



mEducation



GSMA mEducation Toolkit

GSMA mEducation: www.gsma.com/connectedliving/meducation

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Introduction to mEducation

The Education Landscape



- Increasingly, societies and individuals around the world are recognising that investment in education is an investment in their future growth and economic prosperity.
- Economic globalisation, demographic change and rapid innovation and adoption of technology are among many global trends driving demand for education in both developed and emerging economies.
- In most OECD countries, annual public expenditure on education represents between 4% and 5% of GDP.



The Education Landscape (cont.)



- Global education IT spend was \$64.15 billion in 2010, achieving 2.5% annual growth even after the financial crisis, according to Gartner research¹.
- The growing adoption of smartphones, tablets, portable gaming machines and other handheld devices by individuals is building a potentially compelling learning platform that could be harnessed by a significant proportion of the education market.
- Mobile connectivity provides the opportunity to offer new ways of teaching and learning that are cost-effective and can create programmes of education that can be better personalised to the needs and location of the individual, thereby improving the educational experience and outcomes.

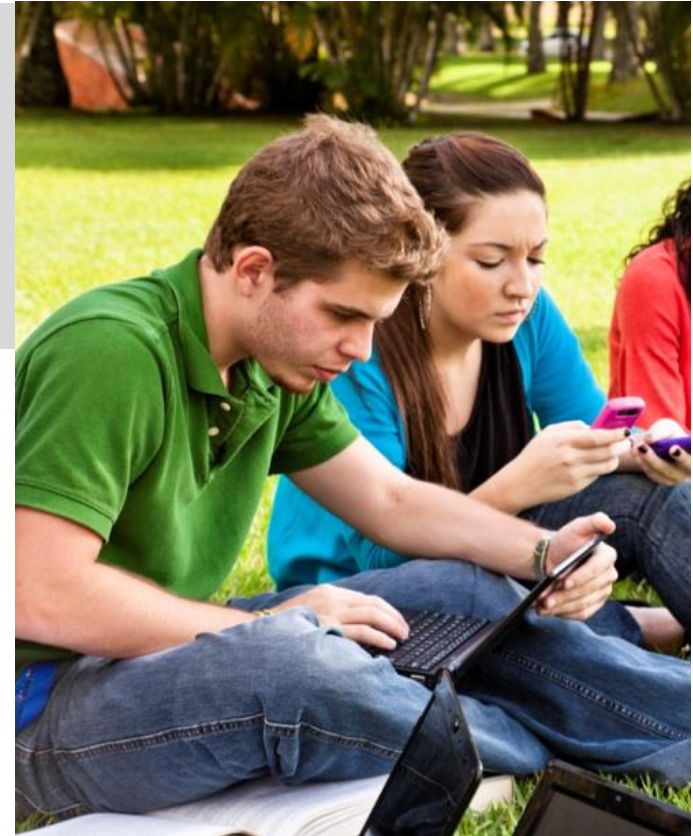


What is mEducation?

mEducation is the application of mobile devices & services, connected to mobile networks, in any education process, including teaching & learning, assessment and administration.

mEducation can be:

- Formal, non formal or informal
- Collaborative or individual
- Self guided or facilitated
- Private or public funded
- Available at any time, in any place on any mobile device
- Relevant throughout a person's lifetime



“mEducation has the potential to transform any education experience”

What are the benefits of mEducation?



Accessible

Simplifies access to education resources and experts. Overcomes traditional constraints of time and space.

- mEducation is highly scalable; once created, learning material can be accessed by many.
- Students not able to physically be in class can access live or recorded lectures and other supportive resources such as tutors or tests.
- Teachers can access, create and co-create on-line courses or learning objects.
- Adults wanting to up-skill can learn when convenient and at their own pace.
- Concepts such as the Flipped classroom and 'just in time' learning becomes a practical reality

Personal

Personalises the education experience for learners by offering flexibility and a tailored learning experience.

- Complete flexibility in use of time & space, enabling us to rethink the way education is delivered and received
- Content type and modality of learning can be specified according to the student's learning style
- Real time data allows Teachers / coaches to make high quality decisions.
- Education insights from Big Data: Identify trends, test new ideas, conduct root cause analysis etc.

Efficient

Promotes efficiency and cost savings by automating processes in education systems.

- Teaching & learning - voting, reminders, reinforcement and assessment. 21st Century skills such as collaboration & communication.
- Improved security such as access to buildings & single sign on to IT systems.
- Automated and secure financial transactions for students and parents e.g. mobile money.
- Automated recording of attendance & trigger of absence actions e.g. via NFC.
- Communications, such as in-school, safety messages and to parents.

There are a number of technology trends which are supporting the development of mEducation today



Technology Trends supporting the growth of mEducation around the world:

- Increased availability and penetration of smart portable devices
- A fast emerging generation of digital natives
- Governments are investing in mEducation to improve economic potential & growth
- Emergence of new mobile-based education products and services.

At least 15 countries are currently investing in deployments of mobile devices for schools at national or state level.⁴

Worldwide 45% of 10 year olds have a personal mobile ranging from 10% in France to 73% in the UK and 83% in Poland.¹

Globally 750 million households (41%) are connected to the Internet.³

15–17% of titles at the major App/ eBook/Audio stores are education based. Education is the second most popular download category behind Games.⁵

9% of UK parents surveyed in 2013 had bought a mobile for a 5 year old starting school.²

mEducation services can be applied across a wide range of teaching and learning scenarios



	Schools	Higher Education	Workplace	Skills & Employment	Lifelong Learning
Formal Learning	Connected Class/School Out-of-school Education Teacher Training	Connected Lecture Halls / University Distance Education	Compliance Training & Assessment Workforce Development	Vocational Training MOOC	Distance Learning MOOC Badges
	Collaborative Learning Assessment, Electronic Certificate wallet Secure Access , Registration, financial systems Communication systems } System Automation				
Non Formal Learning	Supplemental Learning Distance Tutoring Exam Preparation	Distance Tutoring Exam Preparation MOOC	Enterprise University	Career Information Job Search Expert Gateways	Clubs/Communities Knowledge Acquisition e.g. Search & MOOC Crowdsourcing Platform
Informal Learning	Secure Social Spaces	eBooks MOOC	Intranet based social / Community Platforms	Employment Clubs	Social Media Rich Communication Services Community Platforms

Definitions:

Formal Learning: Education and lessons to achieve qualification e.g. school, university, college, professional certification

Non Formal Learning: For example, activities supporting formal education, personal studies, hobbies

Informal Learning: Reading, observing, listening, conversing, daily life

MOOC: Massive Open Online Course

System Automation: Services which increase efficiency in the administration of education and learning



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mEducation Market Forecasts and Trends

Latin America

Overview of the market - Latin America



- The growth rate for mobile learning products and services in Latin America is 32.5%, the second highest regional growth rate in the world after Africa.
- Revenue forecasts in this report are broken out for fifteen countries in Latin America:

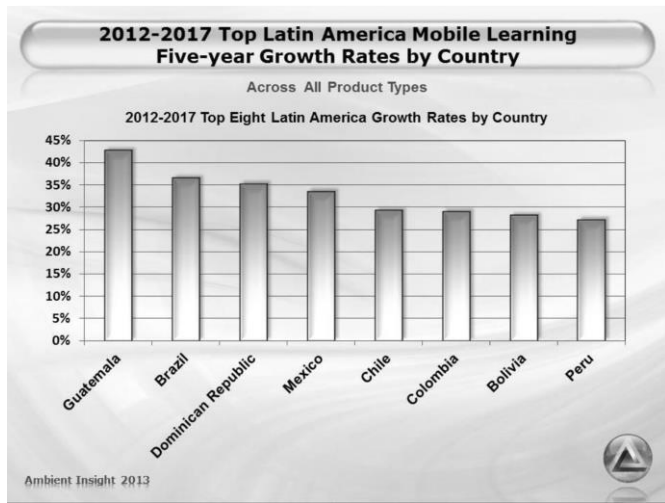
Argentina
Bolivia
Brazil
Chile
Colombia
Costa Rica
The Dominican Republic
Ecuador

Guatemala
Mexico
Panama
Paraguay
Peru
Uruguay
Venezuela

Overview of the market continued - Latin America



- **Top four growth rates for 2012:**
 - Guatemala: 42.8%
 - Brazil, 36.5%
 - The Dominican Republic: 35.3%
 - Mexico: 33.6%



- **Top buying countries in 2012 for revenue:**
 - Brazil
 - Mexico
 - Argentina
 - Colombia
 - Venezuela.

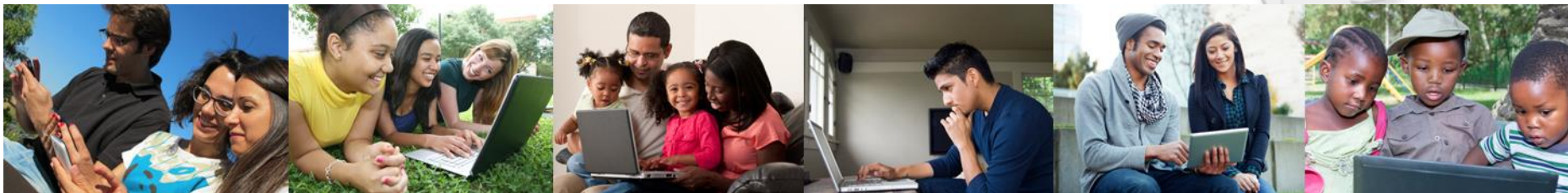
- **Top buying countries for 2017 for revenue:**
 - Brazil
 - Mexico
 - Colombia
 - Guatemala
 - Argentina

Prominent themes in the region - Latin America



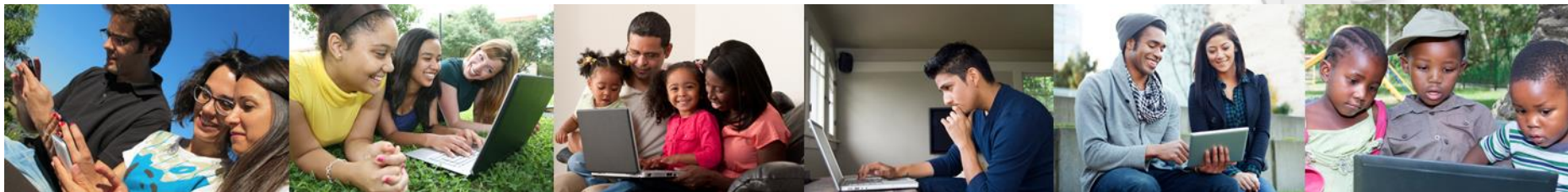
- **Mobile learning value-added services** products that are now generating millions in new revenues each year for suppliers operating in this region.
- **The large-scale adoption of smartphones and tablets** connected to wireless broadband creates an advanced delivery channel for mobile learning suppliers, particularly in the consumer and academic segments.
- **Leapfrog effect** with a user being exposed to the Internet and learning content for the first time not on a PC, but on a mobile device.
- **Packaged content** will generate the highest revenues.

**Note of Interest* The unique app buying behaviours in each country.
No two countries analysed in this report exhibit the same consumer buying patterns.*



Mobile learning value-added services products

- These are now generating millions in new revenues each year for suppliers operating in this region. Mobile learning value-added services (VAS) products account for the second-largest revenues in Latin America. Revenues for mobile learning VAS will more than quadruple over the forecast period.
- As of May 2013, all but three of the fifteen countries analysed in this report have commercial mobile learning VAS products offered by the mobile operators.
- While English language learning is in high demand, there are also mobile learning VAS products for Spanish, Portuguese, French, and Italian in Latin America.
- Mobile operators can take up to 60-80% in royalties leaving their content partners with a small percentage, which is a strong incentive for content suppliers to bypass the mobile operators.

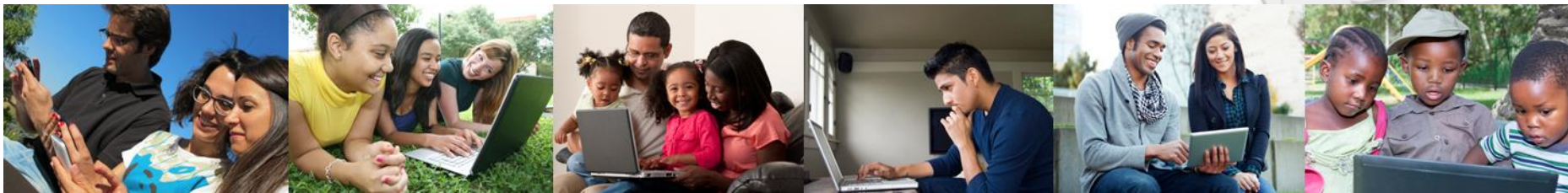


Further details on themes - Latin America



The large-scale adoption of smartphones and tablets

- High-speed networks are rolling out across Latin America at a rapid rate.
- All fifteen countries analysed in this report will have 4G by 2014.
- The device makers have begun to flood the Latin America region with very low cost smartphones.
- Nokia and BlackBerry announced their low-cost smartphones for the region in early 2013.
- Across the region, sales of tablets have doubled in 2011 and 2012. By 2017, there will be over 400 million tablets in use in Latin America.
- Uruguay is the first country in the world to reach a one-to-one student-to-computer ratio and Venezuela is on track to become the second country in the world to achieve this goal by the end of 2013.



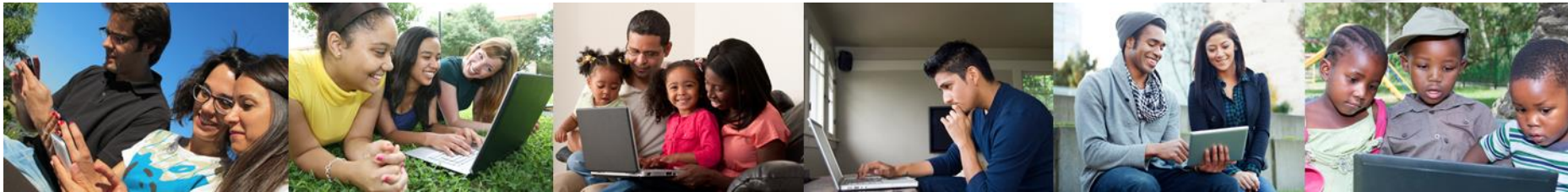
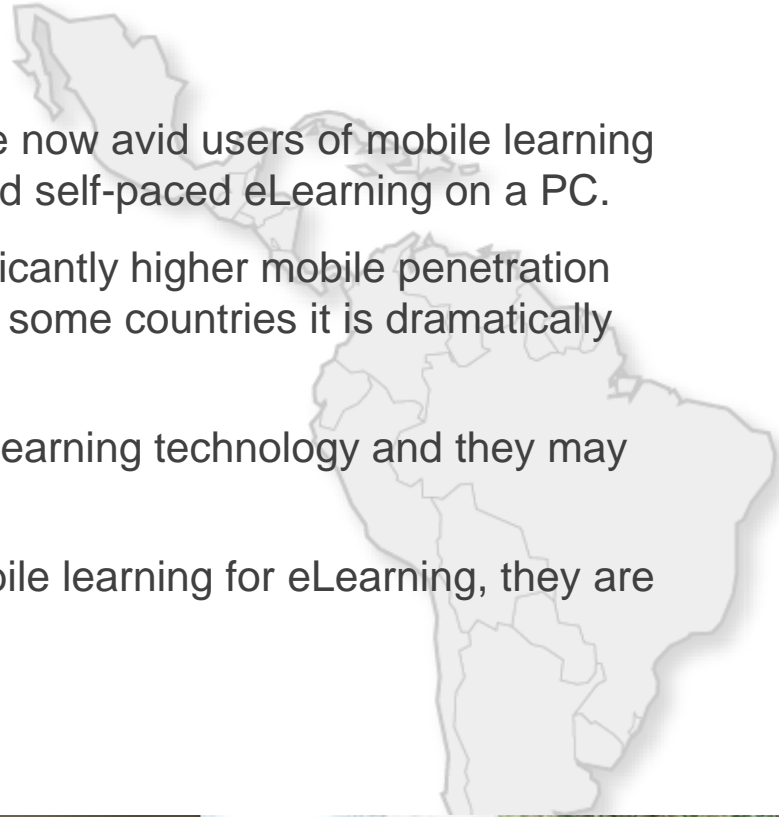
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Further details on themes - Latin America



Leapfrog effect

- Large rural populations across Latin America are now avid users of mobile learning technology, while relatively few have experienced self-paced eLearning on a PC.
- May 2013, all 15 countries analysed have significantly higher mobile penetration rates compared to PC-based Internet access. In some countries it is dramatically higher.
- In some cases mobile learning is users primary learning technology and they may never be exposed to other learning products.
- Buyers in Latin America are not substituting mobile learning for eLearning, they are leapfrogging eLearning altogether.



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Packaged content

- In many countries in Latin America, the app ecosystem is relatively new.
- In the space of less than two years, the educational app market across Latin America has exploded.
- The mobile operators have just recently expanded the reach of their app stores in the region.
- The mobile operators have a significant advantage in the developing economies as they offer the **only** electronic payment gateway. As of the end of 2012, up to 60% of consumers in Latin America do not have credit cards.
- Direct carrier billing is also convenient for consumers shopping in third-party stores in developed economies.



Regional examples of mEducation - Latin America



■ Vivo

- In May 2013, Vivo combined all their mobile learning VAS offerings into a bundle called the Digital Communication for Mobile Education Services platform.
- Vivo claims to have six million active users that pay the equivalent of \$1.40 a week to access a wide range of educational content, health information, and career advice via SMS messages.

■ Telefónica

- Operates in twelve of the fifteen countries analysed in this report and has over 212 million subscribers in the region.
- In 2012, Telefónica announced direct billing agreements with Microsoft, Facebook, and RIM (now rebranded as BlackBerry). In May 2013, they announced a global direct billing agreement with Samsung.
- Telefónica's deal with Samsung allows subscribers to make purchases in Samsung's Learning Hub store (a dedicated educational content store) and be billed directly by Telefónica.

Regional examples of mEducation - Latin America



■ **Nokia**

- In June 2013, Nokia announced a direct billing agreement with América Móvil allowing customers to buy mobile apps from the international Nokia Store without a credit card. The agreement provides direct billing to subscribers across all fifteen countries analysed in this report.

■ **Uruguay**

- Using One Laptop per Child (OLPC) XO devices and as they replace the older machines, they could opt to use the new XO4 device, which is a tablet.

■ **Venezuela**

- Manufactures their own laptops (and most of their own content) for the schools and just updated their open source operating system to support tablets.

■ **LG, Sony, ZTE, Alcatel One Touch, and Huawei**

- Announced in February 2013 that they would build inexpensive smartphones on Mozilla's new mobile operating system. The first Mozilla Firefox smartphones launched in Latin America in June 2013 in Brazil, Colombia, Mexico, and Venezuela.

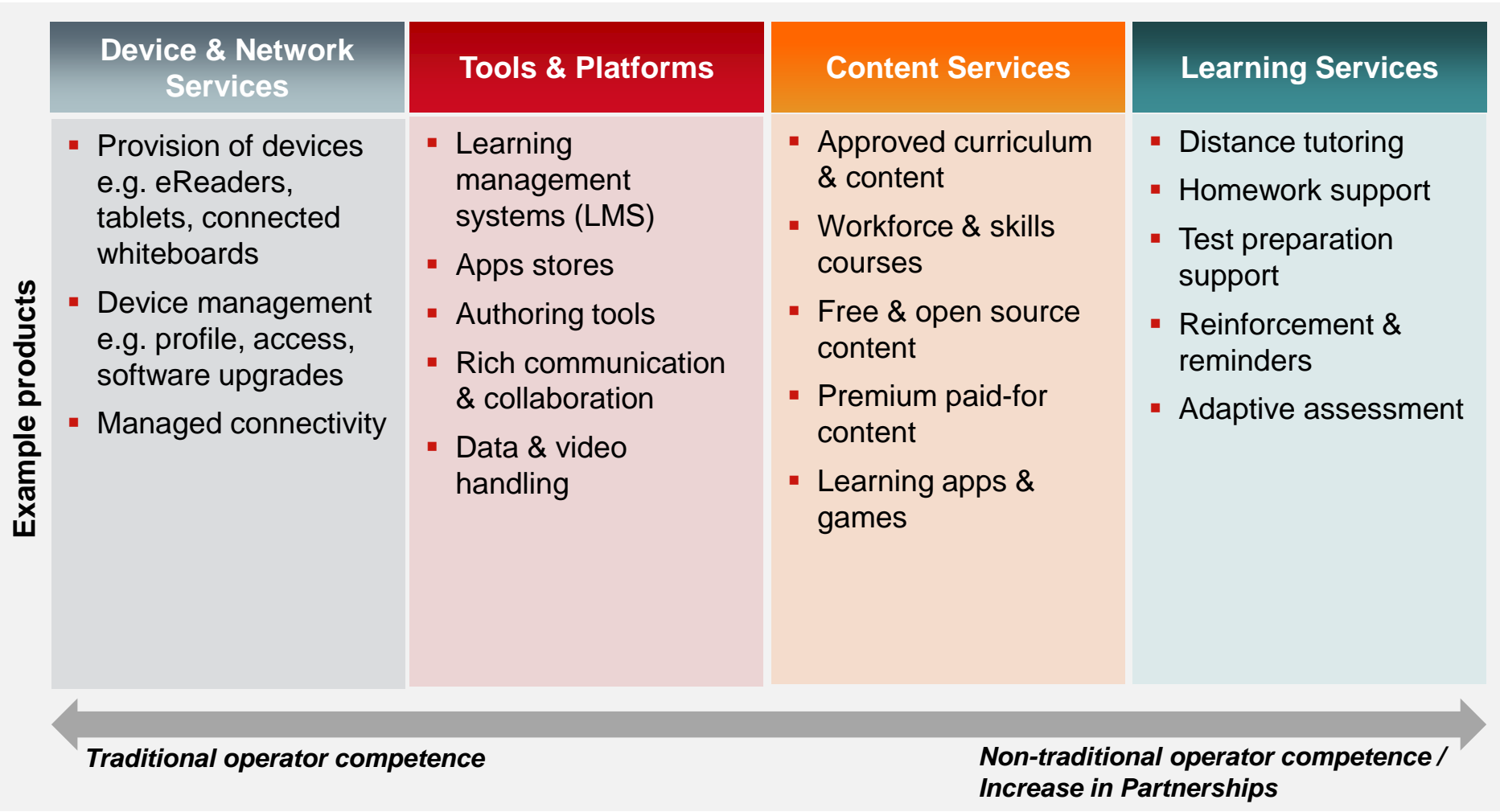


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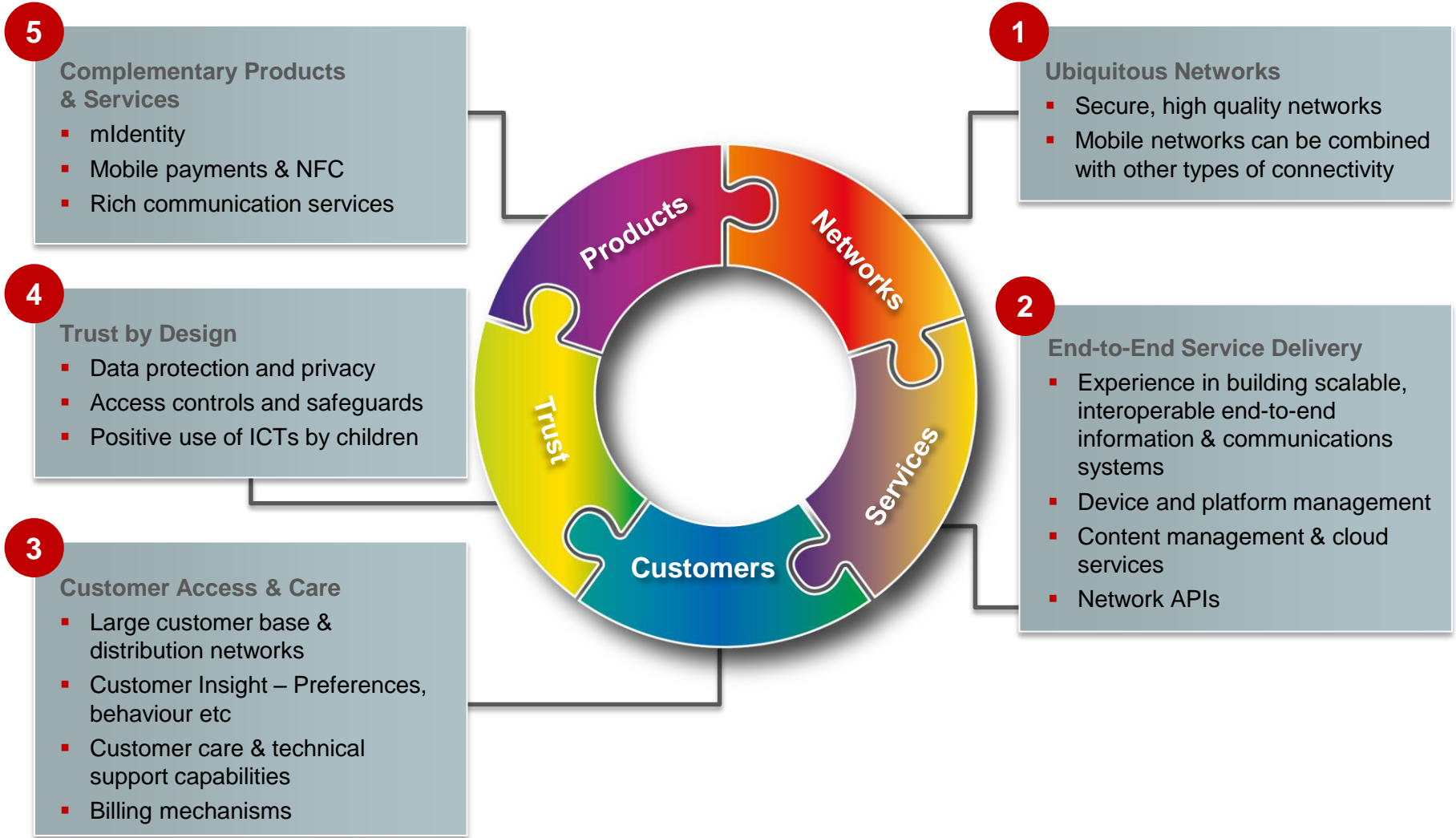


mEducation - Operator Offerings

The mEducation product landscape



Mobile operators have a number of assets & capabilities which support their mEducation offerings



Mobile operators are uniquely positioned to become key players in mEducation.

Mobile networks are:

Pervasive & Reliable

- Mobile networks are used in 219 countries and territories by more than 3 billion people¹
- GSM technologies also provide travellers with access to mobile services wherever they go – approximately 90% of the world's population are covered by GSM networks
- Mobile operators continue to invest heavily in their networks to build capacity to facilitate content-rich services
 - Global operator capex for LTE technologies is expected to be US\$24 billion in 2013 rising to US\$36 Billion in 2015²

Secure

- When using their mobile devices, users can be assured that the network will recognise them and then route calls made to their phone number correctly
- To do this, the network and the device use encryption algorithms and network generated 'challenges' to the device to make sure the device (and the phone number and associated subscription) that is being registered on to the network is who it says it is
- An inherently high level of security enables mobile networks and devices to be utilised even for sensitive transactions such as mobile payments and legally-binding mobile signatures

Flexible

- Many mobile devices are now also equipped with Wi-Fi connectivity as well as cellular, enabling consumers to use the best (and/or cheapest) connection available at any given time
- For example, students and teachers could make use of Wi-Fi networks within classrooms and their homes, while enjoying seamless connectivity when they leave a building via a mobile broadband network

Device & Platform Management

- Mobile operators have expertise in deploying and managing vast numbers of devices. This includes:
 - Managing device requirements
 - Sourcing and configuration
 - Device rental and insurance schemes
 - Device configuration and content updates
 - Device monitoring and support
- Mobile operators have experience managing large-scale interoperable IT platforms, such as databases that may store learning material, eBooks, student records, ePortfolios and digital lockers

Network APIs

- Mobile operators have the ability to expose APIs to partners or other stakeholders that would enable them to utilise network assets to deliver services to their customers
- For example, Location, Identity and Payment APIs would enable third parties, in secure circumstances, to locate a device, identify a user or process a payment using the operator's existing processes

Content & Cloud Services

- Mobile operators have expertise in delivering and maintaining content in different formats for various device and interaction types; in education, this would ensure that learning materials are compatible with different device types
- Many operators are also experienced in delivering Cloud Services, where the majority of content and data resides remotely in a central system rather than on the device; this is helpful for educational institutions who do not wish to manage large IT systems in-house

End-to-End Solutions & Partnering

- Most mobile operators have considerable experience of partnering with other organisations, including content providers, apps developers and vertical industry partners in different industries, to provide end-to-end services
- These skills can be used in the education sector to build end-to-end services on behalf of education institutions who prefer to liaise with only one partner to design and run their mEducation services
- Such end-to-end services could incorporate unified billing for content, applications and connectivity services



Customer Access

Large Customer Base

Mobile operators serve 3 billion people in 219 countries across the world¹. Mobile operators have a unique insight into the way their customers like to experience their services and what their preferences are. This is key to personalisation.

Retail Stores

Mobile operators have large physical distribution networks, enabling direct sales and customer service. This is important in markets where online purchasing is low or when users want to experience a product prior to purchasing.



Customer Care

Customer Support

Mobile operators already support their business and individual customers post-paid services such as on-line support, telephone help lines etc.; these could easily be extended to mEducation customers.

Dedicated Support

Many mobile operators provide large corporate clients with dedicated customer support teams; similarly tailored customer support could be provided to education institutions and their students.



Billing

Billing Mechanisms

Mobile operators already have billing mechanisms for both prepaid and post-paid customers which could be used to support educational content and services.

Multi-Client Billing

Operators have the capability to bill separately for different services running on the same device e.g. a school pays for a student's device and curriculum content, while the student pays for additional services such as games or entertainment.

Data Protection & Privacy

- In January 2011, the GSMA published a set of universal [Mobile Privacy Principles](#) that describe the way in which mobile consumers' privacy should be respected and protected when consumers use mobile applications and services that access, collect and use personal information.
- The Privacy Principles cover the areas of:
 - Openness, Transparency and Notice
 - Purpose and Use
 - User Choice and Control
 - Data Minimisation and Retention
 - Respect User Rights
 - Security
 - Education
 - Children and Adolescents
 - Accountability and Enforcement
- In February 2012, the GSMA published a set of [Privacy Design Guidelines for Mobile Application Development](#). These help ensure privacy is designed in from the outset. The GSMA is currently working with members to help them implement the guidelines.
 - In January 2013 a number of European mobile operators decided to adopt an [Accountability Framework](#) – a mechanism for companies to demonstrate that their business practices comply with the guidelines

Age-Sensitive Content & Services

- Mobile operators are taking a number of steps to encourage the safe and responsible use of mobile services, and to enable parents to manage the risk of their children being exposed to inappropriate content. Examples include:
 - Collaborating on national codes of practice
 - Classifying content and offering parental controls
 - Running education and awareness campaigns – for parents and children, as well as for teachers (e.g. TeachToday)
- The GSMA and its members participate in forums with stakeholders from across the ecosystem to promote the safe use of ICT by children. For example:
 - European Framework for Safer Mobile Use by Younger Teenagers and Children - a self-regulatory initiative of the mobile industry, which advises mobile operators on how to ensure that younger teenagers and children can safely access content on their mobile devices
 - ICT Coalition - members include mobile operators, ISPs, vendors, content providers and Internet players. The guiding principles are in the areas of content, parental controls, dealing with abuse / misuse, child abuse or illegal content, privacy & control, and education & awareness
 - The GSMA is a member of the International Telecommunication Union's Child Online Protection (COP) initiative, through which it contributes knowledge and experience of mobile phone safety to the ITU industry guidelines

Along with voice and data communications, mobile operators offer a variety of rich services which can complement mEducation offerings:

mIdentity

- Mobile operators have the ability to provide strong authentication to enable individuals and organisations to interact in a private, trusted and secure environment
- Types of mIdentity include:
 - Federated identity
 - Second factor authentication
 - Mobile digital signatures
- In the Education sector, mIdentity can be used to authenticate users in various scenarios such as for:
 - On-line tests or exams
 - Purchasing content, school meals etc.
 - Accessing student files
 - Submitting assignments or other content

Mobile Payments & NFC

- Mobile payments allow users to pay for goods, content or services via their mobile phone
- In some cases, 'operator billing', the purchase amount can be deducted from the mobile account or added to the user's mobile bill
- Coupled with Near Field Communications, 'NFC', mobile payments can be a smooth and powerful way to become cashless; promoting efficiency and deterring theft of physical monies
- NFC can also be utilised in other scenarios, for example:
 - Recording student attendance
 - Access to physical locations
 - Ticketing (e.g. bus tickets)

Rich Communications

- Rich Communication Services, 'RCS', is an operator-led communications service
- It delivers an experience beyond voice and SMS by providing users with instant messaging or chat, live video and file sharing across any device, on any network, with all the enabled contacts in their address book
- Rich Communications can benefit the Education sector in scenarios such as:
 - Distance learning or tutoring
 - Student & teacher collaboration



There are a variety of potential customers for different mEducation product offerings



	Schools	Higher Education	Workplace	Skills & Employment	Lifelong Learning
Formal Learning	Public and private schools Gov't departments Central procurement departments	Public and private universities Gov't departments Central procurement departments	Corporations Training Centres	Students Colleges Training Centres	Students Education Institution / Service
	Public and private schools Gov't departments Central procurement departments	Public and private universities Gov't departments Central procurement departments	Corporations Training Centres	Colleges Training Centres Employment Organisations	Education Institution / Service
Non Formal Learning	Parents Students Education Institution / Service	Parents Students Education Institution / Service	Corporations	Students Employment Organisations	Students Education Institution / Service
	Parents Students Education Institution / Service	Parents Students Education Institution / Service	Students Corporations Training Centres	Students Employment Organisations	Students Education Institution / Service

System Automation

- B2B: Business to Business – the mobile operator sells to a business or organisation (e.g. a school) whose stakeholders then use the service .
- B2C: Business to Consumer – the mobile operator sells directly to the individual end user of the service e.g. a student.
- B2B2C: Business to Business to Consumer – the mobile operator sells to another business which then sells the service to end consumers.

Examples of charging models

There are a variety of ways that mobile operators can charge their customers for mEducation products and services, including:



B2C Charging Models Examples

- Annual subscription
- Monthly subscription
- Pay as you go - volume / duration
- Pay as you go - event
- One-time payment e.g. device, fixed service



B2B and B2B2C Charging Models Examples

- Annual license – for the system or per user
- Monthly fee for operations & maintenance
- Capacity-based charges
- Event- or Usage-based charges
- One-time payment - e.g. devices, bespoke services

Charging could be based on one or a combination of the examples given above.



mEducation



mEducation – Operator Market Entry Process

A phased approach to developing and implementing mEducation solutions



mEducation initiatives will undertake different activities within each phase depending on the product offering.

Areas to address in an mEducation proposition



1. mEducation Product or Service Overview

1.1 Description

Describe the mEducation product/service.

1.2 End User Experience

Describe how end-users interact with the product/service e.g. types of devices, content, access.

2. mEducation Product or Service Delivery

2.1 Operator Role

What is the operator role in delivering the product/service?

2.2 Partners & Roles

Who are the service delivery partners and what are their roles?

2.3 Distribution

How is the product/service being distributed?

3. Business Model

3.1 Target Customers

Who are the target customers for this product/service?

3.2 Charging Model

How will the customers be charged?

3.3 Business Model with Partners

How will revenue be shared between delivery partners?

4. Regulatory Environment

How does the regulatory environment impact the service? Does action need to be taken

5. Stakeholder Benefits

For example, the benefits for students teachers, parents, vendors, operators etc..

Example 1: Proposition for 'mEducation for Schools' solution



1. mEducation Product or Service

1.1 Description

The solution encompasses supplying one tablet per child along with an LMS which carries approved curriculum, other learning content and a social/collaborative tool. The LMS can be accessed via the tablet or a PC, both in the classroom and remotely.

1.2 End User Experience

Students are able to access learning material, submit lessons/assignments and chat to classmates when remote. Teachers are able to assign lessons, assign marks and track individual student as well as overall class progress.

2. mEducation Product or Service Delivery

2.1 Operator Role

The mobile operator delivers the end-to-end solution, covering devices and device management, connectivity, LMS platform and learning content. The service is operator branded.

2.2 Partners & Roles

- Content supplier – supplies education content
- LMS vendor – licenses the LMS to the operator
- Device vendor – sells devices to the operator

2.3 Distribution

The solution is marketed to both individual schools and Regional School Supply Organisations (RSSO). All schools belong to an RSSO which maintains a list of pre-approved education services.

3. Business Model: B2B

3.1 Target Customers

Primary schools (with students ages 5-18) in the country, including state, independent and private schools.

3.2 Charging Model

Schools are charged an annual license fee per user type covering devices, content and connectivity. Each device comes with standard monthly mobile data included with charges for over-limit data usage.

3.3 Business Model with Partners

- Revenue share agreement with content provider
- Operator pays LMS vendor license fee per user
- Operator pays devices vendor per device

4. Regulatory Environment

There is a generally favourable view toward e- and mEducation. Schools have discretionary power to use mobile and other technologies for teaching and learning as long as curriculum requirements are met.

5. Stakeholder Benefits

- Students: latest learning material at fingertips both in and out of classroom, collaborative tools
- School: reputation for being a progressive school with modern teaching methods
- Teachers: variety of teaching materials to choose from, can personalise lessons and track individual and overall class progress
- Suppliers: increased revenue from mEducation services

Example 2: Proposition for ‘Learning English’ solution



1. mEducation Product or Service

1.1 Description

The solution encompasses delivering English language learning content to users on their mobile phones. Content is categorised by scenario (e.g. travel, food/drink, business) from which users can select.

1.2 End User Experience

Content is delivered via text message and voice messaging to all mobile phone types. To receive the next lesson, users text a special message to a standard service number. Users are allowed to revise lessons from any modules they have taken previously.

2. mEducation Product or Service Delivery

2.1 Operator Role

The mobile operator runs the full service end-to-end, from the platform hosting the content to the delivery to end users mobile phones. The service is operator-branded.

2.2 Partners & Roles

- Content Provider – provides language content to the operator

2.3 Distribution

The service is distributed directly to consumers who can sign up for the service on-line or in a retail store.

3. Business Model: B2C

3.1 Target Customers

Aspirational youth (15-35) who wish to improve their English to enable further employment opportunities.

3.2 Charging Model

Users are charged a fixed price per module of content. Users on the service operator’s network are offered a significant discount compared to users from alternative networks.

3.3 Business Model with Partners

- Operator pays the content provider revenue share per module of content purchased

4. Regulatory Environment

The environment is positive towards services that will lift the employability prospects of its citizens.

5. Stakeholder Benefits

- Students: learning material provided on feature phone on-demand; ability to revise past lessons
- Mobile operator: revenues from service; reputation for providing useful content services
- Content provider: revenue from service

Example 3: Proposition for 'Collaboration Platform' solution



1. mEducation Product or Service		
1.1 Description The product is a platform that allows users to collaborate via voice, rich messaging, file sharing etc. across a range of devices e.g. mobile phones, desktop computers, tablets.	1.2 End User Experience Users have one identity for sign-on and are able to access the platform from their various device types. History and saved documents are also visible from any device. There are alerts for new messages etc. which can be managed via the configuration manager.	
2. mEducation Product or Service Delivery		
2.1 Operator Role The operator runs the collaboration platform.	2.2 Partners & Roles <ul style="list-style-type: none"> None 	2.3 Distribution The collaboration platform is marketed to on-line institutions which would like collaboration functionality.
3. Business Model: B2B2C		
3.1 Target Customers In the education sector, the target customers are on-line learning and training institutions.	3.2 Charging Model The institutions are charged based on number of active users on the platform as well as volume of different message types generated each month.	3.3 Business Model with Partners N/A
4. Regulatory Environment	5. Stakeholder Benefits	
The environment is positive towards services that will lift the learning and employability prospects of its citizens.	<ul style="list-style-type: none"> Students: collaborative platform where they can converse, message, share files and other content with teachers and other students 	<ul style="list-style-type: none"> Mobile operator: revenues from service Education institution: ability to add collaboration to their education offerings



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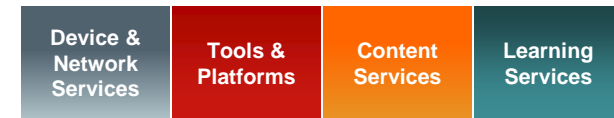
mEducation – Operator Case Studies

Operators are already offering a large range of mEducation services around the world



	Schools	Higher Education	Workplace	Skills & Employment	Lifelong Learning
Formal	<p>Tsunami disaster area project, Japan</p> <p>Tablette Elève Nomade trials, France</p> <p>Augmented Reality and eBooks, UAE and Africa</p> <p>educ@Tlon platform trials, Italy</p>	<p>SWEEP programme Philippines</p> <p>Telstra/ University of Western Sydney trainee teachers' project, Australia</p>	<p>EsTeLa project, Latin America</p>	<p>Tamil Nadu Spices Community project, India</p>	<p>Jokko project, Senegal</p>
Non Formal	<p>Click2Learn, Pakistan</p>	<p>Cyber University, Japan</p> <p>App project at the Open University of Catalonia, Spain</p>	<p>Farmers' project, Spain</p>	<p>Tutor on Mobile service, India</p> <p>Spoken English service, India</p>	<p>Youth Empowerment through Mobile Learning initiative, Thailand</p>
Informal	<p>Community Radio project, India</p>	<p>Learning Hub, South Africa</p>	<p>Public Job Openings project, Brazil</p>	<p>Red UnX MOOC community, LatAm</p> <p>ABC Literacy project, West Africa</p>	<p>Enreda Madrid project, Spain</p>

Bringing mobile learning to students in the Japanese tsunami disaster area



- A partnership between KDDI, Castalia Co Ltd and Shingakukai – unusual because in Japan private-sector companies are not allowed to be involved in formal education
- Helps 15-18 year old students affected by the earthquake (schools/homes destroyed) to prepare for high school/college entrance examinations in evacuation shelters using tablet computers
- Combines a social learning platform (iUniv) with tailored and focused content – students use and share the content with each other and get online advice from lecturers
- Fusen software allows the placement of notes on visual and auditory contents, which can then be linked to social media
- Will be turned into an educational service package for use in times of disasters

Bringing mobile learning to students in the Japanese tsunami disaster area

In the wake of the Great East Japan Earthquake of 2011, students in Ikhinomaki, one of the regions worst affected by the tsunami, have benefited from a learning environment that takes advantage of a mobile learning system supported by wireless networks and tablet devices to prepare for college and high school examinations.

Using iUniv, a social learning service, young people in Ikhinomaki learnt and shared knowledge gained from lecture videos created by Shingakukai, a major Japanese educational institution.

Social learning
The project involved 120, 15-18 year-old students in Ikhinomaki, Miyagi Prefecture, whose education had been badly affected by the earthquake; in many cases their school and homes had been destroyed. These students needed to prepare for the entrance examinations for high school and college that take place in February and March (April being the start of the academic year in Japan). They were supplied with 100 tablet devices and access to the internet (students shared the devices). The education content was created by Shingakukai, one of the largest entrance examination preparatory institutions in Japan. A not-for-profit organisation ran the project and Ikhinomaki Senchu University provided the setting.

Students were able to continue their studies from their evacuation shelters with the help of a wireless network and mobile devices. In other regions, the service can function as an 'educational backup' system, a countermeasure against future disasters.

Technology behind the project
Tablet device
The tablet device is a Motorola Xoom™ (Wi-Fi) TB1™ (KDDI) with a 10.1 inch TFT LCD display, 32GB of internal memory and 32GB of external memory. Nearly all (93%) of the students who responded to the project questionnaire thought the size of display was good and 88% thought it was easy or at least 'no problem' to operate.

Mobile learning platform
iUniv (pronounced ahy-yoo-ruh-iv) is a service and platform for social learning. It uses visual and auditory content provided online by universities and other educational institutions. Students can use the content by themselves, share it with each other and get advice online from lecturers.

Fusen
Use of the Fusen allows students to place digital stickers (notes or comments) on both visual and auditory contents. These stickers can also be shared with other users and linked with Twitter, Facebook and possibly with other social media. This encourages sharing and exchange of knowledge and learning, and also reflective study.

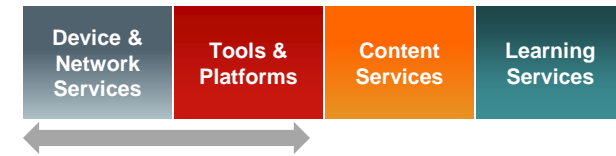
Key partners
Shingakukai is one of the largest educational companies in Japan, with 16,000 students and 800 teachers, mainly in the Nagano prefecture. Shingakukai is responsible for creating the content.
Castalia Co. Ltd produces educational digital content solutions and operates web media for mobile and social learning. Based in Tokyo, they provide the mobile learning platform.
KDDI is a global ICT solutions provider that offers quality reliable mobile network services in 170 countries and operates 42 data centres throughout the world. They provide the wireless tablet devices and network.

"We worked on this project with the idea that the role of a communication company was to deliver the content that connects children to the future"
Takashi Tanaka, President of KDDI Corporation.

Introducing 'always connected' tablets into French schools – the Tablette Elève Nomade (student nomad tablet) project



- Orange provides a cloud-based environment to allow tablet computers to be used by 300 learners aged 11-12
- First trial in France involving 3G and the whole control and management system
- To embed technology effectively the teachers need to be fully involved, a control engine is needed (e.g. for filtering), as is a device management engine (to adapt tablets for use), 3G connections to maintain students interest in learning and the adaptation of content for Android and iOS devices
- Orange provides the technology, the learning content remains the responsibility of the educators
- Parental involvement in their children's coursework and homework has increased



mEducation

Introducing 'always connected' tablets into French schools – the Tablette Elève Nomade (student nomad tablet) project

The French education system is making increasing use of digital environments to support education in schools. This began with fixed desk computers and has progressed to the installation of digital working environments. These are a form of intranet-based resources network that is dedicated to an individual school. It provides school management systems (for example, for assessment and absence recording) and allows users to share timetable and homework assignments. Today, each classroom has an interactive whiteboard to facilitate the immediate sharing of digital teaching and learning contents.

Collectivités locales (local authorities) in France have recently made increasing investment in technology to encourage public schools to embed digital resources into education. This investment represents up to 2% out of a Department's whole education budget and is steadily increasing: up by 25% in 2009-2010 and 9% in 2010-2011.

Orange believes that it would benefit the students to have their own tablet because:

- they are ergonomic and easy to handle
- they can easily fit into a student's schoolbag/backpack – if e-books are stored on the tablet, the weight carried may even be reduced
- they can be considered an 'always connected device' in that they can be used anywhere – at home, in school, outside the classroom and for independent learning activities (assuming a 3G connection)
- they power up quickly once switched on, which makes them easier to use for activities
- the learning material allows the student to go beyond digital books, using the many applications (apps) and learning content specially designed for tablets

- content can be easily updated, so they can become an integral part of the students' learning across many school years
- they can be used flexibly between student and teacher, with the teacher able to take control of the device to offer new activities, corrections or suggestions for new work tailored to the needs of the student.

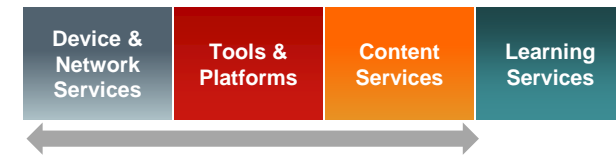
Orange believes that tablets in the classroom are only part of the story. Orange believes that tablets have a real part to play in education. However, their use is only the 'tip of the iceberg'. To embed technology effectively into the education system other key issues also need to be addressed:

- a) involve teachers. Teachers need preparation time – some teachers find the use of tablets intuitive but others do not, so teachers need time to become familiar with how they work, what they can best be used for, and how their use can best be applied in education. The changes that their use will bring to a whole-class learning environment need to be thought through, and teaching and learning materials adapted. Teachers also need to source relevant apps
- b) Use a control engine. Even though they are often thought of as 'personal devices', schools are responsible for students' activities with tablets. Access to forbidden content and materials on the internet needs to be filtered out using a proxy control engine through which all requested data flows before reaching the internet. For the Tablette Elève Nomade (TEN) trial (see below), this is handled by the Academy of Versailles.
- c) Use a device management engine. One of the benefits of tablets is that the environment can easily be changed – new apps can be installed and others deleted according to need. A device management engine can play a major role in adapting the tablets for use.

Etisalat: making learning innovative and relevant



- Etisalat is working with Ministries of Education and institutions in the Middle East, Africa and Asia
- Moving away from traditional textbook teaching to interactive learning is encouraged through the use of Augmented Reality, web-based materials and eBooks
- AR application – OGLE – allows learners aged 7-12 to interact with audio, video and 3D animations using any iOS or Android smartphone, device or tablet (e.g. in Biology the human body becomes 3D and starts to dance)
- Teachers are keen because new books are not needed, so can use familiar materials whilst introducing exciting new technologies
- eBooks allow the introduction of content in local languages, many of which are published for the first time



GSMA mEducation **اتصالات etisalat**

Etisalat: making learning innovative and relevant

Etisalat is working with Ministries of Education and educational institutions across the Middle East, Africa and Asia to enable the use of innovative technologies to enhance teaching and learning for students and teachers. They consider the use of computers, game platforms and mobile phones to be a natural part of students' lives today – part of a welcome transition from traditional textbook teaching to a more exciting way of learning through AR (Augmented Reality), web-based materials and eBooks. Their creative initiatives use interactive learning to improve understanding of complex and abstract issues and provide access to training materials in local languages through an intuitive interface enabled by state-of-the-art connectivity.

This case study focuses on Etisalat's projects with:

- **Augmented Reality-based interactive learning in the United Arab Emirates (UAE).** For more information visit www.ogle.ae
- **distance learning and online books in the UAE and Sri Lanka.**

Augmented Reality – making learning more exciting
Imagine visiting the outer reaches of the universe or dissecting a mummy. Students can enhance their understanding of complex issues by learning through observation and investigation rather than by extraction.

Using Etisalat's Augmented Reality application – OGLE – students access a special interactive information layer by 'scanning' the pages of a schoolbook with the camera on their mobile device. OGLE automatically superimposes a virtual interactive layer over the printed materials enabling students to interact with audio, video and 3D animations using any iOS and Android smartphone, device or tablet. So, for example, learners using a schoolbook and phone/tablet for a biology

lesson can see the human body become 3D and start to dance.

OGLE is used by learners aged 7-12 in UAE schools which follow the UK national curriculum in subjects including history, music, maths, design, PE, geography, ICT, languages and physics. All the content is syllabus-based and Etisalat has a team working closely with schools and academies to develop new lessons tailored to individual schools. Teachers and students can also create their own content, such as videos and images created outside of school, and incorporate this directly into the lesson provided. All new content is immediately accessible and shared between schools – giving access to a constantly expanding collection of 3D models.

Teachers are particularly keen because expenditure on new books is not needed. They can use this technology to transform the use of existing schoolbooks. OGLE also allows teachers to continue using familiar traditional learning materials at the same time as introducing exciting new technologies.

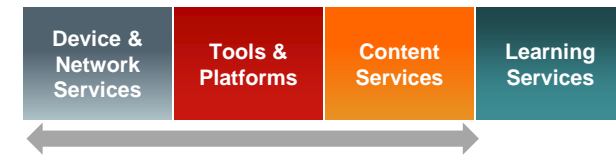
Example of activities for students provided by Ogle in addition to the material printed in textbooks include:

- **Pond Ecosystem** – Explore the animals and fauna of a typical pond-water environment, with the ability to isolate individual life forms. Dissect creatures, examine lifecycles and study their place within their environment.
- **Geology/Geography** – Study an extensive range of geographical phenomena from the hydrological cycle to glacial formations, at a pace controlled by the user and with full interactivity.
- **Physics/Engineering** – View a fully working car model with an operating combustion engine. Study the actions of steering and suspension, highlighting the forces involved.

Telecom Italia S.p.A: educ@Tlon – a solution for sustainable collaborative and social learning



- educ@Tlon, from Telecom Italia, is a web application solution available to schools, for learners aged 6-18, designed to encourage sustainable, collaborative and social learning
- It is based on SaaS, supported by cloud computing, so just needs an Internet connection
- Students become an active part of their learning process in different applications – social reading (society@school); multimedia editorial mash-up (iSchool); virtual classroom (iBoard); classes having joint lessons (Lectio Repartita) and IWB-based lessons
- educ@Tlon is aligned with the Italian Government's Digital Agenda. A commercial offer for schools will be developed by 2014-15, when all Italian schools will need to be able to use digital content



GSMA mEducation **TELECOM ITALIA**

Telecom Italia S.p.A.: educ@Tlon – a solution for sustainable collaborative and social learning

Overview
educ@Tlon from Telecom Italia is a web application solution available to schools and designed to encourage sustainable collaborative and social learning. Based on integrating open source modules and Telecom Italia developments that do not require users to buy third party licenses, it has an inclusive approach towards both content (multimedia, editorial, self-produced, available on the internet) and devices (not imposing hardware pre-requirements).

The prototype, available in the laboratories of Telecom Italia TILab innovation centre, is currently being tested in several Italian schools and a teacher training university with trainee teachers at their school placements.

For pictures and videos, see: http://www.youtube.com/embed/gL_Vzz2Mk

The learners
educ@Tlon has been designed and developed to offer a framework of tools for use in primary schools for children aged 6 to 10, in junior schools for children aged 11 to 13 and in senior high schools for learners aged 14 to 18.

A new approach to learning
educ@Tlon's goal is a new approach to learning based on the teachings of the well-known theorists Piaget and Vygotsky. It involves methodological innovation (constructivism, proximal development, positive interdependence, structuring of roles) designed to achieve:

- cooperative and participatory learning – with students as active agents in their learning, not just receiving content but also building their own knowledge
- peer education – starting a collaborative relationship between students during the educational process (the student is led to seek solutions and contribute to the learning/teaching process of others).

Key features
educ@Tlon is based on a SaaS (Software-as-a-Service) approach, supported by cloud computing. The system does not need to interoperate with other solutions; it just needs an internet connection that can be supplied via wired platform (e.g. ADSL at home, via Ethernet at school) or wireless (e.g. WiFi at school or home, or GSM everywhere else). There are no specific operating system requirements or device constraints, which means it can be used with interactive whiteboards, video projectors, PCs, netbooks, notebooks and interactive touchscreen tablets – all tools frequently used for teaching and learning in schools.

The applications share the same database, school content management, user authentication system and semantic search engine, and are integrated with an advanced administration data management solution. They allow collaborative creation, multimedia aggregation of contents, the sharing of lessons and knowledge, and the promotion of virtual communities. They can be integrated with dashboard data management and school administration systems.

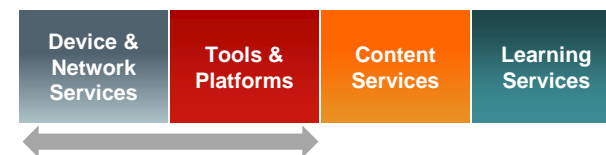
All the applications accessed via a browser are based on HTML5 and, in the case of high graphic interaction for remote learning, have been developed in Adobe Flash/Air. Specific client apps for Android and iOS environments have been developed to allow a complete and enhanced user experience that permits the use of all educ@Tlon functionalities on all types of devices, using all the capabilities offered by new tablet environments.

Note: Although educ@Tlon tools can be used on smaller screens (such as smartphone, Android, iOS and Symbian equipped), they work best on mobile devices with 7-10 inch screens.

SWEEP: Investing in the Philippines' future engineers



- The Philippines is experiencing a rapid population increase and lack of teachers, books and classrooms – Smart aims to contribute to nation-building and human-capital development
- Smart has developed an industry-education partnership – Smart Wireless Engineering Education Programme (SWEEP) - to prepare engineering students for work in industry or to become ‘technopreneurs’
- Smart donates a wireless laboratory and equipment to schools. Their engineers provide training on 2-4G, LTE, broadband, hotspots and apps
- The SWEEP Innovation and Excellence Awards use Smart’s platform to develop solutions to directly benefit their local communities






SWEEP: Investing in the Philippines' future engineers

Smart Communications, Inc. is a telecommunications company based in the Philippines, that is working to improve information technology and engineering education in the country. They have developed an industry-education partnership – the Smart Wireless Engineering Education Programme (SWEEP) that will prepare students for work in industry or to become technopreneurs (technology entrepreneurs).

Offering access to high-quality, up-to-date equipment and training SWEEP equips Electronics and Communications Engineering (ECE) students with the skills the telecommunications industry needs. They are also able to offer first-hand exposure to the Smart engineers who are building and operating the Philippines' most extensive digital mobile phone network.

Understanding and addressing local needs
In the Philippines, nearly all the school-age population attend state (public) schools but there are problems with a lack of qualified teachers, books and classrooms. These problems are exacerbated by the geographic character of the Philippines as an archipelago and the rapid increase in the population.

Smart aims to improve the situation and contribute to nation-building and human-capital development. They are developing basic education programmes in the community, integrating information and communications technology (ICT) into secondary education, and the SWEEP programme for ECE and IT students in tertiary schools.

The SWEEP Programme
The Programme was launched on 28 March 2011, with the first wireless lab at the Bulacan State University. The response was so positive that the original target



of involving 20 tertiary schools (offering the equivalent of college/university education) was exceeded by 60%. To date, they have created a network of 32 private and state-run schools all over the Philippines, benefiting over 14,000 teachers and students.

The SWEEP programme has three parts – up-to-date hardware and software, expert lectures and training, and a platform for students to develop community-based, wireless apps. The training is integrated into existing course subjects.

equipment
Smart donates a wireless laboratory and equipment to schools. The equipment consists of the GSM (Global System for Mobile Communications) and TACS (Total Access Communications System) from Europe and CDMA (Code Division Multiple Access) and AMPS (Advance Mobile Phone System) technologies from the US. These give students a comprehensive knowledge of the development of cellular communications technology and the basics of a mobile phone network.

Their engineers provide training on 2G and 3G systems, WiMax (4G technology), LTE, smart broadband and setting up hotspots in students' own schools.

They also offer training on Android apps, providing the school with a smartphone called the Netphone – a low level smartphone that can support the development of Android apps.

“Through SWEEP, our school (Bulacan State University) has become one of the top universities producing quality graduates [in] the telecommunications field.”
Olivier B. Mariano, Department Head, College of Engineering, Department of Electronics and Communications, Bulacan State University

GSMA mEducation Toolkit

Connected ICT – from Telstra and the University of Western Sydney



- A partnership project in Australia between Telstra and UWS with Acer
- Telstra's Next G® network offered easy access to e-Learning software, apps and data via an IPWAN service with cloud capabilities
- Involved 100 trainee teachers at UWS, who were supplied with notebook computers by Acer
- The study focussed on how ubiquitous access to ICT might change teaching; change learning; enhance the students' experience of learning to teach; and assist student retention. Also the infrastructure/capacity required for student support and the data used by the students
- From 2013 all first-year students will receive a tablet computer to assist with their studies





Connected ICT– from Telstra and the University of Western Sydney

Using mobile technologies to create a sustainable future for universities and their students

Telstra is a leading provider of communication and managed services to large enterprise and government organisations in Australia and worldwide, facilitating communication access in more than 240 countries and territories.

The Telstra Next G network provides coverage to 99.3% of the Australian population across over 2.3million square kilometres. This network has helped the University of Western Sydney (UWS) develop an 'Education Blueprint' through unified ICT infrastructure using mobile technologies to connect teachers, students and staff, providing a robust communication and collaboration framework offering easy access to e-Learning software, apps and data via an IPWAN (Internet Protocol Wide Area Network) service with cloud capabilities.

You can find more information about this at www.telstra.com.au/business-enterprise/enterprise-solutions/industries/education/index.htm

Creating a telecommunications-education partnership
UWS has used the Telstra Next G network and Telstra services to identify the potential role of ICT-enabled learning in creating a sustainable future for UWS and its students. UWS is a multi-campus organisation, providing degree courses across a broad range of subjects, primarily in the Sydney basin. They aim to use technology-rich teaching environments to enhance the competence of teaching staff and offer teachers and students the chance to work remotely from different locations.

The pilot involved trainee teachers and focused on how ubiquitous access to ICT might:

- change teaching;
- enable learning;
- enhance the students' experience of learning to teach; and
- assist student retention.

It also looked at:

- what technology infrastructure and capacity would be required to support these students; and
- what kind of data, and how much, a typical student might use in the course of a year's study.

There were no regulatory or government hurdles to overcome.

Key partners
Telstra and UWS partnered with Acer Computers Australia (Acer) to supply notebook computers to the trainee teacher students in the pilot. Acer is one of Australia's largest computer brands; dominating the notebook and tablet computer markets and specialising in education requirements.

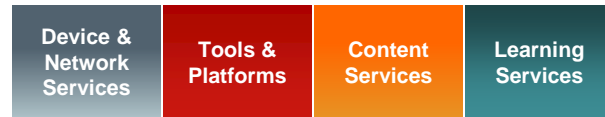
LEARNERS
The pilot involved a group of 100 trainee teachers drawn from the UWS School of Education main postgraduate Master of Teaching programmes (Secondary Education and Primary Education) and the Bachelor of Education (Birth to 5 years). The Early Childhood students were in the last year of their undergraduate courses and all took part in the pilot. The Primary and Secondary Education students were self-selecting after invitation from the lecturers, based on the units they were taking (in the case of the Secondary cohort, for example Teaching Methods of Sciences and English).

Full details of the teacher education programmes are available at www.uws.edu.au/education

Telstra's been great. They're not just a technology company as far as we're concerned with this project. Telstra has helped us by providing expertise and then followed up with providing boutique and bespoke plans for us, to enable us to do this pilot. And they provide us with back-end support in terms of monitoring the usage, so that we get some indication of what the students might actually use once they are able to be connected ubiquitously.
Shawn Wharton, School Manager, School of Education and Programme Lead, UWS



Welcome to Japan's most innovative learning environment



- Cyber University, a private undergraduate university offering all of its courses online, is a wholly-owned subsidiary of Softbank Corp
- Courses now designed for mobile access (eg iPads) in a cloud-enabled environment to enable learning and collaboration over the Internet
- Academics produce content, where the lifecycle is about 4 years. Students produce content too
- Biometric authentication via the Charge Coupled Device (CCD) camera identifies the students and provides authentication for exams and class attendance credits
- The combination of both fixed and mobile computing allows courses to suit students' needs, preferences and locations

GSMA Mobile Education **CU サイバー大学 Cyber University**

Welcome to Japan's most innovative learning environment

Cyber University is a wholly owned subsidiary of SOFTBANK CORP, one of Japan's leading telecommunications and internet companies. Cyber University (サイバー大学) is a private undergraduate university, accredited by the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT). All of its courses are offered online and it has a physical campus in Atsuka City (situated on the northern shore of the island of Izu in Japan), housing a library and study rooms made available to students and residents of nearby communities.

The Faculty of Information Technology and Business offers a wide range of courses with emphasis not only on technological subjects, but also on practical business subjects and social media.

Cyber University was established in April, 2007 and has 792 students in its IT and Business Department and 244 in its World Heritage Department in November, 2011.

The University strives to maximize the strengths of the internet by enabling students to use today's mobile and social networking technologies to learn any time, any where, using practical training and knowledge sharing. In cooperation with SOFTBANK MOBILE Corp., the University offers a mobile learning environment to the students through mobile devices with 3G and Wi-Fi.

A foundation of SOFTBANK CORP's management philosophy is "Through innovation, to promote the sharing of wisdom and knowledge so that people can contribute to society and human life." As Cyber University the company is striving to create a virtual/real world environment where that can happen.

Japan's most innovative learning environment combines cloud computing with iPad 2 for mobile flexibility

In addition, earlier this year it decided it was time to take learning away from the constraints of the PC, to include mobile technologies, making its courses available any time and from anywhere it suits its students.

Apple's iPad 2 with 3G tablet device was the focus of Cyber University's mobile innovation. In June this year, the University began issuing the tablets with 3G and Wi-Fi connectivity to all eligible full time students for no additional fee.

Technology and in particular, mobile communications and remote working, are central to the way Cyber University (サイバー大学 Saiba Daigaku) in Fukui, Japan has been developed and operates. Cyber University offers all of its courses over the internet using cloud services.

"The synergy between the iPad and the PC - multiple screens for studying - is also evolving as an effective learning style. As a result, credits per semester per students are on an increasing trend, and active participation is increasing as well."

Wataru Kawahara, S. D. Professor, Dept of IT and Business, Cyber University

University goes portable with tablet technology



- A partnership between Orange Spain, and the Open University of Catalonia (UOC) using iPads with 3G connectivity to access the virtual campus and educational materials using a specially designed app and study the learning possibilities
- RSS technology allows the scaling of the virtual learning environment (VLE) for multiple devices
- The study considered it important for all students to access learning, even those who have disabilities (eg visual and hearing impairments) via the use of screen readers, automatic subtitling of videos and Braille tables
- UOC will now develop interactive and subject specific native apps, following positive feedback from teachers and students



GSMA mEducation **orange** **UOC** Universitat Oberta de Catalunya

University goes portable with tablet technology

Developing and evaluating an Open University portable learning environment for mobile technologies

Enhanced Mobile Learning (EMLC) at the Universitat Oberta de Catalunya (Open University of Catalonia, UOC) is an initiative of the University in collaboration with mobile operator Orange Spain. It aims to take the UOC's virtual campus, My UOC, to new, interactive and portable devices.

The App is just the first step in the EMLC project whilst it is initially just for the iPad, the project has defined a data model that can be used in any application for any device with an internet connection.

EMLC makes mobile learning a reality by providing access via Wi-Fi and 3G networks anytime and anywhere to both the student's virtual learning environment (VLE) and teaching content.

A study conducted by UOC assessed the importance of accessibility and autonomy with respect to an increase in learning productivity and efficiency. The main aim of the EMLC project was to study the learning possibilities offered by the iPad or any mobile device with 3G connectivity and a touchscreen.

The UOC Virtual Campus is already accessible from mobile devices. Students, professors and other members from UOC can log into the campus homepage via any mobile device. The mobile version provides access to the homepage, the virtual classrooms and other private areas of the main campus, allowing users to check their mail, activity in their classrooms, calendar, community forums and many other widgets without a computer but just their mobiles.

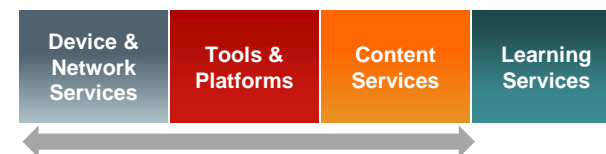
About UOC
The Universitat Oberta de Catalunya (UOC) is an on-line learning university based in Catalonia, Spain. It has more than sixty thousand students and three thousand teachers who learn and teach through a virtual learning environment (VLE) across 50 countries. The VLE has virtual classrooms with different collaborative functionality and applications implemented in order to enable students to learn.

The UOC's mission is to provide people with lifelong learning and education opportunities. The aim is to help individuals meet their learning needs and provide them with full access to knowledge, above and beyond the usual scheduling and location constraints.

Using tablet computers in the agricultural sector in Spain



- A partnership project in Spain between Telefonica Learning Services (who managed the training programme) and ASAJA (Spanish young farmers association), subsidised by FTFE (Spanish foundation for training and employment)
- Farmers had repeatedly requested to know more about new technologies and their applications in agriculture
- iPads with 3G connectivity were used
- 3G was important because areas often not easily accessible and they work in different fields and farms
- TLS use eLearning training and tutorials using a training platform (a+ LSM) which allows both synchronous and asynchronous communication
- Farmers are expected to use their devices to organise farming calendars, control irrigation times and better record their farming outputs



Using tablet computers in the agricultural sector in Spain

Telefónica Learning Services (TLS) has been working with the Agrarian Association of Young Farmers (ASAJA) in Spain to develop learning and training opportunities using tablet devices.

The key objective of the project was to introduce new technologies to boost farmers' computer skills and to help them become part of the information society, whilst at the same time enhancing their productivity and efficiency on the farm.

This training was subsidised by the Ttipartite Foundation for Continuing Training (Spanish acronym FTFE) through its contacts programme. ASAJA contracted Telefónica Learning Services to manage the training programme.

Farmers study in Teruel - An example

In 2012, following repeated requests from farmers wishing to learn more about new technologies and their applications in agriculture, a study was set up in three municipalities in the province of Teruel: Tornos, Calamocha and Terralba. Forty-six farmers with a basic level of education and who lived in remote locations were given iPads with 3G connectivity. The iPads were found to be very useful for these students, who spend most of their time outdoors because connectivity is guaranteed anywhere. These students not only live in places which are not easily accessible, but also move from one place to another working in different fields and farms. They were motivated to learn and communicate with each other and the teachers. The teachers and students appreciated the high specification of the devices they had been given, and valued the ability to consult online training manuals.

About Telefónica Learning Services

Telefónica Learning Services (TLS) is part of the Telefónica group of companies. Launched in 2011, it is responsible for Telefónica's eLearning services in 20 countries.

TLS brings together a multidisciplinary team of educators, consultants, technology experts, web developers/ designers, subject matter experts, teachers, tutors and student assessors to reduce the digital divide in employees' skills and professional development.

Their bespoke learning solutions for companies and public administrations include learning management systems, content and services for computers, tablets and smartphones and working with social media and augmented reality. They reach more than 500,000 students every year via many different organisations.

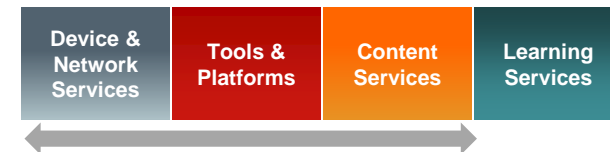
The Agrarian Association of Young Farmers is an independent agrarian association that looks after the interests of its affiliates. It has more than 200,000 members working directly on farms, both as owners and tenants, including family members who work in operating activities. It is known as ASAJA in Spanish acronym. See www.asajatef.com.

1. GSMA stands for Global System for Mobile Communications. It is a collection of standards and specifications for mobile devices and networks.

Tutor on Mobile – Anytime, anywhere learning in India



- A partnership project in India between Tata DOCOMO and Voicetap Technologies
- Designed to connect people who want to learn and acquire knowledge with experts using mobile devices
- TOM users access content through WAP, IVR, SMS or Video IVR (3G video call) – thus meaning that learning content is provided in different forms and can be accessed using any phone/platform
- Most frequently accessed areas are career counselling, job market advice, support for the AIEEE (All India Engineering Entrance Examination) and Vedic maths
- Its strength is the self-sustaining business model. The knowledge provider receives revenue for the content, the operator for the use of the service and the seeker of knowledge pays only a nominal charge (eg content items typically cost Rs 2-10)



Tutor on Mobile - Anytime, anywhere learning in India

How TOM works

Users of TOM can access content through WAP, IVR (Interactive Voice Response, a technology that automates interactions with telephone callers), SMS or Video IVR (3G video call).

They can:

- Learn from experts by joining in a live conference
- Listen to recorded podcasts on various subjects
- Connect on a one-to-one basis with subject knowledge experts by searching for them using the SMS or WAP platform
- View videos and other demonstrations on a particular subject
- Self-register as an expert on the platform to offer their expertise through conferences or by allowing one-to-one connections
- Receive alerts on SMS and WAP for voice content on IVR
- Use text-based explanations on specific topics and concepts
- Undertake practice on sample questions and mock tests

The learning content is aggregated from over 73 content providers and remains accessible to the user until their subscription expires.

Content items can be purchased individually at a charge of Rs 2-10 (e.g. a video demonstration is Rs 2 or 40.06) or as part of a pack containing several items (e.g. a pack of 30 videos can be sent to the user, one each day, for learning English at a cost of Rs 30, or 40.33).

Key features

What makes the service so strong is that the user can use any phone /platform to access it and search for learning content. No longer do you need expensive mobile technology to be able to communicate with an expert. In India, there are more than 700 million mobile phones but only about 100 million have access to the internet – learning content, therefore, needs to be provided in different forms:

The learning content varies considerably and covers topics ranging from learning to play a guitar, support for formal education overtures, jobs, employment and even career counselling advice.

How to access TOM

- Voice/SMS – Mobile phone users without internet access can use voice / SMS services to interact directly with experts (who are screened beforehand) on a one-to-one basis. SMS and Voice traffic is managed through a short-

code series (333300); users from other operators can also use the voice service by using a long-code (a traditional 10 digit MSISDN).

- WAP – Phones with internet access can use the WAP portal to browse for TOM and access content in the form of videos, explanation notes, mock tests, college database, etc. Subscribers can also set up conferences using WAP if they want to share knowledge. The WAP traffic has been 'whitelisted' to make browsing free for Tata DOCOMO users.
- Web – Learning content videos can be uploaded through the web once the creator has registered on the system. They are then evaluated for quality and revised if necessary. The platform also allows content creators to propose a price for the piece of content they wish to share.
- IVR – Profiles can be created using IVR for person-to-person connections. For all live conferences, the platform provides the services of a moderator to organise and control the conversations.



To 'whitelist' something generally means to authorize access or grant membership. In this case, Tata DOCOMO authorizes free access to browsing of the different forms of learning content on TOM WAP portal for its customers only.

Bharti Airtel: Offering mobile education to improve spoken English and enhance career chances



- A partnership project in India between Bharti Airtel, Aptech and Hungama Digital Media Entertainment Pvt Ltd
- The services are based on IVR, SMS or WAP and use the native language of the customer for different geographical locations
- The service offered is a 3-month voice-based course focussed on 'workplace English' designed for young learners who cannot afford the time or money, or both, to enrol for regular classes, and who want to improve their career opportunities
- Mirrors the classroom experience
- The daily subscription rate is Rs 5/day, and the customer conversion (acceptance) rate has been high







Bharti Airtel: Offering mobile education to improve spoken English and enhance career chances

Global telecommunications giant Bharti Airtel's mEducation services mirror a classroom experience on a mobile technology platform, making education more convenient, accessible and affordable. Spoken English is one such innovative service which has been launched in partnership with Aptech, one of India's leading training providers and Hungama Digital Media Entertainment Pvt Ltd, South Asia's largest digital entertainment company. A novel voice-based course for mobile customers, it has been designed for young learners who cannot afford the time or money, or both, to enrol for regular classes and uses the native language of the customer. It is available across India to all Bharti Airtel mobile customers allowing them access to affordable services on the go, anytime, anywhere, and has received an overwhelming response in a short timeframe.

The advantages of Bharti Airtel Spoken English:

- 3-month course on your mobile phone focused on 'Workplace English'
- mirrors a classroom experience with a real teacher taking classes
- short audio lessons with lots of practice, weekly recap of the lessons
- real-time speech recognition gives instant feedback and improves pronunciation
- voice-based question and answer sessions at the end of every lesson to test understanding
- voice-based regular assessment through weekly and monthly tests
- two SMS messages a day to reinforce vocabulary and/or application of the day's lesson
- live expert help available to answer questions.



LEARNERS
The Spoken English course is designed for young people (aged 18-30) in full-time entry-level jobs, such as secretary, junior government official and account executive, IT staff, trader, frontline staff, retail staff, medical representatives, insurance agent, and the self-employed in small and medium-sized companies. It is also relevant for first-time job-seekers.

These young people possess a basic knowledge of the English language and want to improve their career opportunities. They therefore need to improve their ability to converse fluently and confidently in English but lack the time and/or money to enrol in a classroom.

Key partners
Bharti Airtel Limited is a leading integrated telecommunications company with operations in 20 countries across Asia and Africa. Bharti Airtel launched

their mEducation services in January 2012, offering mobile customers across the country easy access to a range of education services, including language skills, entrance exam preparation and career counselling from industry veterans any time, anywhere at affordable prices.

For more information see www.airtel.in/education/

Aptech is a leading IT education institute and pioneer in IT software and hardware training. They have trained more than 6.5 million students through a network of education centres in 40 countries for international certification exams held by major IT companies like Oracle, Java, Microsoft and Red Hat.

For more information see www.aptech-education.com/

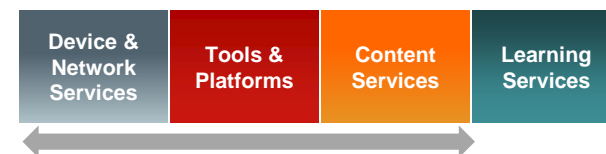
Hungama Digital Media Entertainment Pvt Ltd, along with Aptech, powers education services on the digital platform. It is the largest aggregator, developer, publisher and distributor of Bollywood and South-Asian entertainment content in the world. As a Digital Media company it has partnerships with over 400 content creators, record labels, studios, broadcasters, game publishers and has licensed worldwide exclusive digital rights to over half a million music and video titles. Hungama serves content to consumers in 47 countries across mobile, internet, IPTV services and has more than 150 partners across the world. The business has built its expertise in the following areas - mobile content, mobile marketing and mobile media.

For more information, please visit www.hungama.org

Red UnX: From a MOOC Platform to a Mobile Learning Community for Entrepreneurship in Latin America



- A partnership between Telefónica Learning Services, CSEV, Santander, UNED, RedEmprendia and MIT to develop UnX
- UnX uses MOOCs to offer training in entrepreneurship skills using social tools, with 'connectivism' as its basis for lifelong learning
- Online badge-based accreditation indicates visual levels of achievement/skills/knowledge. Karma points awarded for participation in the fora, Q&A and blogs – reducing reliance on course professors
- Course professors and developers will develop both online and offline apps (with the potential to monetise MOOCs through freemium and paid apps), with ge-positioning and Augmented Reality to encourage social networks and improve sustainability



GSMA mEducation

unX

Red UnX: From a MOOC Platform to a Mobile Learning Community for Entrepreneurship in Latin America

UnX is an innovative on-line community for entrepreneurship that promotes open education and collaboration in Spain, Portugal and Latin America (Ibero-America). It aims to:

- promote on-line lifelong learning, particularly the skills and competences needed for the digital economy, such as digital competences, app development, languages and new business models
- encourage knowledge-based entrepreneurship
- foster inclusion in higher education, focusing particularly on students, the under-employed and the unemployed.

UnX uses Massive Online Open Courses (MOOCs) to offer training to large groups of people and social tools, both Facebook and tools they have created themselves, to make it easy for users to interact with each other. With a range of courses and innovative on-line motivation and accreditation mechanisms, they plan to enhance entrepreneurship skills in the digital economy using on-line distributed, peer-to-peer learning.

It is a platform to help all sorts of people become active and entrepreneurial in their professional lives, not just those who are already entrepreneurs.

The UnX Entrepreneurship Community is now optimizing the MOOC platform for mobile devices so that its target audiences can learn wherever they are and however they like – on the bus, on the train, at home, etc. opportunities uniquely enabled by mobile technologies. Their ultimate goal is the development of a more creative, entrepreneurial, engaging and inclusive society through the use of innovative pedagogy. Their mission is to identify and develop tools and methodologies to facilitate this process, reaching out to students wherever they are in terms of aspirations and local realities – all without setting foot inside a classroom.

The learners

It is not easy to identify learner profiles in the open learning news but analysis of the social networks, including Facebook, suggest that:

- 77% of users are male and 23% female
- most are 20-40 years old, with the majority being students and the unemployed
- they come mainly from Spain, then Brazil, Colombia, Peru and Portugal.

The site has had nearly 23,300 unique visits in the last 6 months, of which 12.5% were made through a mobile device, generally the Apple iPad.

Within the next two years, however, it is anticipated that visits to the site via mobile devices will increase to more than 50% – roughly half (53%) from mobile phones and half (47%) from tablet devices.

The partners

The UnX project is coordinated by the Center for Virtual Education (CSEV) in collaboration with Telefónica, Santander, UNED (National Distance University -Spain), RedEmprendia (a network

of universities promoting responsible innovation and entrepreneurship in Ibero-America) and the Center for Mobile Learning, MIT (Massachusetts Institute of Technology).

The methodological framework: UnX is based on connectivism, an e-learning theory that knowledge is distributed across society so you need to interact with your peers to access information and build knowledge. As defined by Siemens' and Downes' the starting point for learning occurs when a learner connects to and feeds information into a learning community, which is a node arising out of the connection points found on a network. Nodes vary in size and strength, depending on the concentration of information and the number of individuals involved, and a network complex two or more nodes linked in order to share resources.

© Siemens, 2010. Connectivism: a learning theory for a digital age. <http://blogs.cba.hawaii.edu/connexions/>
© Siemens, 2010. Connectivism: a theory of personal learning. www.siemens.com/pressroom/2010/01/01siemens_connectivism_theory_of_personal_learning/

Learning about the history of Madrid using an Augmented Reality treasure hunt



- A partnership between Telefónica Learning Services, UNED and CSEV in Spain
- Developed an Augmented Reality treasure hunt to bring alive history, the arts, architecture and town planning with the customs of Madrid in the 17th Century – ‘Enreda Madrid’
- Combines game-based learning and the use of social media tools (eg Facebook and Twitter) to promote collaboration, learn and have fun
- Offered to university students and the general public, who use their own smartphones/tablets
- Users react in real time to learning materials on-site, eg solve tests, locate sites, collect evidence, solve puzzles and use blogs
- Much interest has been shown by the general public, including tourists and the citizens of Madrid



Learning about the history of Madrid using an Augmented Reality treasure hunt

Introduction to the use of the AR treasure hunt activity
Telefónica Learning Services (TLS) has developed an Augmented Reality (AR) treasure hunt to bring alive the subjects of history, the arts, architecture and town planning, together with the customs of Madrid. It is called 'Enreda Madrid'. Discovery-based learning and gaming techniques are used to deliver information of general interest via different mobile devices and technologies – thus combining the two areas of technology and culture. This is a partnership involving TLS, the National Distance Learning University (UNED) and the Centre for Higher Virtual Education (CSEV) in Spain.

Enreda Madrid has two main aims:

- To offer university students new learning strategies that combine culture and innovative new technologies, including mobile, and achieve one credit towards their course
- To offer the general public (adults aged 18 and older) the opportunity to become familiar with the latest technologies, eg mobile devices, web 2.0 technologies and social networks.

The AR treasure hunt activity simulates 17th-century Madrid, which is well-known for its links with the renowned painter Velázquez. Examples of the activities undertaken by students during the treasure hunt include:

- Running down a street alongside two members of the nobility
- Walking with 17th century neighbours in the Velázquez district of Madrid
- Visiting ordinary homes to learn how people lived and what they ate, etc
- Strolling down famous streets in the Los Austriacos district, eg down the Paseo del Prado, to see the former gates of the city or the prison
- Visiting one of the most famous printing houses of that time and understanding how books were published.

During the treasure hunt, students interact with learning materials on-site and in real-time via their mobile devices, and are required to solve tests, locate disorient sites on a 17th-century map (geo-localisation), collect evidence and decipher puzzles. They also complete a travel log, or blog, in which they share their experiences and what they have learned.

Augmented Reality (AR) is a live, direct or indirect, view of a physical, real-world environment whose elements are augmented by computer-generated sensory input such as sound, video, graphics or GPS data.

*Enreda Madrid has been very successful, because it offers people – not only students but also tourists and the citizens of Madrid – the opportunity to deepen their knowledge and understanding of our 17th-century traditions and social customs. It combines game-based learning activities, powered by technology including mobile, with social media tools and, most importantly, face-to-face participation, which promotes peer collaboration: people can learn whilst on the move and having fun! *
*Name: Inés María Sordo Project Manager of Enreda Madrid, TLS



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