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Women's Socioeconomic Empowerment through ICT in Latin America: Peru, Colombia, Ecuador

COLOMBIA

PERU

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Women's Socioeconomic Empowerment through ICT in Latin America: Peru, Colombia, Ecuador

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Asia Pacific Women's Information Network Center (APWINC) #502 Centennial Hall, Sookmyung Women's University, Cheongpa-ro 47 gil, 100 (Cheongpa-dong 2-ga), Yongsan-gu, Seoul 140-742 KOREA

Tel: +82-2-2077-7292 Fax: +82-2-710-9351 E-mail: apwinc@sm.ac.kr http://www.women.or.kr

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PROJECT TEAM

Lead Researcher

Yoo-Jin Han, Assistant Professor, School of Global Service,

Sookmyung Women's University, Korea

Researchers

Haley Hyun, Asia Pacific Women's Information Network Center JiHyun Choi, Asia Pacific Women's Information Network Center

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Acronyms

<u>English</u>

APEC	Asia-Pacific Economic Cooperation
APWINC	Asia Pacific Women's Information Network Center
CIA	Central Intelligence Agency
EIU	Economist Intelligence Unit
FGI	Focus Group Interview
GGGI	Global Gender Gap Index
GII	Gender Inequality Index
ІСТ	Information and Communication Technology
IDB	Inter-American Development Bank
ILO	International Labour Organization
IMF	International Monetary Fund
IPU	Inter-Parliamentary Union
LAC	Latin America and the Caribbean
MDGs	Millennium Development Goals
MEST	Ministry of Education, Science and Technology
OAS	Organization of American States
OECD	Organization for Economic Co-operation and Development
SNS	Social Networking Services
ТоТ	Training of Trainers
UN	United Nations
UNDP	United Nations Development Programme
WEF	World Economic Forum
WEO	Women's Economic Opportunity
YABT	Young Americas Business Trust

<u>Spanish</u>

ADEC-ATC	Asociación Laboral para el Desarrollo
ADEX	Asociación de Exportadores del Peru
ADRA	Agencia Adventista Para el Desarrollo y Rescursos Asistencia les Perú
COMEXPERU	Sociedad de Comercio Exterior del Perú
FLACSO	Facultad Latinoamericana de Ciencias Sociales
ΜΙΜΡ	Ministerio de la Mujer y Poblaciones Vulnerables
MINTEL	Ministerio de Telecomunicaciones y Sociedad de la Información
MML	Municipalidad Metropolitana de Lima
ОР	Oficina de la Presidencia
SENA	Servicio Nacional de Aprendizaje
SENPLADES	Secretaria Nacional de Planificación y Desarrollo
SENESCYT	Secretaría Nacionalde Educación Superior, Ciencia, Tecnología e Innovación
MINTIC	Ministerio de Tecnologías de la Información y las Comunicaciones
UEB	Universidad Estatal de Bolivar
UPS	Universidad Politécnica Salesiana
UNIFÉ	Universidad Femenina del Sagrado Corazón

Summary

The primary purpose of this report is to describe the process of creating and disseminating an Information and Communication Technology (ICT) training curriculum that serves information and economic interests of women entrepreneurs in three Latin American countries: Peru, Colombia, and Ecuador. The overarching goal of the training is to provide accessible and regionally-appropriate content that teaches women how to effectively harness the power of the information economy and to leverage e-business strategies to improve their socioeconomic statuses.

This report outlines the steps taken to support ICT training curriculum development and deployment. The first steps of the research included regional basic literature reviews, online surveys, and focus group interviews (FGI). The resulting data were used to build a seven-day training technical curriculum based on existing APWINC training materials. This report describes these processes, as well as outlines the rationale of the training module content, the content localization process, criteria for selecting training sites within the three countries, and the potential of the programme to significantly impact the lives and livelihoods of Andean women through the use of ICT.



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1. Introduction

1.1 Background

The Latin American region has made significant progress in the Millennium Development Goals on gender equality and women empowerment in the past few years. Data show a positive change, especially in the economic indicators such as women's access to non-agricultural wage employment. However, the enhanced access does not necessarily translate into expanded economic opportunities for poor women. Considering that this region has the highest inequality in the world, it is not surprising that the progress made in gender equality is not equitably distributed, and is most limited to poor women.

A vicious cycle for women in the region continues to perpetuate. Latin America's teen pregnancy rate is among the highest in the world, setting barriers for young women's access to employment and decent occupations. Moreover, of particular concern are the inactive adolescents and young adults who neither work nor study. Among others, Latin America is one of the regions with the highest rate of inactivity of young women aged 20 to 24, compared with young men of the same age group. The inactivity rate for women is 34 per cent whereas it is only seven per cent for young men. This is second to the South Asian region. In sum, the challenges Latin America is facing are two-fold. First, the vicious cycle of poverty, especially among young women who live in rural areas, perpetuates despite the significant progress the region has achieved in gender equality. Second, specific barriers limit women's success and participation in the economy.

Small businesses run by rural women entrepreneurs will rapidly grow once they get connected with customers and suppliers on the Web. This connection will generate economic activities and create many service providers down the value chain. We have seen small farmers benefiting from online agricultural advice. Internet banking can also provide easy access to microcredit to women entrepreneurs, looking for working capital.

To meet the challenges against women in the region while taking full advantage of the growing digital opportunities in the e-business sector, the Korean experience in promoting women entrepreneurs' economic participation with the help of the ebusiness environment can provide an excellent reference model to the region. In this regard, the Asia Pacific Women's Information Network Center (APWINC) of Sookmyung Women's University has held a forum and implemented the "Innovative Strategies for Peruvian Women's Participation in Digital Economy: A Pilot Programme for Women Entrepreneurs" with financial support from the Inter-American Development Bank (IDB). This programme implemented the following activities in cooperation with organizations at the local, national, and international levels:

- Phase 1 (Peru, 2008):
 APEC¹+ LAC² Digital Economy Forum for Women
- Phase 2 (Peru, 2010):

Pilot Programme for Women Entrepreneurs

Along with the previous projects targeting the Latin American region, the Young Americas Business Trust (YABT) proposed to contribute to APWINC's effort in promoting women's participation in the digital economy, by scaling up its pilot project in Peru in 2010. YABT is a private sector initiative of the General Secretariat of the Organization of American States (OAS) and it maintains strong partnerships

¹ Asia-Pacific Economic Cooperation

² Latin America and the Caribbean

and networks at the local, national, and regional levels in Latin America, including Colombia and Ecuador.

1.2. Purpose of the Research

The primary purpose of this report is to investigate the possibility of leveraging e-business strategies to increase women's income-earning potential in three Andean countries (Peru, Colombia, and Ecuador) and to design tailormade ICT and e-business curricula for these regions. Research and training are the starting points of a larger effort to strengthen national socioeconomic capacity through increasing women's socioeconomic participation in the digital economy. As a part of the "Facility/Programme for Capacity Development in Poverty Reduction through the South-South and Triangular Cooperation in Education, Science, and Technology," sponsored by the United Nations Development Programme (UNDP) and the Ministry of Education, Science and Technology (MEST) of Korea, this region-specific effort (including this report) intends to transfer, operationalize and customize APWINC's tested gender and ICT training so that it has global applicability.

Conducting and evaluating the customized APWINC training in the three Andean countries are designed to span over three years. During this period, APWINC and the regional partners will conduct seven primary activities: i) gathering research on the local women's needs, ii) hosting staff and mission exchanges, iii) developing educational curricula and materials, iv) holding a workshop for regional partners, v) training local e-business trainers (training of trainers (ToT)), vi) producing local replicas by the participants of ToT, and vii) conduct monitoring and evaluation of the overall effort to assess impact on the participating women. 4 Women's Socioeconomic Empowerment through ICT in Latin America: Peru, Colombia, Ecuador

Using Peru as the initial country, APWINC researchers conducted requisite literature reviews, in-country focus group interviews (FGI), and online surveys to capture women's daily activities, technical experience, and information needs. The literature review included relevant articles and reports in the fields of women, ICT, and women's empowerment regionally and globally. The FGI and online surveys were conducted at a local level in Lima, Peru, and surrounding areas in order to better understand the lives and aspirations of women already involved in micro- or small-enterprise activities. These data became a foundation for a first draft of the training material, and led to partnerships with Peruvian academic, governmental and non-governmental entities. In-country stakeholders with a demonstrated commitment to women's empowerment through ICT were selected to champion the APWINC training to Peruvian institutes, in order to help contribute to women's - and the country's - overall socioeconomic empowerment.

Having established partnerships in Peru, APWINC extended this effort to partners in Colombia and Ecuador, to encourage them to also prioritize women's participation in the digital economy. Online surveys were deployed in both countries. Regions in all three countries were selected by using the GE-McKinsey matrix, to suggest where the ICT training's impact would be greatest. In November 2012, representatives of partner organizations from all three countries met at APWINC in Seoul, Korea, to present country profiles, review training content, and discuss how to best replicate trainings in each country.

Through this report, we aim to detail three goals: 1) the process by which we determine the local level needs of women in terms of ICT training, 2) the steps required to develop a localized training curriculum and material, and 3) the data that inform the choice of where and how to initiate replica trainings and programmes.



A high-level overview of the overall programme is shown in Figure 1.

Figure 1. Programme Design

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2. Overview of Economic Environment

2.1 Economic Environment of Peru, Colombia & Ecuador

In order to better understand the socioeconomic realities of women in the Andean countries, it is important to recognize that the three countries may share borders, but have very different economic resources and standards of living. The population and size of the three countries vary greatly. Colombia, with a land area of 401,042 square miles, or 1,038,699 square kilometers, has an approximate population of 46 million people, making it the 27th most populated country in the world. Peru, with a larger land area of 496,220 square miles or 1,285,210 square kilometers, ranks 40th with approximately 30 million populations, and Ecuador is approximately 14 million, which places it 68th globally. Ecuador has the smallest land area of 106,888 square miles, or 276,840 square kilometers.

Using GDP as an overall indicator of socioeconomic status, the GDP of Colombia is \$331.7 billion, which places the country 31st in the global rankings; the GDP of Peru is \$176.7 billion, which places it 50th in the world; and the GDP of Ecuador is \$67 billion, which ranks 63rd.

Second, as a measure of quality of life, the GDP per capita of Peru is \$10,318, which ranks 81st in the world, placing it just ahead of Colombia, which has a GDP per capita of \$10,103, ranking 83rd. The GDP per capita of Ecuador is \$8,486, which places it in the 93rd place. These basic economic indicators for each country are shown in Table 1.

Category		Peru	Colombia	Ecuador
GDP ^a	Value	176,662	331,655	67,003
(nominal, million \$)	Rank	50	31	63
GDP per capita ^b (nominal, \$)	Value	10,318	10,103	8,486
	Rank	81	83	93
Population ^c	Value	30,135,875	46,734,000	14,483,499
	Rank	40	27	68

Table 1. GDP and GDP per capita of Peru, Colombia & Ecuador³

Each country has different key industries depending on its natural and geographic resources, although many sectors face challenges in the changing economy. The industrial profile of each country is described in this section as useful background information to better contextualize the training content and to identify opportunities for women entrepreneurs.

2.1.1 Peru

Peru's primary industries include mining, hydrocarbon, fisheries, agriculture, tourism, textiles and garments, and food and beverage (Kwon et al., 2011). Peru exports copper, gold and zinc - materials that are in high international demand. Peru's oil and natural gas reserves support both domestic and export markets. Hydrocarbon-based chemical products are used to create fertilizers, industrial chemicals, and pharmaceuticals. Its medicinal plant resources are a well-known pharmaceutical asset.

The Peruvian fishing industry is supported by government institutes including the Sea Institute and the Technical Fisheries Institute, where scientists conduct hydro-biological research to develop fish products with high nutritional

³ Source: a & b:World Bank (2011); c:UN-DESPD (2011)

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quality. However, the links between research and business are weak in the fishery sector, even though fish meal is a major export. The county's fertile coastal farmland is suitable for various cash crops, such as asparagus, avocado and coffee. However, Peru is in need of a general upgrade of aging facilities including nurseries, processing plants, packaging, cold storage, canning, and dehydration plants. Better-maintained roads would also benefit the agricultural supply chain. Finally, for the distribution of fresh crops and vegetables, the road network should be upgraded.

Tourism is a bright sector in Peru due to pristine river and mountain regions and well-preserved historical sites. Yet recent economic downturns have affected tourism-based economies and more effort should be given to better integrate cultural aspects of Peru in tourist activities. Regarding tourism, the textile and garment industry has adopted environmentally safe organic cotton production, in addition to standard industrial textile production. This "clean" cotton, often labeled as *brown packucho* or *paxcotton*, has commercial value in eco-friendly markets, and wool products from native animals like alpacas are popular both domestically and internationally. Peruvians tend to spend a sizeable portion of their income on food and beverages. The most popular food and beverage products include dairy-based products, bread and biscuits, pasta, cooking oil, and beer. Of these products, the beer industry is predicted to grow faster than any other product type in this category.

2.1.2 Colombia

Colombia's major industries include mining, infrastructure development, and ICT (UN, 2000). The country is rich in energy resources, including petroleum,

natural gas, and coal, as well as valuable industrial and commercial minerals such as gold, silver, emeralds, iron and nickel, boasting the third largest mineral reserves worldwide. The areas for mineral exploration account for only 15% to 20% of Colombia's land, which suggests a strong possibility of finding more minerals. Potential coal reserves are estimated at 17 billion tons and gold deposits at 28 million ounces. As of 2010, metallic and non-metallic coal production accounted for 2.3% of the total GDP. The production growth rate of minerals was 4.3% in 2010, and the average growth rate was 8.1% from 2000 to 2010.

In 2010, the Santoz government announced a National Development Plan (Plan Nacional de Desarrollo) 2010-2014, a four-year infrastructure investment plan, intended to improve and increase roads and railroads. The number of major roads is proposed to more than double from 884 total kilometers in 2010 to 1,834 kilometers in 2014. The railroads will be extended from the 906 kilometers of track in 2010 to 11,154 kilometers, and the number of cities with integrated public transportation system services, or SITM (Sistema Integrado de Transporte Masivo), aims to grow to 20 by 2019, from 5 cities in 2010.

The ICT sector in Colombia has also been supported by investment from the government, which created "Productive Transformation Programme" to enhance Colombia's competitive economy. In 2009, the ICT market of Colombia accounted for 5.8% (\$30 million) of the total Latin American market, placing it third behind Argentina and Brazil. However, in terms of size, Colombia's ICT sector is the largest in Latin America with a growth rate of 9%, which exceeds that of most Latin American countries. The ICT market of Colombia is divided into the following categories: hardware (49.2%), ICT service (35.7%), and software (15.1%). Notably, investment in the ICT service market here is greater than other Latin American countries.

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2.1.3 Ecuador

Ecuador's key industries are petroleum, mining, shrimp farming, banana production, biological resources, tourism, and infrastructure development (UN, 2001). Ecuador's petroleum industry comprised nearly 15% of the GDP in the 1990s. A third of all petroleum products were exported from 1994 to 1998, peaking at 60% in 1999. The petrochemical sector is also the largest contributor to the government budget, accounting for 35% of its revenue in 1999. Mineral extraction accounts for about 1.4% of the GDP of Ecuador and employs about 60,000 workers. Ecuador's market share of total mineral extraction in Latin America was 4.1% from 1987 to 1989, but was reduced to 3.7% from 1995 to 1997 in response to the global drop in metal prices that slowed mineral exploration.

Other natural resources include shrimps. About 4,000 tons of shrimps worth \$31 million, were annually exported in the early 1990s. This figure increased to 115,000 tons, worth \$875 million, in 1998. In 1998, approximately 60% of the shrimps were exported to the United States and 27% to Europe. The shrimp industry accounts for 4% of the GDP and employs 220,000 people, which makes it the second largest industry in Ecuador. Shrimps are Ecuador's second most popular export item, accounting for 20% of the country's total exports. Moreover, among the shrimp-exporting countries, Ecuador has a 20% share of the global production and ranks second after Thailand. Bananas are another important cash crop. In 1998, the amount of banana exports exceeded \$1 billion, which made bananas the country's largest export item. Ecuador is the world leader in banana exports and the third largest banana producer in the world. The industry accounts for 3% of the GDP. In 1998, Ecuador was the largest supplier of fresh bananas to the United States, accounting for over 30% of the total exports. Other significant export

markets include Germany, Italy, Russia, Argentina, Belgium, and Japan.

Ecuador is rich in terms of biological resources. According to the World Resources Institute, Ecuador has 340 mammal species, 18,250 plant species, 1,600 bird species, 380 reptile species, 412 amphibian species, and 765 freshwater fish species. A report published by the World Wildlife Fund stated that Ecuador ranked 11th among the places that have the most important ecological areas in the world, which makes the country significant for both scientific research as well as tourism. As tourism in Ecuador is growing, it is the fourth largest economic sector after oil, shrimps, and bananas. Tourism grew approximately 6.5% annually between 1992 and 1998. In 1999, tourism income reached \$343 million despite the bad publicity generated by the political turmoil and the activity of the Pichincha Volcano. Tourism, especially ecotourism, is a strong economic force in Ecuador. However, tourism growth may be hampered somewhat by its weak power, water, telecommunications and transit infrastructure. 43% of the population does not have access to potable water, and 60% cannot use the sewage system. Ecuador's power generation and distribution lag behind consumer and commercial demand. Andinatel and Pacifictel, the two major telecommunications providers in Ecuador, have had difficulty handling the quantum growth of cellular telephony. The teledensity rate in Ecuador is merely 7 to 8 lines per 1,000 inhabitants compared to the global average of 13, which makes it one of the lowest in Latin America. Half of the national road network of 43,249 kilometers was destroyed in 1998 by El Niño. An investment of \$5 billion in 1998 attempted to address this problem. The government announced a five-year plan entitled "The Master Plan for Roads" in 1998 that consisted of construction, improvement, maintenance and integration of roads and highways, as well as rehabilitation of the coastal network devastated by El Niño.

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2.2 Women's Socioeconomic Status in Peru, Colombia & Ecuador

Before investigating the specific conditions that account for women's socioeconomic status in the three countries, we investigated general gender empowerment indicators. Fertility rate often inversely correlates to women's economic participation. All three Andean countries rank between 90th and 110th out of approximately 200 countries. The GINI coefficient, a popular measurement of income equality, supports the conventional development economic literature that states that the Latin American countries have the most inequitable income equality globally. The UNDP Human Development Index, or HDI, ranks all three countries in the medium-low income category, which suggests a need to invest in and improve overall societal institutions such as education. This is more clearly demonstrated by the female literacy rate, which places these countries in the lowest female literacy levels. The fertility rate, literacy rate and GINI data places the overall economic participation of women in Peru, Colombia and Ecuador in the medium-low group worldwide. Table 2 illustrates the data.

Category		Peru	Colombia	Ecuador
\mathbf{E}_{a}	Value	2.51	2.22	2.58
Fertility Rate (2011)	Rank	92	109	88
CINI coefficient (2011) ^b	Value	26.1	60.4	35.2
GINI coefficient (2011)	Rank	26	15	39
$UDLinder (2011)^{\circ}$	Value	0.725	0.710	0.720
HDI IIdex (2011)	Rank	87	75	89
Espela Literacy (2010) ^d	Value	89.40	90.70	89.70
Female Literacy (2010)	Rank	110	102	107
Women's Economic	Value	0.415	0.482	0.469
Participation (2011) ^e	Rank	80	87	83

*Table 2. Basic Socioeconomic Data*⁴

⁴ Sources: a:World Bank (2011); b, c & e:UNDP (2009); d:CIA (2011)

Thirteen countries in Latin America and the Caribbean (LAC) adopted a quota system to ensure higher representation of women in national parliaments and other government positions. The goal is to achieve 30% female participation. However, Andean women's socioeconomic participation and types of employment do not fulfill the 30% requirement, except for the numbers of professional and technical workers, which is almost 50%. While representation and participation in government and household leadership positions is under 30% across the board, a greater percentage of professional and technical women in the workforce may help to support the APWINC training, as there may be less stigma for technical work conducted by women in these countries as compared to others. The detailed indices are shown below in Table 3.

Women's Social Status	Peru	Colombia	Ecuador
Proportion of seats held by women in national parliaments (%) ^a	21.5	12.7	32.3
Proportion of women as ministers (%) ^b	29.4	23.1	35.3
Female legislators, senior officials and managers (%) ^c	19.4	38.0	27.7
Female professional and technical workers $(\%)^d$	42.0	49.0	49.0
Female headed households (%) ^e	22	34	N/A
Firms with female participation in ownership $(\%)^{f}$	29	35	24
Average	27.2	32.0	33.7

Table 3. Women's Social Status & Type of Employment⁵

There are additional important indices that measure women's status, including the Global Gender Gap Index (GGGI) and the Gender Inequality Index (GII). The GGGI is sponsored by the World Economic Forum (WEF) and the GII is conducted by the UNDP, both of which use different indicators to measure empowerment. The GGGI investigates women's status at the micro-

⁵ ^a IPU (2011)⁵; ^b UN⁵ (2010); ^c ILO⁵ (2011); ^d OECD⁵; ^e Macro International (2011);

^f World Bank (2011)

level while the GII explores it at the national level. As demonstrated by the data from the GGGI, Ecuador is ahead of the other two countries. In the case of the GII, Peru is higher than Colombia and Ecuador. Table 4 shows the values of the GGGI and the GII:

Country	GG	GI	GII		
	Value	Rank	Value	Rank	
Peru	0.6796	73	0.415	72	
Colombia	0.6714	80	0.482	91	
Ecuador	0.7035	45	0.469	85	

Table 4. GGGI and GII of Peru, Colombia & Ecuador⁶

To further understand women's socioeconomic realities in each country, it is helpful to use another index, the Women's Economic Opportunity (WEO) authored by the Economist Intelligence Unit (EIU). This index examines five categories at the national level, providing an additional layer of gender-based data. The five WEO indicators include 1) Labor Policy and Practice; 2) Access to Finance; 3) Education and Training; 4) General Business Environment; and 5) Women's Legal and Social Status. The values for each country are shown in Table 5.

Country	Category	2010	
	Labor Doligy and Practice	Score	52.3
	Labor Folicy and Fractice	Rank	43
	Access to Einspee	Score	20.5
Peru	Access to Finance	Rank	85
	Education and Training	Score	59.5
	Education and Training	Rank	56
	Women's Logal and Social Status	Score	89.0
	women's Legal and Social Status	Rank	38
	Concerl Business Environment	Score	42.3
	General Business Environment	Rank	65

⁶ Source: WEF (2011) & UNDP (2011)

Country	Category		2010
	Labor Doligy and Prostiga	Score	40.1
	Labor Foncy and Fractice	Rank	85
	Access to Finance	Score	52.6
	Access to Finance	Rank	39
Colombio	Education and Training	Score	62.0
Colombia	Education and Training	Rank	51
	Woman's Lagal and Social Status	Score	85.2
	women's Legal and Social Status	Rank	51
	Conoral Puginage Environment	Score	46.0
	General Business Environment	Rank	61
	Labor Doligy and Prostiga	Score	50.6
	Labor Foncy and Fractice	Rank	52
	Access to Finance	Score	24.0
	Access to Finance	Rank Rank	
Foundar	Education and Training	Score	51.5
Ecuauor	Education and Training	Rank	79
	Woman's Lagal and Social Status	Score	78.1
	women's Legal and Social Status	Rank	68
	Concrel Rusiness Environment	Score	24.0
	General Business Environment	Rank	100

Table 5. Scores and Ranks of Indicators Showing Women's Status in the Three Countries⁷

By combining the values in the five categories, the final WEO rankings are calculated in Table 6, showing change in rankings between 2010 and 2012.

Country	2010	2012	Change
Peru	52	53	- 1
Colombia	51	55	- 4
Ecuador	72	67	+ 5

Table 6. WEO Rankings in 2010 & 2012⁸

 ⁷ Source: EIU (2010)
 ⁸ Source: EIU (2010) and EIU (2012)

The regional levels of ICT infrastructure and e-business activity, PC use, percentage of Internet users and Internet commerce users, and the penetration rate of broadband and landlines are relatively low.

Country	Internet Users (%)	e-Buyers (%)	PC (%)	Broadband (%)	Main Lines (%)
Peru	28.1	9.8	12.5	2.2	8.2
Colombia	21.2	4.0	5.0	1.6	16.5
Ecuador	16.0	0.5	7.9	1.3	12.6

Table 7. ICT Infrastructure and e-Business Environment⁹

However, the indicators of e-business readiness of the three countries are more progressive. The values and ranks place all three countries at a medium level as shown in Table 8.

Country	Value	Rank
Peru	4.75	52
Colombia	4.84	53
Ecuador	3.97	60

Table 8. e-Business Readiness by Country¹⁰

Given the importance of the UN Millennium Development Goals (MDGs), it is interesting to note that the Latin America and the Caribbean as a region, has achieved progress and achievement since the launch of the MDGs in 2000, especially in the research-pertinent relevant indicators of MDG 1 (Eradicate extreme poverty and hunger), MDG 3 (Promote gender equality and empowerment) and MDG 8 (Develop a global partnership for development). Most striking is the positive trend of MDG 8, the external debt service payments

⁹ Source: VISA (2011)

¹⁰ Source: EIU (2009)

as a proportion of export revenues reduced from 22 per cent to 7 per cent, which bodes well for capacity-building programmes in each country. This is illustrated in Table 9.

MDG	1990	2005
MDG 1 Eradicate extreme poverty and hunger (Proportion of people living on less than \$1.25 a day)	8	11
MDG 3 Promote gender equality and empowerment (Proportion of seats held by women in single or lower houses of national parliaments)	15	23
MDG 8 Develop a global partnership for development (External debt service payments as a proportion of export revenues)	22	7

Table 9. The Attainment Level of the Three MDGs in Latin America and the Caribbean¹¹

¹¹ Source: UN (2010)

2.3 Economic Opportunities for Andean Women

Many women entrepreneurs in the three Andean countries participate in fine small-scale cottage industries. However, in order for women to participate more effectively to boost not only their income but that of the nation, they need to investigate larger-scale impactful industries. In Peru, since mining, fisheries, tourism, agriculture, hydrocarbon, textiles and garments, and food and beverage are the key industries of the country, it may be wise for women to work more directly in these sectors, especially if they can integrate ICT strategies, as demonstrated in Figure 2.



Figure 2. Prospective Industries for Finding Business Opportunities in Peru

Similarly, women in Colombia may be well-served in finding ways to integrate ICT with the other key country industries as shown in Figure 3. It is noticeable that Colombia has a growing ICT industry; we recommend that women also seek business opportunities directly in the ICT sector.



Figure 3. Prospective Industries for Finding Business Opportunities in Colombia

In Ecuador, given that petroleum, mining, shrimp, banana, biological resources, infrastructure and tourism are the key industries of the country, it may be plausible for women entrepreneurs to expand into these lucrative sectors through the use of ICT, as shown in Figure 4.



Figure 4. Prospective Industries for Finding Business Opportunities in Ecuador

3. Needs Assessment

In order to develop an appropriate and successful training curriculum and to have this material available to the Andean country partners during the content review workshop in Seoul in November 2012, it was critical to conduct a needs assessment of the targeted communities to better understand the economic and information needs of women working in small enterprises. To that end, partner organizations in Peru, Colombia and Ecuador helped to identify women who fit the intended profile to participate in an online survey and focus group interview (FGI).

The online survey was designed to better understand the socioeconomic climate of ICT in each of the three countries, as well as to learn about relevant national policies and similar ICT training programmes. Survey participants included in-country organizations and institutions associated with gender, ICT, and e-business.

The FGI was conducted to better understand the degree of access and familiarity local women had with ICT, as well as to gauge interest in ICT skillsbuilding and e-business strategies. The FGI was conducted in Peru, and provided an effective environment for the interviewees to discuss their aspirations and challenges in creating and running small businesses. The FGI method is useful for obtaining diverse ideas from various participants while providing opportunities for identifying the participants'opinions through interactions¹².

¹² Rabiee (2004)

3.1 Online Survey

3.1.1 Peru

10 respondents participated in the online survey given to domain experts. Five respondents came from a private sector, three from a non-governmental or not-for-profit sector, and one each from international organization and government sectors, as shown in Table 10.

	Private Enterprise	Association/ NGO	University/ Institute	Int'l Org.	Govern- ment	Total
No. of Respondents	5	3	0	1	1	10

Table 10. The Number of Respondents by Sector in Peru

The first part of the online survey asked questions related to gender and ICT policy. While the Ministry of Women and Vulnerable Populations (MIMP) is tasked with supporting policies or programmes that support women's e-development, most participants agreed that there were not any significant national policies or strategies to increase women's technical capacity building. However, trade associations like the Association of Exporters (ADEX), the Foreign Trade Society of Peru (COMEXPERU) and Manuela Ramos (a microfinance organization), support women's technical ICT training and women entrepreneurs in Peru. Universidad Femenina del Sagrado Corazon (UNIFE), a women's university in Lima, also hosts a programme to enhance women's empowerment. These four entities, MIMP, ADEX, COMEXPERU and UNIFE, shown in Figure 5 below, work collaboratively to promote women's access and use of ICT, focusing primarily on providing vocational training to support women's e-business skills in the entrepreneurial economy. Although these organizations promote women's e-development, some respondents mentioned

that these organizations should be much more proactive in their training, outreach efforts, and policy formation.



Figure 5. Relevant Organizations in Promoting Women's e-Development in Peru

To promote women's e-development, the surveyed experts said that women should increase their overall computer literacy, a skill that they can apply to ebusiness. Organizations should not only teach basic computer and e-business skills but should also promote women's technical training efforts, as a positive approach to address socioeconomic development at the national level. In order to encourage women to more actively participate in socioeconomic activities, the experts agreed that Peru needs to support stronger gender equity policies as well as a greater number of technical education opportunities taught by qualified staff.

3.1.2 Colombia

10 experts participated in the online survey in Colombia-four each from the trade association/NGO and the government sector, and one each from the university and international organization sector, as shown in Table 11.

	Association/ NGO	University	Int'l Org.	Government	Total
No. of Respondents	4	1	1	4	10

Table 11. The Number of Respondents by Sector in Colombia

In Colombia, the number of Internet users has rapidly increased in the last 10 years from 1,889,594 to 18,958,559, according to data by the World Bank Group. Recently, the government established a national policy designed to promote Internet use. Given the significant increase in technology and Internet use, the government recently developed a national plan for employment generation and poverty reduction. This policy is called the "Vive Digital Plan," which is planned to run for the next four years. This plan aims to provide both social and economic benefits throughout the country through the use of ICT. The hope is that mass use of the Internet will create more jobs, reduce poverty, and promote democratic socioeconomic principles. The Vive Digital Plan includes a provision for developing the ICT capacity of women by promoting women's access to ICT, enhancing women's ICT capacity through vocational training, supporting women's socioeconomic participation, and developing women's entrepreneurship. This plan is primarily managed by the Ministry of Information Technology and Communications (MINTIC) and the Presidential Office (OP) in charge of gender issues.

According to the participants of the survey, no specific specialized institution is in charge of women's technical capacity building activities or policies. However, a handful of organizations support women and ICT in different ways. Participants posited that the Ministry of ICT should increase efforts in gender equality, ICT training programmes, and entrepreneurship training. Other participants mentioned that public organizations such as Makaia and the National Learning Service (SENA) have digital educational programmes. Makaia¹³ is a social non-profit organization that promotes good governance and business policy, and champions ICT as a means of doing so. SENA provides vocational and basic computer training, but does not have an explicit gender-equality focus. Almost all

¹³ http://www.makaia.org/english.shtml

participants agreed that there is a need for better, more qualified technical trainers in the country to create more momentum around women's empowerment through ICT. The major institutions for promoting women's e-development are shown in Figure 6, showing the MINTIC and the OP as government organizations and Makaia and SENA as organizations in the private sector.



Figure 6. Relevant Institutes for Promoting Women's e-Development in Colombia

3.1.3 Ecuador

In Ecuador, two of the 10 responses came from the association/NGO sector, one from the university sector, and seven from the government sector.

	Association/ NGO	University	Government	Total
No. of Respondents	2	1	7	10

Table 12. The Number of Respondents by Sector in Ecuador

Some respondents answered that they were aware of a national policy called the "Window to Equality," which aims to improve women's access to ICT as a part of the National Development Plan on Broadband (high-speed Internet). This initiative is managed by the Ministry of Telecommunications and Information Society (MINTEL). "Window to Equality" promotes women's easier access to ICT, socioeconomic participation, online community-building, networking between women, and women's entrepreneurship. According to the participants, other quasi-governmental entities also support women's e-development. The National Secretary of Planning and Development (SENPLADES) manages country-wide development and public service. SENPLADES sponsors the "National Plan for Good Living 2009-2013". This plan has 12 objectives, including the promotion of gender equality¹⁴. The National Secretary in Higher Education, Science, Technology and Innovation (SENESCYT) is another department which involves in technical skills-building and development.

The non-governmental organization Infodesarrollo is a network of many different organizations that all work for education and development through ICT. Some of the specialized institutes that support women's e-development include the Latin American Faculty of the Social Sciences (FLACSO), Bolivar State University (UEB), Salesian Polytechnic University (UPS), and the National Council on Women. Most of these institutes provide basic computer literacy training and advocate gender equality policy. The National Council on Women organizes conferences on gender policy. The major institutions that work to promote women's e-development are shown in Figure 7 - MINTEL as a government organization, SENPLADES, SENESCYT, and Infodesarrollo as organizations in the private sector, and FLACSO, UEB, and UPS as academic entities.



Figure 7. Relevant Institutes for Promoting Women's e-Development in Ecuador

¹⁴ SENPLADES (2009)

3.2 Focus Group Interview: Peru

To identify the local needs and current status of e-business as a socioeconomic strategy for women, Focus Group Interviews (FGI) were conducted along with the online survey. A series of FGI with four different groups was conducted to determine the local needs of the women and to develop a suitable training curriculum. The FGI was held in Lima, Peru in August, 2012. Local women entrepreneurs were invited by Universidad Femenina del Sagrado Corazon (UNIFE) and the MIMP to participate. UNIFE and the MIMP selected suitable participants from known women's groups to help inform the design of the overall project. Some of the women in the FGI were supported by organizations/communities, while the other participants worked individually. Some women already made profits from their own businesses, whereas some were unable to make any profits because they were still in the stage of training for opening their own businesses.

For linguistic convenience, a professional interpreter helped the research team by interpreting Spanish into Korean during the interview. The interpreter, UNIFE and MIMP officials were presented throughout the FGI to encourage the interviewees and facilitate smooth discussions.

The first group, "Mujer Emprende," which means "embark on women," consisted of eight women entrepreneurs aged 35 years to 62 years old. Their business items consisted mainly of handicrafts such as dolls, key rings, cushions, accessories, and Christmas ornaments. The second group was invited by MIMP and consisted of nine women entrepreneurs. Of these nine, three had participated in the IDB pilot project held in South Korea in 2010 by APWINC. The female entrepreneurs, aged 23 years to 70 years old, focused on creating and selling handicrafts, alpaca products, baked goods, and accessories. The third

group was "Arpilleras." Arpilleras means highly detailed handmade or handsewn textiles. This group consisted of six women aged 23 years to 53 years who create handcrafted textiles. The fourth group was called the Association for Economic Development - Association Work and Culture (ADEC-ATC). It consisted of nine women, aged 28 years to 69 years. These women also work in various business fields such as food production, furniture making, fashion accessories, consulting to group members, and creating eco-bags. Overall, 32 women participated in this interview. The specific ages and business items are shown in Table 13.

Group	Name	Age	Business Item	
	Participant 1	62		
	Participant 2	42		
	Participant 3	43	Handicrafts	
Focus	Participant 4	49	(dolls, key rings, cushions,	
Group 1	Participant 5	48	accessories, Christmas	
	Participant 6	46	ornaments)	
	Participant 7	35		
	Participant 8	56		
	Participant 1	23		
	Participant 2	28		
	Participant 3	70	Nets, hand-crafted	
	Participant 4	52	clothes, Public school	
Focus Group 2	Participant 5	43	Alpaca products business	
Group 2	Participant 6	52	women association, baked	
	Participant 7	50	goods, silver crafts, jewelry	
	Participant 8	50		
	Participant 9	29		
	Participant 1	34		
	Participant 2	23		
Focus	Participant 3	53	Arpilleras	
Group 3	Participant 4	29	(nand-sewir material of textiles)	
	Participant 5	52		
	Participant 6	28		

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Group	Name	Age	Business Item
	Participant 1	29	
	Participant 2	29	
Focus Group 4	Participant 3	54	Sewing, food preparation,
	Participant 4	60	furniture, fashion,
	Participant 5	39	consulting, Eco Bags,
	Participant 6	28	farmers to sell product
	Participant 7	69	directly to the market)
	Participant 8	50	
	Participant 9	53	

Table 13. List of Participants for Focus Group Interview (FGI)

3.2.1 Social Barriers

Peru is one of the fastest growing countries around the world. However, growth has exacerbated challenges such as natural resource management, poor infrastructure, and inequality within its society. Peruvian law is generally progressive in regards to women's rights, such as inheritance, but there are gender-based disparities in the workforce that may affect the programme's success regardless of the progressive policies. According to the United Nations Statistics Division (2009), the employment rate of adult male population is 76%, compared to women's employment rate of 58.2%¹⁵. Additionally, data from the World Bank (2009) showed that the female unemployment rate is 9%, 5% higher than that of men.

Latin American cultures are also known for a higher level of "machismo." Thus, we were concerned that women may encounter difficulties or obstacles in running businesses due to the patriarchal nature of the society. However, most

¹⁵ UN-DEASPD (2011)

of the respondents answered that they do not encounter any type of business obstacle as women. In the discussion, they mentioned that they do not experience discrimination either from home or from the society. In addition, they indicated that their families support their socioeconomic activities. For this question, only a few respondents answered that they are having difficulties in managing their businesses as women, as shown in Figure 8.



Figure 8. Perceived Social Barriers to Participating in e-Business

3.2.2 ICT Familiarity

Peru has demonstrated significant economic growth over the last decade. Peru is also involved in the new Country Partnership Strategy with the World Bank Group in obtaining support on national priorities, infrastructures, and social services. With this support, Peru has been able to improve its social needs and infrastructure, including telecommunication and the Internet. According to the World Development Indicators and Global Development Finance, the number of Internet users in the last 10 years rapidly increased from 2,383,348 to 10,730,933. The data for Internet users per 100 people are indicated below in Figure 9.

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Figure 9. Internet Users in Peru (per 100 people)¹⁶

In 2002, the total number of Internet users per 100 people was nine, which increased to 37 in 2011. The increased use of the Internet has enabled Peruvian citizens to access better information and communicate with people around the world. Peruvian businesses are using the Internet to obtain market information and advertise their brands and services. Given the growing reliance on the Internet, the FGI included questions about participants' familiarity with ICT and the Internet.

Although participants primarily had not had formal ICT training, almost all of them had a computer at home and had access to the Internet. Of the 32 participants, 27 had a computer and Internet connection at home, compared to the four who did not have a computer or Internet access at home. These four women came from the "Arpilleras" focus group.

¹⁶ Source: World Bank (2012)



Figure 10. Availability of Computer and Internet Use at Home

Approximately 19% of the total number of participants answered that they were already running their own e-businesses. These women, who are all from the second and fourth groups, sell their products through the Internet. One of them is already making profits from foreign customers. All have created their own homepages/websites to advertise their products and to communicate with more customers. Moreover, they receive orders for products such as nets or handicrafts from customers around the world, particularly from neighboring countries.

Several FGI questions asked participants about the utility of ICT in their work and profit-making, and the kinds of benefits they anticipated from using ICT and the Internet as a part of their business strategies. The first question of the survey asked whether ICT use would be helpful in making or increasing the profit of a business. All of the respondents answered that ICT would be beneficial, and most of the respondents expected to make or increase their business profits. Some believed that ICT would be very useful in advertising their products and businesses in both domestic and foreign markets. When asked, "What kinds of subjects would you like to learn to start or manage your e-business? and why?", some of the respondents stated that they wanted to learn ICT to help them in general with their businesses. Especially, women responded that they wanted to learn specific computer programmes such as Microsoft Office, Photoshop, and homepage or website management software. All wanted to increase their Internet-usage skills to generate leads and sales. They also stated that Social Networking Services (SNS) such as Twitter or Facebook would be beneficial in supporting e-business efforts through wider promotional channels. A small number of women stated that they were interested in learning more about Microsoft Office programmes because they thought Microsoft Office would be useful in managing their businesses. Other women agreed that Microsoft Office would be beneficial but it would take too much time to learn due to the programme's complexity. Participants said that they were interested in learning more about business and marketing skills in general.

Figure 11 shows that participants were most interested in learning about website creation. They mentioned that having a homepage or being able to create a website was a necessary skill to increase product visibility and sales. Interest in SNS was also high, given the potential of social networks to link local and foreign markets and to obtain real-time information on markets and trends. Information and ideas on SNS are continuously being updated, thus providing more opportunities for entrepreneurs to obtain new ideas.



Figure 11. Subjects of Greatest Interest

Approximately, 44% of the total respondents have already participated in some sort of previous ICT or e-business training. Most of these respondents participated in ICT trainings given by an academy, organization, or school. Moreover, two women participated in the pilot project of the IDB, which was organized by APWINC in 2010.

3.2.3 Cooperative or Community for Women Entrepreneurs

The FGI concluded by asking women about the existence of business communities or cooperatives that further support them in their work. 59% of the respondents indicated that there were several communities and cooperatives for business women in their respective product areas. However, most of these unions or associations are unofficial and small-scale. The women entrepreneurs in Peru do not have any official national association to help support their efforts. Participants also stated that if there was such an organization, the most useful information the organization could provide would be information and skills training in business management, particularly in sales, public relations, marketing, and corporate social responsibility (CSR). They also wanted more information on domestic and foreign markets. They are interested in exporting products to other countries, starting from the neighboring countries to South Korea. They would also like to have an ICT support service that can give technical advice, as shown in Figure 12.

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Figure 12. The Top Needs for an Organization or Online Community for Women Entrepreneurs

4. Proposition of Local e-Business Training for Women

Based on the needs assessment and the researchers' experience, an ICT training that readies women entrepreneurs for e-business has been designed with three types of training modules: i) a preparatory-level curriculum that reviews the overall goals of the training and business skills; ii) a basic level of training that reviews the fundamentals of managing information, formulating business strategies, and learning about e-business opportunities; and iii) a more-advanced set of lessons that cover ICT and social networking and computer security.

4.1 Curriculum

Each of the six curriculum modules is designed to be a day-long training, although this can be tailored to different training schedules and levels of the participants' expertise. All modules include hands-on exercises and culturallyappropriate examples.

4.1.1 Preparatory Level

The training commences with lessons designed to increase overall ICT awareness, explain, and review basic concepts related to women's socioeconomic participation and economics. There are two curriculum modules in the preparatory training programme. The first module, "Women's Socioeconomic Participation", is designed to engage women in their own economic and cultural context. The second module, "Introduction to Economics", covers basic economic principles that are built on throughout the training. Table 14 outlines the preparatory curriculum topics.

Module	Contents	Duration
	Social Capital and Economics	
1. Women's	Barriers and Enablers for Women's Economic Participation	8 hours/1 day
Participation	Case Study: Gyeonggi e-Learning Center for Women, Marrakesh Express	
	Exercise	
	What is Economy and Market?	
	Supply and Demand	8 hours/1 day
	Costing	
2. Introduction to Economics	Pricing	
Leononies	Bookkeeping & Accounting	
	Microcredit and Microfinancing	
	10 Principles of Economics	

Table 14. Proposed Curriculum for the Preparatory Level

4.1.2 Basic Level

Building on the foundation of the preparatory curriculum, the basic level training intends to build participant's confidence in finding and working with information, as well as learning how to better leverage effective promotion and marketing skills. The "Information Retrieval & Management" module teaches women how to more efficiently find information and connect with useful resources and people. The "Promotion and Marketing" module helps women to understand real-world business issues, such as creating a business model and applying traditional and technical marketing strategies to a business or product line. The topic details for each module are shown in Table 15.

Module	Contents	Duration
	Searching for Information	
	Search Engines	
3. Information	Domain Name	
Retrieval &	Wikipedia	8 hours/1 day
Management	Bookmarking Websites	
	Automatic Translation	
	Exercise]
	Business Model	
	Business Cycle	
	Making Business Decisions	
	Production Cycle	
4. Promotion	Product Marketing	θ hours/1 dou
& Marketing	5Ps of Marketing	8 nours/1 day
	Marketing Communication	
	Internet Marketing	
	Customer Relationship Management (CRM)	
	Exercise: Make a YouTube Video	

Table 15. Proposed Curriculum for the Basic Level

4.1.3 Advanced Level

In the advanced level, participants learn how to more effectively leverage the power of SNS in the "Using Social Networks" module. This module gives examples of popular SNS and offers brief tutorials. The sixth and last module of the series is "ICT Safety & Security," where important concepts such as viruses, spoofing, and back-ups are discussed in order to help the participants to feel more knowledgeable and empowered as Internet users. The modules and topic of each module are shown in Table 16. 38 Women's Socioeconomic Empowerment through ICT in Latin America: Peru, Colombia, Ecuador

Module	Contents	Duration	
5. Using Social Networks	Benefits of Social Networking		
	E-mail		
	Online Newsletter	9 hours/1 dow	
	Internet Forum	8 nours/1 day	
	Interacting through Twitter		
	Exercise: Setting Up a Facebook Page		
6. ICT Safety & Security	Good Use of the Internet		
	How to Protect Your PC with Antivirus Software	8 hours/1 day	
	Phishing	o nours/ r day	
	How to Create a Backup System		

 Table 16. Proposed Curriculum for the Advanced Level

The overall view of the training and suggested duration are outlined below:



Figure 13. Progression of Modules for the Training Curriculum

4.2 Selecting Regions for Local e-Business Training Replicas

The relevant partnering ministries and organizations in each country will assist in selecting the primary region to initially conduct this training. In each country, organizational entities involved in site selection will represent ICT or gender policy (or both) in order to have the most informed site selection process. In Peru, one region out of 25 will be selected with the help of the Ministry of Women and Vulnerable Populations, and the Ministry of Development and Social Inclusion. In Colombia, the Ministry of Information Technology and Communications and the Ministry of Health and Social Protection will help to determine which region out of 33 should be selected. In Ecuador, one region out of 24 will be selected in collaboration with the Ministry of Economic and Social Inclusion, as well as the Ministry of Telecommunications and Information Society. The region selection process for each country is shown in Figure 14.



Figure 14. Region Selection Process for Initiating the Replica Programme

Regions will be chosen based on the following criteria: population, density, ICT infrastructure, women's education level, and women's interest and readiness level for e-business (e-biz) adoption. 40 Women's Socioeconomic Empowerment through ICT in Latin America: Peru, Colombia, Ecuador

4.2.1 Peru

Among the corresponding regions of each country, the most appropriate region will be selected based on the following criteria: population, density, ICT infrastructure, women's education level, and women's willingness to start e-biz. In Peru, the real values for population (u_i) and density (u_i'), collected from Wikipedia, are shown in Table 17. However, the values for the ICT infrastructure (a_i), Women's Education Level (a_i'), and Women's Willingness for e-biz (a_i") should be collected by referring to the opinions of the Peruvian ministries because they are not available from any internationally comparable databases.

Region	Population (u _i)	Density (u _i ')	ICT Infra- structure (a _i)	Women's Education Level (a _i ')	Women's e-biz Readiness (a _i ")
1. Amazonas	443,025	$11/km^2$	a ₁	a ₁ '	a ₁ "
2. Ancash	1,039,415	$29/\mathrm{km}^2$	a ₂	a ₂ '	a2"
3. Apurímac	418,882	$20/km^2$	a ₃	a ₃ '	a ₃ "
4. Arequipa	1,218,168	$19/\mathrm{km}^2$	a_4	a_4	a4"
5. Ayacucho	619,522	$14/\mathrm{km}^2$	a ₅	a ₅ '	a ₅ "
6. Cajamarca	1,359,023	$41/km^2$	a ₆	a_6'	a ₆ "
7. Callao (metro)	9,367,587	5,690.4/km ²	a ₇	a ₇ '	a ₇ "
8. Cuzco	1,171,503	$16/\mathrm{km}^2$	a ₈	a ₈ '	a ₈ "
9. Huancavelica	454,797	21/km ²	a9	a ₉ '	a9"
10. Huánuco	730,871	$20/km^2$	a ₁₀	a ₁₀ '	a ₁₀ "
11. Ica	709,556	33/km ²	a ₁₁	a ₁₁ '	a ₁₁ "
12. Junín	1,274,781	$29/km^2$	a ₁₂	a ₁₂ '	a ₁₂ "
13. La Libertad	1,617,050	63/km ²	a ₁₃	a ₁₃ '	a ₁₃ "
14. Lambayeque	1,091,535	77/km ²	a ₁₄	a ₁₄ '	a ₁₄ "
15. Lima	780,881	$24/km^2$	a ₁₅	a ₁₅ '	a ₁₅ "
16. Loreto	884,144	$2.4/{\rm km}^2$	a ₁₆	a ₁₆ '	a ₁₆ "
17. Madre de Dios	92,024	$1.1/{\rm km}^2$	a ₁₇	a ₁₇ '	a ₁₇ "
18. Moquegua	163,757	$10/km^2$	a ₁₈	a ₁₈ '	a ₁₈ "

Region	Population (u _i)	Density (ui')	ICT Infra- structure (a _i)	Women's Education Level (a _i ')	Women's e-biz Readiness (a _i ")
19. Pasco	277,475	$11/\mathrm{km}^2$	a ₁₉	a ₁₉ '	a ₁₉ "
20. Piura	1,630,772	$45/km^2$	a ₂₀	a ₂₀ '	a ₂₀ "
21. Puno	1,364,362	$20/km^2$	a ₂₁	a ₂₁ '	a ₂₁ "
22. San Martín	778,545	$15/\mathrm{km}^2$	a ₂₂	a ₂₂ '	a ₂₂ "
23. Tacna	274,496	$17/\mathrm{km}^2$	a ₂₃	a ₂₃ '	a ₂₃ "
24. Tumbes	191,713	$47/\mathrm{km}^2$	a ₂₄	a ₂₄ '	a ₂₄ "
25. Ucayali	402,445	$4/\mathrm{km}^2$	a ₂₅	a ₂₅ '	a ₂₅ "

Table 17. Peru: Criteria for Selecting a Region for the Replica Programme¹⁷

From the census and organizational data, the GE-McKinsey Matrix method was applied in order to best select one region for initiative training.

GE-McKinsey Matrix Method

- Nine-cell (3 by 3) matrix used to perform business portfolio analysis
 - x-axis: Business unit strength
 - y-axis: Industry attractiveness
- The GE-McKinsey Matrix Method is a commonly-used and widely accepted method that facilitates easy results interpretation in decision-making scenarios.

For site selection exercises, the GE-McKinsey Matrix method was applied; the x-axis comprised of criteria data for population and density, and the y-axis comprised of criteria data for ICT infrastructure, women's educational level, and women's e-business readiness. To normalize the scale, maximum-minimum

Figure 15. GE-McKinsey Matrix Model

¹⁷ Source: Wikipedia

calculations were performed. Details about the data manipulation and normalization are shown in Table 18.

Axis	x-axis	y-axis
Calculation Method	(u _i -min _u)/(max _u -min _u) + (u _i '- min _u)/(max _{u'} -min _{u'})	$(a_i-min_a)/(max_a-min_a) + (a_i'-min_a)/(max_a-min_{a'}) + (a_i''-min_{a''})/(max_{a''}-min_{a''})$

Table 18. Peru: Calculation Method for x-axis and y-axis

As shown in Figure 16, regions were placed in four quadrants based on their values. If both values of the x- and y- axes were high, the regions were placed in the right upper quadrant (I. Priority Region). If the value of the y-axis was high but the value of the x-axis was low, the regions were placed in the left upper quadrant (II. Candidate Region). If the value of the x-axis was high but the value of the y-axis was low, the regions were placed in the right lower quadrant (III. Potentially Considered Region). If both the values of the x- and y- axes were low, the regions were situated in the left lower quadrant (IV. Least Recommended Region).



Figure 16. Peru: Classification of the Regions

4.2.2 Colombia

In Colombia, the real values for population (v_i) and density (v_i) collected from Wikipedia, are shown in Table 19. However, the values for the ICT infrastructure (b_i) , Women's Education Level (b_i) , and Women's Willingness for e-biz (b_i) should be collected by referring to the opinions of the Colombian ministries because they are not available from any internationally comparable database.

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Region	Population (v _i)	Density (v _i ')	ICT Infra- structure (b _i)	Women's Education Level (b _i ')	Women's Willingness for e-biz (b _i ")
1. Amazonas	56,036	$0.51/km^2$	b ₁	b ₁ '	b ₁ "
2. Antioquia	5,671,689	89/km ²	b ₂	b ₂ '	b ₂ "
3. Arauca	247,541	$10/\mathrm{km}^2$	b ₃	b ₃ '	b ₃ "
4. Atlántico	2,112,128	620/km ²	b_4	b ₄ '	b ₄ ''
5. Bolívar	1,860,445	$72/\mathrm{km}^2$	b ₅	b ₅ '	b ₅ "
6. Boyacá	1,211,186	$52/km^2$	b_6	b ₆ '	b ₆ "
7. Caldas	908,841	$120/\mathrm{km}^2$	b ₇	b ₇ '	b ₇ ''
8. Caquetá	404,896	$4.6/{\rm km}^2$	b_8	b ₈ '	b ₈ "
9. Casanare	282,452	6.3/km ²	b ₉	b ₉ '	b ₉ ''
10. Cauca	1,244,886	$42/\mathrm{km}^2$	b ₁₀	b ₁₀ '	b ₁₀ "
11. Cesar	879,914	38/km ²	b ₁₁	b ₁₁ '	b ₁₁ "
12. Chocó	441,395	$9.5/\mathrm{km}^2$	b ₁₂	b ₁₂ '	b ₁₂ "
13. Córdoba	1,472,699	59/km ²	b ₁₃	b ₁₃ '	b ₁₃ "
14. Cundinamarca	10,230,734	$420/\mathrm{km}^2$	b ₁₄	b ₁₄ '	b ₁₄ "
15. Guain <i>í</i> a	35,230	0.49/km ²	b ₁₅	b ₁₅ '	b ₁₅ "
16. Guaviare	133,236	$2.5/\mathrm{km}^2$	b ₁₆	b ₁₆ '	b ₁₆ "
17. Huila	1,006,797	51/km ²	b ₁₇	b ₁₇ '	b ₁₇ "
18. La Guajira	623,250	30/km ²	b ₁₈	b ₁₈ '	b ₁₈ "
19. Magdalena	1,136,901	49/km ²	b ₁₉	b ₁₉ '	b ₁₉ "
20. Meta	789,276	9.2/km ²	b ₂₀	b ₂₀ '	b ₂₀ "
21. Nariño	1,531,777	46/km ²	b ₂₁	b ₂₁ '	b ₂₁ "
22. Norte de Santander	1,228,028	57/km ²	b ₂₂	b ₂₂ '	b ₂₂ "
23. Putumayo	299,286	$12/\mathrm{km}^2$	b ₂₃	b ₂₃ '	b ₂₃ "
24. Quind ío	518,691	280/km ²	b ₂₄	b ₂₄ '	b ₂₄ "
25. Risaralda	863,663	$210/\mathrm{km}^2$	b ₂₅	b ₂₅ '	b ₂₅ "
26. San Andrés, Providencia and Santa Catalina	59,573	530/km ²	b ₂₆	b ₂₆ '	b ₂₆ "
27. Santander	2,057,789	$6.7 \times 10^{-5} / \text{km}^2$	b ₂₇	b ₂₇ '	b ₂₇ "
28. Sucre	772,010	72/km ²	b ₂₈	b ₂₈ '	b ₂₈ "
29. Tolima	1,335,177	57/km ²	b ₂₉	b ₂₉ '	b ₂₉ "
30. Valle del Cauca	4,060,196	180/km ²	b ₃₀	b ₃₀ '	b ₃₀ "
31. Vaupés	27,124	$0.5/\mathrm{km}^2$	b ₃₁	b ₃₁ '	b ₃₁ "
32. Vichada	97,276	0.97/km ²	b ₃₂	b ₃₂ '	b ₃₂ "
33. Bogotá Capital District (metro)	10,125,328	-	b ₃₃	b ₃₃ '	b ₃₃ "

Table 19. Colombia: Criteria for Selecting a Region for the Replica Programme¹⁸

¹⁸ Source: Wikipedia

Then, to account for the different scales across dimensions, the data were normalized using the max-min method, as shown in Table 20.

Axis	x-axis	y-axis
Calculation Method	$(v_i\text{-min}_v)/(\max_v\text{-min}_v) + (v_i'\text{-}min_v)/(\max_v\text{-min}_v)$	$\begin{array}{l} (b_i\text{-min}_b)/(max_b\text{-min}_b) + (b_i\text{'-}\\ min_{b'})/(max_b\text{-min}_{b'}) + (b_i\text{''-}\\ min_{b''})/(max_{b''}\text{-min}_{b''}) \end{array}$

Table 20. Colombia: Calculation Method for x-axis and y-axis

As shown in Figure 17, the regions were placed in the four quadrants and classified into the same categories as the Peruvian and Ecuadorean cases based on their values: I. Priority Region, II. Candidate Region, III. Potentially Considered Region, and IV. Least Recommended Region.



Figure 17. Colombia: Classification of the Regions

4.2.3. Ecuador

In Ecuador, the real values for population (w_i) collected from Wikipedia, are shown in Table 21. However, the values for density (w_i) , the ICT infrastructure (c_i) , Women's Education Level (c_i) , and Women's Willingness for e-biz (c_i) should be collected by referring to the opinions of the Ecuadorean ministries because they are not available from any internationally comparable database.

Region	Population (w _i)	Density (w _i ')	ICT Infra- structure (c _i)	Women's Education Level (c _i ')	Women's Willingness for e-biz (c _i ")
1. Azuay	702,893	\mathbf{w}_1 '	c ₁	c1'	c1"
2. Bolivar	182,744	w ₂ '	c ₂	c ₂ '	c ₂ "
3. Cañar	223,463	w ₃ '	c ₃	c ₃ '	c ₃ "
4. Carchi	165,659	w_4 '	c ₄	c4'	c ₄ "
5. Chimborazo	452,352	w5'	c ₅	c ₅ '	c ₅ "
6. Cotopaxi	406,798	w ₆ '	c ₆	c ₆ '	c ₆ "
7. El Oro	588,546	w ₇ '	c ₇	c ₇ '	c ₇ "
8. Esmeraldas	520,711	w ₈ '	c ₈	c ₈ '	c ₈ "
9. Galápagos	22,770	w 9'	c ₉	C9'	c ₉ "
10. Guayas	3,573,003	w ₁₀ '	c ₁₀	c ₁₀ '	c ₁₀ "
11. Imbabura	400,359	w ₁₁ '	c ₁₁	c ₁₁ '	c ₁₁ "
12. Loja	446,743	w ₁₂ '	c ₁₂	c ₁₂ '	c ₁₂ "
13. Los Rios	765,274	w ₁₃ '	c ₁₃	c ₁₃ '	c ₁₃ "
14. Manabi	1,345,779	w ₁₄ '	c ₁₄	c ₁₄ '	c ₁₄ "
15. Morona Santiago	147,886	w15'	c ₁₅	c ₁₅ '	c ₁₅ "
16. Napo	104,047	w ₁₆ '	c ₁₆	c ₁₆ '	c ₁₆ "
17. Orellana	137,848	w ₁₇ '	c ₁₇	c ₁₇ '	c ₁₇ "
18. Pastaza	84,329	w ₁₈ '	c ₁₈	c ₁₈ '	c ₁₈ "
19. Pichincha	2,570,201	w ₁₉ '	c ₁₉	c ₁₉ '	c ₁₉ "
20. Santa Elena	301,168	w ₂₀ '	c ₂₀	c ₂₀ '	c ₂₀ "

Region	Population (w _i)	Density (w _i ')	ICT Infra- structure (c _i)	Women's Education Level (c _i ')	Women's Willingness for e-biz (c _i ")
21. Santo Domingo de los Tsachilas	365,965	w ₂₁ '	c ₂₁	c ₂₁ '	c ₂₁ "
22. Sucumbios	174,522	w ₂₂ '	c ₂₂	c ₂₂ '	c ₂₂ "
23. Tungurahua	500,775	w ₂₃ '	c ₂₃	c ₂₃ '	c ₂₃ "
24. Zamora Chinchipe	91,219	w ₂₄ '	c ₂₄	c ₂₄ '	c ₂₄ "

Table 21. Ecuador: Criteria for Selecting a Region for the Replica Programme¹⁹

Then, as with Peru and Colombia, the dimensions were normalized using the max-min method. Details on the manipulation are shown in Table 22.

Axis	x-axis	y-axis
Calculation Method	(w _i -min _w)/(max _w -min _w) + (w _i '-min _{w'})/(max _w '-min _{w'})	(c _i -min _c)/(max _c -min _c) + (c _i '-min _c ')/(max _c -min _c ') + (c _i "-min _c ")/(max _c -min _c ")

Table 22. Ecuador: Calculation Method for x-axis and y-axis

As shown in Figure 18, the regions were placed in the four quadrants and classified into the same categories: I. Priority Region, II. Candidate Region, III. Potentially Considered Region, and IV. Least Recommended Region.

¹⁹ Source: Wikipedia



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Figure 18. Ecuador: Classification of the Regions

5. Concluding Remarks

As mentioned in the beginning of the report, the overall research aims to create, deploy and evaluate a training curriculum to help Andean women's socioeconomic participation and income generation using ICT, namely through e-business strategies. Having investigated the information needs, economies and cultural context of Peru, Colombia and Ecuador, through a variety of research and data collection methods, six training modules were created. The training content was evaluated during the workshop held in Seoul, Korea in November 2012. This workshop brought together eight representatives from partner organizations in the three countries, representatives of APWINC, Sookmyung Women's University, and representatives from the Korean Ministry of Education, Science and Technology, the Ministry of Gender Equality and Family, and UNDP Seoul Policy Centre.

The Andean representatives prepared country profiles for the host institution and then were led through a curriculum review which took 2.5 days. Outcomes of this review included a Guideline for Content Development and Customization, an Action Plan for Trainers, and Feedback on the Curriculum itself, which was updated to reflect these edits prior to localization into Spanish. The delegation from South America was tasked to provide a training schedule for 2013-2014, to be presented at 2012 December review in Lima, Peru. Once the training commences, monitoring and evaluation across each country and training site will provide data to demonstrate potential impact on women's empowerment and feedback for scaling up the APWINC training to more communities in Latin America and globally. 50 Women's Socioeconomic Empowerment through ICT in Latin America: Peru, Colombia, Ecuador

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Appendix

1. Online Survey-Questionnaires

No.	Question
1	Is there a national policy, strategy (including an implementation plan) or any initiative related to women's e-development?
2	If you answered "Yes" to the previous question, please provide the details of the policy, including the full title and brief summary of the contents. If available, please provide the URL link and/or documentation.
3	Please indicate which components are included in the women's e-development policy specified above. Please select all that apply.
4	Please identify the appropriate authority (Department or Ministry/Divisions) in charge of policies/programmes for women's e-development.
5	Is there a plan to make a new policy, strategy (including an implementation plan) or any initiative related to women's e-development?
6	Is there a specialized institute related to women's e-development in your country?
7	If you answered "Yes" to the previous question, please state the name of all the institutes and the URL.
8	Where does the institute belong to? If there is more than one, please choose one best practice.
9	What are the main jobs of the institute?
10	Which field is handled by the institute? Please check all that apply.
11	In which field should the institute for women's e-development put more efforts?
12	What would be the most important component of a specialized institute on women's e-development?
13	Should you have any comments or suggestions, please state.

2. Focus Group Interview (FGI)

No.	Question
1	Do you agree that using ICT would be helpful in making/increasing profit of your business?
2	What kinds of benefits do you expect to get from running your business through ICT (online business)?
3	Is there any barrier/difficulty in participating in e-business in your country (as a woman)?
4	What do you think you have to do in order to overcome the barrier/difficulty?
5	What kinds of subjects would you like to learn to start/manage your e-business? Why?
6	What subjects are needed the most? Why?
7	 Have you ever participated in any ICT/e-business training? If yes, please provide details about it. 7.1 What was the best subject? Why? 7.2 What was the worst subject? Why? 7.3 Is there any community or cooperative for business women in your area? If yes, please provide details about it.
8	If there are any organizations or online communities for women entrepreneurs, what kind of information or service would you like to be provided with?



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5F Centennial Hall, Sookmyung Women's University, Cheongpa-ro 47-gil 100, Yongsan-gu, Seoul, KOREA 140-742 Tel. 82-2-2077-7292 Fax. 82-2-710-9351 E-Mail. apwinc@sm.ac.kr Website. www.women.or.kr