education system, demanding new learning experiences that are at once affordable, flexible and engaging. The generation born in the age of technology (the "millennials") especially welcomes online learning platforms as a substitute for, as well as an addition to, traditional teaching methods.

With global education spending expected to reach $107 billion in 2015[2], E-Learning – the digitalization of learning – is gaining ground as an important way to overcome educational barriers and to open up an array of learning opportunities across the globe. An increasing number of learners can access educational content and join *Massive Open Online Courses* (MOOCs) from any location in the world, at any time.

Given these trends, the race is on to see how ICT can best be harnessed to improve peoples' access to education in an economically, socially and environmentally sustainable way.

[1] http://www.reuters.com/middle-class-infographic

[2] Global Industry Analysts (2015), Global Outlook on the Distance Learning Industry

What is E-Learning?

E-Learning is learning conducted via smart devices and broadband internet. E-Learning solutions such as open community platforms, instructional games ("gamification") and virtual reality, have the potential to create personalized learning ecosystems that are affordable, engaging and sustainable.

E-Learning enabled through ICT can be used to augment traditional learning in schools or companies and it can promote lifelong learning for a huge range of people in sectors from healthcare to agriculture. As smartphones and mobile broadband become increasingly ubiquitous, ICT-enabled education is opening up vistas undreamed of even ten years ago, transforming life-chances in the process.

Future of E-Learning

The future of E-Learning will be collaborative across institutions, breaking down the barriers in our current system. Education will become a lifelong journey in which learning is personalized to specific needs and it will be genuinely captivating.

The future of E-Learning for students.

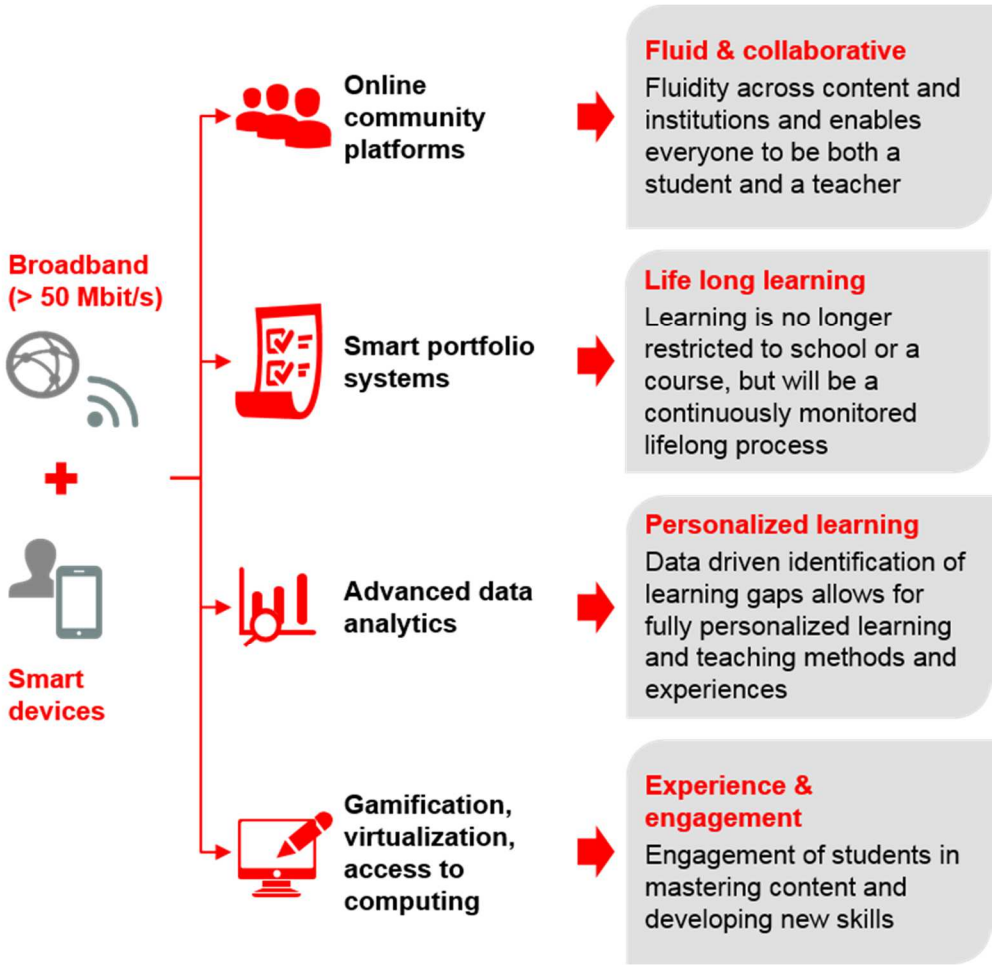
ICT has the potential to transform the definition of knowledge delivery from "static classroom" to **"anytime anywhere"** through remote access from any connected smart device. Several tools and applications like videoconferencing, *Massive Open Online Courses* (MOOC) and E-Learning apps can all facilitate remote learning.

In the future, learning will be more fluid and collaborative, it will be fully personalized, location-independent, and available at any time provided in a way that triggers engagement and creativity.

Not only will learning become more mobile and location-independent, we will also see people determining the content and direction of their own education. The **self-directed** character of online learning offers students the ability to combine content across institutions and education stages. For example, high school, university and job training no longer need to be separated but could be integrated into one self-directed lifelong learning process which you control from your smart device.

As programming, computing and computer science become increasingly important it is critical that young people learn not only to consume technology by using a phone or a computer, but also to become **creators of technology** themselves. ICT is itself leading the way here through various new platforms and techniques that enable people to learn how to code and to understand the principles behind the digital revolution.

Figure 1: Learning – Future of E-Learning: Technology Vision for 2030



The future of E-Learning for providers

Teachers will also benefit hugely from the increased roll out of E-Learning tools and applications. Access to digital materials will enable teachers to create more effective learning methods, deliver remote classes, extend their teaching beyond the classroom, collaborate with other instructors and provide more appealing ways of communicating and delivering information.

There will also be more sophisticated ways of tailoring content to students' needs. Advanced data on a person's preferences, progress or activities could help teachers better understand learning gaps, while smart portfolio assessment could collect and manage all data on a student's learning progress, acquired skills and competencies and enable teachers to assess them more accurately.

Likewise, virtual communication platforms could stimulate cross-disciplinary and inter-institutional research across borders and even languages.

The benefits of E-Learning

Our research shows that by reducing the need to travel to physical locations, E-Learning could mitigate 0.1Gt CO_{2e} per year globally. The US, China and India represent 85% of the total abatement potential of E-Learning, mainly due to their population size and the huge distances students need to travel to get to class. To achieve its potential, however, significant infrastructure enhancements and technology innovations are required in providing global access to high-speed broadband (over 50 Mbit/s) and to smart devices.

In addition, the sustainability benefits of E-Learning go well beyond emissions abatement. They also include further environmental, economic and social benefits, as shown below.

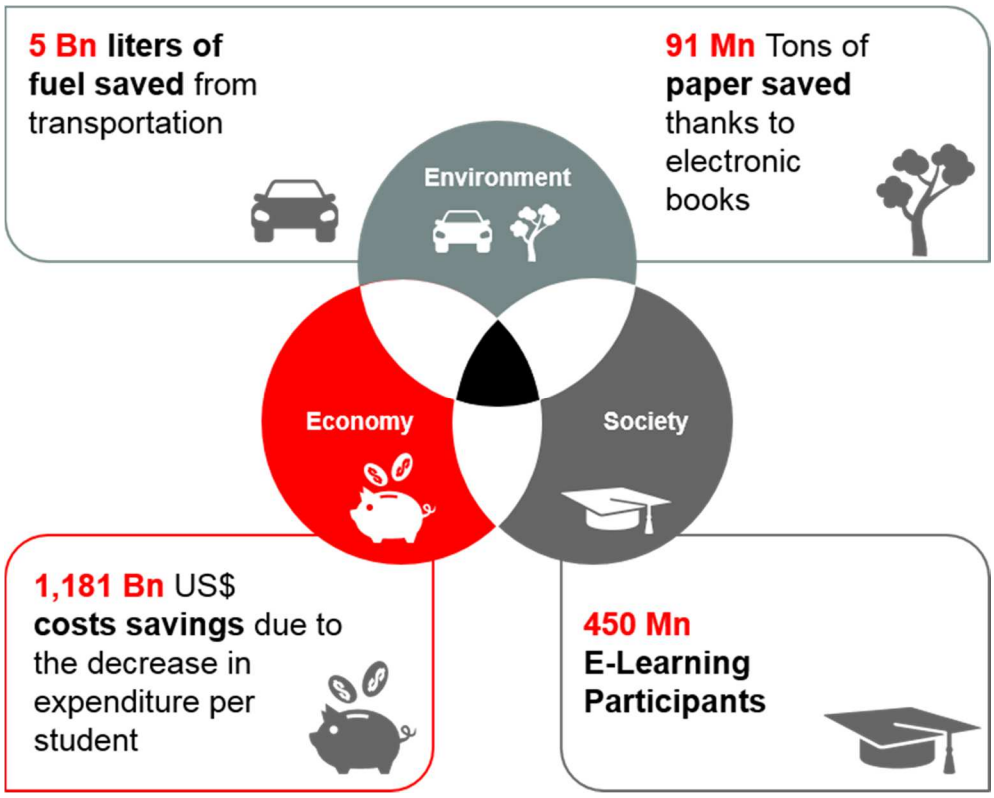
91 million tons of paper saved: By 2030, replacing hard copies of study materials with electronic books has the potential to save over 91 million tons of paper.

5 billion liters of fuel saved: Reducing the need to travel to education facilities could save 5 billion liters of fuel.

$1.2 billion of total savings potential: By 2030, E-Learning is expected to lead to $1,181 billion in cost savings due to a decrease in expenditure per student**.** For example, corporate learning through *Massive Open Online Courses* (MOOC) could save businesses at least 50% in costs compared to conventional instructor-based training.[3] Further savings come from reduced fuel usage for traveling to and from training sites **($5.4 billion in fuel savings)** and from the reduction of paper use **($24 billion of savings on paper)**.

450 million potential E-Learning participants: Our analysis has found that E-Learning advancement can offer learning opportunities to almost half a billion students undertaking their education on virtual learning platforms.

Figure 2: Learning – The Benefits of E-Learning



Skype in the Classroom – inspiring the next generation of global citizens

Microsoft's Skype in the Classroom is a free global community connecting students, guest speakers and more than 100,000 teachers from 235 different countries in 66 different languages. The program offers a shared learning experience by bringing a world of new ideas into the classroom, helping students discover new cultures, languages and concepts, all remotely. Through this program teachers are able to inspire the next generation of global citizens with innovative learning experiences through online collaboration, games, guest speakers and a fantastic game called Mystery Skype.

With Skype in the Classroom, teachers can offer blended learning by adding interactive and digital components to their classroom teaching. They can provide computer science education and bring it to life by talking to tech professionals via Skype, or inspire literacy and design by scheduling authors, illustrators, publishers or entrepreneurs to talk to their class over Skype. Student learning no longer has to be limited

[3] Towards Maturity (2014), In-Focus: Lessons from MOOCs for Corporate Learning

by physical, economic or cultural boundaries. By providing access to a wealth of global content and resources, Skype in the Classroom is a strong example of how ICT-enabled solutions can help enhance quality of life by providing creative learning opportunities and experiences at low costs.





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About GeSI

The Global e-Sustainability Initiative (GeSI) is a strategic partnership of Information and Communication Technology (ICT) companies and organizations committed to creating and promoting technologies and practices to foster economic, environmental and social sustainability. Formed in 2001, GeSI's vision is a sustainable world through responsible, ICT-enabled transformation. GeSI fosters global and open cooperation, informs the public of its members' activities to improve their sustainability performance, and promotes innovative technologies for sustainable development. GeSI's membership includes over 30 of the world's leading ICT companies; the organization also collaborates with a range of international stakeholders committed to ICT sustainability objectives. These partnerships include the United Nations Environment Program (UNEP), the United Nations Framework Convention on Climate Change (UNFCCC), the International Telecommunications Union (ITU), and the World Business Council for Sustainable Development (WBCSD). Such collaborations help shape GeSI's global vision on evolution of the ICT sector, and how it can best meet the challenges of sustainable development. For more information, see www.gesi.org.

About Accenture

Accenture plc. (,,Accenture'') is a global management consulting, technology services and outsourcing company, with more than 323,000 people serving clients in more than 120 countries. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world's most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. The company generated net revenues of US$30.0 billion for the fiscal year ended August 31, 2014. Its home page is www.accenture.com.

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