



Digital Economy: Policies Exchange and Development for SMEs



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**SURVEY ON IS PROGRAMMES IN
CEECs, MEDITERRANEAN,
LATIN AMERICA**



Patrizia Fariselli
Gian Luca Baldoni
Kristien Michoel
Pier Paolo Patrucco

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CEECs ACCESSION TO EU & ACCESS TO IS:

A TWO-TRACK OR A CONVERGENT PROCESS?

PATRIZIA FARISELLI - NOMISMA

ABSTRACT

The Bangeman Report had a “global” inspiration: the Information Society cannot be but global”.

Since the very beginning the European Commission actively launched or participated in programmes or initiatives aiming at deploying the Information Society within and outside the European Union, and engaged a catalytic role on a global scale.

The CEECs were involved since 1995 in the process, throughout the so-called *EU-CEEC Information Society Forum* activities, the *G7* pilot project *A Global Market-place for SMEs*, *ISPO*, and *IDEIS - International Dialogue and Information Exchange for the Deployment of the Information Society* within *PROMISE*.

Apparently, the opening of the negotiations for accession in 1998 has diverted most of the available technical, political and intellectual resources to the implementation of the enlargement process, whose very important target, complexity, and pressure give it obviously the status of high priority.

The Telecommunication and Information Technology chapter in the so-called *screening exercise* - which is a preliminary step in the negotiation for the access to the EU - is basically about the alignment of the CEECs’ legislation to the EU TLC liberalisation *acquis*. Such an assessment was not, and inevitably could not have been, incorporated into a wider strategy of acceleration of the IS, probably because the EU itself is still searching its way towards the IS, and in 1998 there were insufficient *acquis* to be taken as a reference.

On the other hand, “the enlargement does not seem to receive special attention in the *PROMISE* work programmes and there seems to be no explicit strategy within *PROMISE* for involving the candidate countries during the pre-accession period (other than involvement in the IS Forum)”¹.

Recently an effort to re-establish a link between Western and Central Eastern Europe policies for the Information Society, proactive to the achievement of harmonisation, integration, and economic and social cohesion, has been produced in the Warsaw conference, focusing on policies addressing the widening of the digital divide in an

¹ http://europa.eu.int/comm/information_society/evaluation/pdf/reportpromise_en.pdf , pg.55

“enlarged” Europe. “The accession countries agreed in Warsaw to develop plans to mirror the eEurope Action Plan (*eEurope+*)².”

That opens a promising new policy dimension, where accession to the EU and access to the IS are going to be coupled by a joint effort to cope with the gaps generated by the digital economy in both sides of Europe. The policy convergence to develop the IS all over the large Europe is precondition to exploit the potential of the digital economy, to establish effective co-operation in order to strengthen the European integration. Efforts for catching up both accession and access could be too demanding for transition economies, when pursued in parallel.

Two ways should be walked by international co-operation in the next future to improve convergence:

- ?? To integrate the IS and the accession strategies, by facilitating the adoption of electronic commerce and Internet technologies to the purpose of achieving the objectives of modernisation of the CEECs and harmonisation with the EU, that is to make the IS functional to the achievement of the structural reforms which are preconditions to the accession. The major impact should be on public administration, infrastructures, education, and health.
- ?? To deal with the hot issues (digital divide, broad adoption of Internet technologies, development of new applications, human resources shortage, education & training, etc) related to the take up of the digital economy as common issues. The CEECs can actively contribute to the generation of solutions and resources, because they have/produce high quality knowledge, international mobility, and creativity. An interactive learning process should be encouraged, to make the exchange really co-operative and fruitful to both sides.

1. ACCESSION TO THE EU

1.1 THE ENLARGEMENT PROCESS³

The process of enlargement of the EU gained strategic policy dimension at the Copenhagen European Council in 1993, where was agreed that “the associated countries in central and eastern Europe that so desire shall become members of the European Union”.⁴

That political will has been corroborated in the Helsinki European Council (1999), committing the Union to institutional reforms by end 2000 to cope with the enlargement from the end of 2002.

The Nice European Council (December 2000) has accomplished the task by adopting the Treaty of Nice⁵. The agreed qualified majority voting is even more complicated than first expected.

² The eEurope update, Communication from the Commission to the Council and European Parliament, 7-8 December 2000, in http://europa.eu.int/comm/information_society/eeurope/

³ *European Union Enlargement - A historic opportunity*, September 2000, in <http://europa.eu.int/comm/enlargement/docs.htm>

⁴ *Enlargement: Preparing for Accession*, in <http://www.europa.eu.int/scadplus/leg/en/lvb/e40001.htm>

⁵ <http://ue.eu.int/cigdocs/en/cig2000-EN.pdf>

The 732 seats in the European Parliament are distributed as follows:

Germany	99	Bulgaria	17
United Kingdom	72	Austria	17
France	72	Slovakia	13
Italy	72	Denmark	13
Spain	50	Finland	13
Poland	50	Ireland	12
Rumania	33	Lithuania	12
Netherlands	25	Latvia	8
Greece	22	Slovenia	7
Portugal	22	Estonia	6
Belgium	22	Cyprus	6
Czech Republic	20	Luxemburg	6
Hungary	20	Malta	5
Sweden	18		

The Nice Treaty has, to a very limited extent, fulfilled the hopes raised in Helsinki and raised much criticism both within and outside the EU institutions. The process towards institutional reform proves to be more difficult than the current policy towards integration and enlargement would lead us to expect. To quote one remark for all:

“Lastly, it was the weighting of votes in the Council that gave rise to the most difficult discussion and decision. This was inevitable in the light of the approach that was taken, but the outcome was regrettable for two reasons:

- ?? Firstly, because it made a qualified majority more difficult, and a blocking minority accordingly easier, where the goal should have been the opposite in an expanding Union;*
- ?? And secondly, because it has made decision-making even more complex, something that runs counter to the legibility and transparency for which the citizens have been calling. To meet our citizens’ expectations, we had advocated a double majority as the only solution that was objective, comprehensible and widely supported by smaller and larger countries alike.”*

(Speech by Romano Prodi President of the European Commission Speech at the European Parliament on the European Council of Nice European Parliament Strasbourg, 12 December 2000)⁶

The EU has not set a rigid timetable to enlargement, submitting the achievement of the EU membership to the fulfilment of the entry criteria by the candidate countries. The 2002 deadline represents an incentive, more than a fixed milestone, but the feedback generated by its postponement could increase disappointment in the CEECs and damage the credibility of the EU⁷.

⁶ in http://europa.eu.int/rapid/start/cgi/guesten.ksh?p_action.gettxt=gt&doc=SPEECH/00/4990|RAPID&lg=EN

⁷ CEC-DG Enlargement, *Enlargement Strategy Paper - Report on progress towards accession by each of the candidate countries*, November 8, 2000, in http://europa.eu.int/comm/enlargement/report_11_00/strat_en.pdf

Moreover, the reach of the enlargement process goes ahead the “associated countries” and looks at Western Balkans, at the neighbouring countries of the former USSR, and at the Mediterranean.

As for Western Balkans, in the Feira meeting (2000), the European Council agreed that all the countries in the region are “potential candidates” of the Union. Negotiations for Stabilisation and Association Agreements (SSA) are underway in FYROM, Croatia, Albania, and Bosnia Herzegovina. Activities targeted to progress towards SSA, are carried out by the EU in Serbia, Federal Republic of Yugoslavia, Montenegro, and Kosovo.

1.2 ACCESSION CRITERIA⁸

Economic and political conditions (the Copenhagen Criteria) have to be satisfied to enter the membership of the EU. The candidate countries have to achieve:

- ?? **Policy criteria** - stability of institutions guaranteeing democracy, the rule of law, human rights and respect for and protection of minorities.
- ?? **Economic criteria** - the existence of a functioning market economy as well as the capacity to cope with competitive pressure and market forces within the Union.
- ?? **Adoption of the Community *acquis*** - the ability to take on the obligations of membership including adherence to the aims of political, economic and monetary union.

That implies the adjustment of the administrative structures in the candidate countries, to allow the effective implementation of the EU legislation transposed into national legislation.

1.3 NEGOTIATION PHASING

1.3.1. The “PRE-ACCESSION STRATEGY”.

It consists of a combination of:

- ?? **Priority setting** (Accession Partnership, preparation of NPAA (national programmes for the adoption of the *acquis*) which indicate the human and financial resources and the timetable needed to meet the accession priorities). By end 2000 12 countries have revised-prepared their NPAA, Turkey is now preparing it.
- ?? **Financial assistance**: from 2000 the Commission has doubled its pre-accession assistance to over 3 billion Euros a year. The PHARE programme is now complemented by two new instruments: ISPA (Pre Accession Structural Instrument) and SAPARD (Structural Adjustment Programme for Agriculture and Rural

⁸ <http://europa.eu.int/comm/enlargement/index.htm>

Development). One third of PHARE is devoted to *institution building*, to strengthen the candidates' capacity to enforce and implement the *acquis* (TAIEX - Technical Assistance Information Exchange Office) and TWINNING, the long-term secondment of officials from Member States to corresponding bodies in the candidate countries. The other two thirds of PHARE budget are to co-finance investment to help the candidate countries to implement the *acquis* and to economic and social cohesion.

- ?? **Association Agreements**, for monitoring the adoption of the *acquis* and implementation. PECA (Protocol on European Conformity Assessment) aims at extending internal market rules on conformity assessment for manufactured goods to the candidate countries before accession = introduction of the *acquis* in selected sectors. Hungary and Czech Republic, Estonia and Latvia are underway.
- ?? Participation in **Community programmes and agencies**. All candidate countries participate in Community programmes, particularly in education, vocational training, youth, research, energy, environment, SME, and public health. In most cases the participation is co-financed by PHARE.
- ?? **Screening** - the analytical examination of the (new) *acquis*.
- ?? **European Conference**, on issues of common interest to the EU member and candidate states (e.g. Head of State & Government, Nice 7/12/00)

1.3.2. THE ACCESSION NEGOTIATION

The enlargement process was launched by the Luxembourg European Council (1997) and negotiation for the accession were opened by Agenda 2000 on 31 March 1998 with the first wave of six countries: Cyprus, the Czech Republic, Estonia, Hungary, Poland and Slovenia.

Negotiations with a second wave of 7 countries: Bulgaria, Latvia, Lithuania, Romania and Slovakia, and Malta were opened on 15 February 2000.

In 1999 the Commission concluded that Turkey did not meet the Copenhagen political criteria, but since then the country has undertaken important changes in the effort to comply. The Association Council has opened negotiation for Association Agreement with Turkey on April 2000, but Turkey has not yet met the conditions for opening negotiations for the accession.

The negotiations for accession are conducted in bilateral accession conferences between the member states and each applicant. The *acquis* has been divided into 31 chapters for the negotiation.

CHAPTER HEADINGS OF THE SCREENING EXERCISE⁹

<ol style="list-style-type: none"> 1. Free movement of goods 2. Freedom of movement for persons 3. Freedom to provide services 4. Free movement of capital 5. Company law 6. Competition policy 7. Agriculture 8. Fisheries 9. Transport policy 10. Taxation 11. Economic and monetary union 12. Statistics 13. Social policy and employment 14. Energy 15. Industrial policy 16. Small and medium-sized undertakings 17. Science and research 	<ol style="list-style-type: none"> 18. Education and training 19. Telecommunications and information technologies 20. Culture and audiovisual policy 21. Regional policy and coordination of structural instruments 22. Environment 23. Consumers and health protection 24. Cooperation in the fields of justice and home affairs 25. Customs union 26. External relations 27. Common foreign and security policy 28. Financial control 29. Financial and budgetary provisions 30. Institutions 31. Other
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“After two years of negotiations with the first six countries, 29 chapters (all chapters except “institutional questions” and “other questions” have been opened, and 11 to 16 chapters have been provisionally closed. ... Provisional closure depends on credible commitments concerning the alignment of legislation with the *acquis* and the administrative capacity to apply it properly. The Commission monitors such commitments closely. So far, this has not led it to recommend the re-opening of any chapters. Certain chapters remain open in the absence of sufficient commitments or because of request of transitional measures”¹⁰

2. ACCESS TO THE INFORMATION SOCIETY

2.1 EUROPEAN COMMISSION PROGRAMMES AND ACTIONS

The Recommendations to the European Council on Europe and the global Information Society published in May 1994 (the so-called Bangemann Report) introduced the idea of “a new industrial revolution ... based on information, itself the expression of human knowledge”. The Recommendations argue that Europe is already participating in this revolution — “but with an approach which is still too fragmentary and which could reduce expected benefits”¹¹.

Overall, the European Commission uses the phrase “Information Society” to emphasise the undeniable fact that the applications and development of information infrastructures will have significant social as well as economic impact. More generally, the term “Information Society” is used to mean a society where individuals, whether they are consumers or employees, use information intensively. However, the essence of the

⁹ <http://europa.eu.int/comm/enlargement/negotiations/index.htm>

¹⁰ CEC-DG Enlargement, *Enlargement Strategy Paper - Report on progress towards accession by each of the candidate countries*, November 8, 2000, in http://europa.eu.int/comm/enlargement/report_11_00/strat_en.pdf, pg.25

¹¹ *Europe and the global information society*; Recommendations to the European Council meeting in Corfu (24-25 June 1994), by the High-Level Group on the Information Society chaired by Mr. Bangemann; Brussels, 26 May 1994 in <http://www.ispo.cec.be/infosoc/backg/bangeman.html>

Information Society as described by the Bangemann Report is that it is market-led. The broader the market opportunities, the more pervasive the effects.

Following the Recommendations, the European Commission has been involved in the launch or reshaping of a number of initiatives. To quote the major ones, chronologically:

2.1.1. G-7 INFORMATION SOCIETY CONFERENCE, BRUSSELS, 25 - 26 FEBRUARY 1995¹²

The European Commission hosted this conference following the G7 Naples Summit of 9 July 1994, when the Heads of State and Government decided that a meeting should be organised in Brussels to give ministers the opportunity of discussing the means by which to “encourage and promote the innovation and development of new technologies, including, in particular, the implementation of open, competitive, and world-wide information infrastructures”. At this conference they identified eleven pilot projects that would aim at demonstrating the potential of the Information Society and stimulate its international deployment¹³. These projects catalysed thinking and action for the information society in areas such as commerce, culture, education, the environment, health, and public administration. In 1998 it was decided that all **G7 Pilot Projects** are called “G8 Pilot Projects”, with the joining of Russia.

2.1.2.

To co-ordinate activities to create the Information Society, in 1996 the Commission set up the **Information Society Activity Centre** jointly run by DG3 (Industry) and DG13 (Telecoms, Information Market, Exploitation of Research). A budget line of €10m was provided in both 1996 and 1997 for a number of actions and activities:

- ?? ? establishment of the Information Society Forum
- ?? Creation - within ISAC - of **ISPO**, the Information Society Project Office
- ?? ? the 1996 and 1997 project grant programmes (total value €11.3m)
- ?? ? the 1996 and 1997 Information Society Awareness Weeks
- ?? ? the **ESIS** European Survey of Information Society projects
- ?? ? the Eurobarometer

2.1.3. FOURTH RTD FRAMEWORK PROGRAMME¹⁴

1994 -1998, budgeted at €13.1 billion in total, focussed on technological development and innovation with the aim of “making an effective contribution to competitiveness and sustainable industrial development and improving the quality of life of European citizens”. Some €3.4 billion were allocated to some hundreds of projects in the field of information and communication technologies. Programmes within the Fourth Framework Programme were:

¹² http://europa.int/ISPO/intcoop/i_g8pp.html

¹³ <http://www.ispo.cec.be/g7/projidx.html>

¹⁴ http://www.cordis.lu/src/i_006_en.htm

- ?? ACTS (telecommunications).
- ?? Esprit (information technologies).
- ?? Telematics Applications (applied research).

2.1.4. THE PROMISE PROGRAMME

The Council of the European Union adopted a multi-annual Community programme to stimulate the establishment of the Information Society in Europe in March 1998. The programme was to start on 1 January 1998 and would run for five years. Three objectives were listed:

- ?? Increasing public awareness and understanding of the potential impact of the Information Society and its new applications throughout Europe, stimulating people's motivation and ability to participate in the change to the Information Society.
- ?? Optimising the socio-economic benefits of the Information Society in Europe, by analysing its technical, economic, social and regulatory aspects, by appraising the challenges raised by the transition to the Information Society, *inter alia* as regards employment, and by promoting synergy and co-operation between European and national levels.
- ?? Enhancing Europe's role and visibility within the global dimension of the Information Society.

The ISAC activities listed above in point (2) were incorporated into the PROMISE programme.

In 1999 ISAC was taken over completely by DG XIII (renamed "Information Society: Telecommunications, Markets, Technologies - Innovation and Exploitation of Research") and restructured into three operating units:

- ?? Advisor office - horizontal co-ordination.
- ?? IS1 - for awareness and promotion, including ISPO.
- ?? **IS2 - regional and international activities.**

The budget allocated to PROMISE was 25 million Euro, for the period 1998-2002

2.1.5. FIFTH RTD FRAMEWORK PROGRAMME¹⁵ (1998-2002; BUDGET €14.96BN).

Priorities reflect the major concerns of increasing industrial competitiveness and the quality of life for European citizens; a key area is the integrated Information Society Technologies (IST) programme.

2.1.6. EUMEDIS¹⁶

A regional MEDA project for the development of the Euro-Mediterranean Information Society. EUMEDIS aims at interconnecting research communities and launching pilot projects (see this report's chapter on Mediterranean countries)

¹⁵ <http://www.cordis.lu/fp5/home.html>

¹⁶ <http://www.ispo.cec.be/eumedis/welcome.html>

2.1.7. GLOBAL BANGEMANN CHALLENGE¹⁷

An international initiative offering European cities and regions the opportunity to promote IS projects that benefit citizens and communities in the future (the Global Cities Dialogue).

2.1.8. eEUROPE¹⁸

In December 1999 the European Commission launched the eEurope initiative with the following key objectives:

- ?? *Bringing all Europeans, into the digital age and online.*
- ?? *Creating a digitally literate Europe, supported by an entrepreneurial culture.*
- ?? *Ensuring the process is socially inclusive and builds consumer trust.*

In June 2000 the eEurope 2002 Action Plan was adopted by the Feira European Council. It detailed the policy actions which are required to meet these objectives by 2002.

Finally, there is a strong political interest to utilise the potential of the new economy to the benefit of the enlargement countries and, in a wider context, to support economic growth in developing countries. The accession countries agreed at a **conference in Warsaw in May 2000** to develop plans to mirror the eEurope Action Plan. Further work is needed to make eEurope+ (i.e. the extension of eEurope to the accession countries) a reality. The G8 Summit in Okinawa agreed a number of measures to address the widening "digital divide" between developed and developing countries. In particular they established a G8 Digital Opportunities Task Force (dot force) to provide "*recommendations on global action to bridge the international information and knowledge divide*" for discussion at the next G8 summit in Genoa in 2001 progress.

2.1.9. PROMISE WORKPLAN 2000¹⁹

The final results of the PROMISE mid-term evaluation by a panel of independent experts²⁰, clearly showed that substantial changes were necessary in the orientation of the programme, in particular by emphasising the need for strengthening the link of the PROMISE work programmes objectives with the Commission's IS policy objectives and better focussing of the resources available on a reduced number of priority activities.

In fact while applauding the general goal of PROMISE to promote the establishment of IS in Europe, the panel observed that "*the scope of the Council Decision is simply too wide..., and the stated objectives cannot be achieved with such amounts of money. This is the core problem with PROMISE ... To improve the effectiveness of the programme, PROMISE should be given specific policy directives to reflect current Commission priorities*The overall objective of the revised PROMISE Workprogram 2000 is to support the implementation and follow-up of the e-Europe Action Plan, in particular through: data collection and benchmarking to monitor the achievement of its overall targets and those in each of the key action lines, supporting the further improvement and integration of the ISPO web-site into a European public web portal on IS, providing effective and interactive

¹⁷ <http://www.challenge.stockholm.se/>

¹⁸ http://europa.eu.int/comm/information_society/eeurope/

¹⁹ http://europa.eu.int/ISPO/docs/promotion/docs/Promise_WP_2000/wp2000_en.pdf

²⁰ http://europa.eu.int/comm/information_society/evaluation/pdf/reportpromise_en.pdf

communication on IS related information with citizens, the business sector and administrations.

2.1.10. ESIS II

Exploring IS development in the EU and in the CEECs and Mediterranean Countries (ESIS 2 extension) is recognised as a rich source of information about the development of the Information society in Central and Eastern Europe and the Mediterranean Countries, and also in the European Union. The Warsaw IS Conference, which took place in May 2000, has confirmed this interest and participants called for the extension of the eEurope initiative to Central and Eastern Europe. Finally an up-date of the ESIS survey in the EU Countries will be also carried out.

2.2 THE EU - CEEC COOPERATION FOR THE ACCESS TO THE INFORMATION SOCIETY

2.2.1 EU-CEEC INFORMATION SOCIETY FORUM

2.2.1.1 FIRST EU-CEEC CONFERENCE ON THE INFORMATION SOCIETY, BRUSSELS 23 JUNE 1995²¹.

At the invitation of Commissioner Martin Bangemann, Ministers and industrial leaders from the Central and Eastern European Countries (CEECs) met delegates representing European Union industry and research organisations for a one-day conference. The participants included 90 industrialists from the EU and 120 representatives from the CEECs.

The conference was called to discuss the implications of the Information Society for those CEEC that have, or are negotiating, Association Agreements with the European Union: Poland, Hungary, the Czech Republic, Slovakia, Bulgaria, Romania, Estonia, Latvia, Lithuania and Slovenia.

The underlying aim was to ensure that CEECs are able to fully participate and benefit from the new industrial revolution generated by developments in information and communications technologies

In two parallel thematic sessions: regulatory framework and competitive environment; R&D co-operation and its applications, the participants agreed on the following:

- ?? Liberalisation and harmonisation of the information infrastructure will boost the competitiveness of the CEECs. Continuous dialogue must be established and arrangements for implementation of a common regulatory framework are needed.
- ?? Harmonisation of the diverse and often incompatible information infrastructures in the CEECs with those in the EU should be achieved through co-operation, specifically in R&D activities such as participation in EU R&D programmes, extension of existing actions (e.g. in ESPRIT), awareness campaigns (e.g.

²¹ <http://europa.eu.int/ISPO/peco/isfconc.html>

“information days” on EU developments in the Information Society and specifically of the G7 Pilot Projects).

In order to continue and improve the exchange of information amongst the participants, it was suggested that a European Information Society Forum should be established and that it should meet about once a year.

To address the issues raised by the participants during this meeting and to develop a work programme for the Forum, four thematic panels were set up with leading countries:

- ?? Infrastructure and Financing – Hungary.
- ?? Standardisation and Technical Regulation – Poland.
- ?? Legal and Institutional Framework – Slovakia.
- ?? Co-operation in R&D – Slovenia.

The European Commission was asked to co-ordinate the work of the four panels.

2.2.1.2 SECOND EU/CEEC FORUM ON THE INFORMATION SOCIETY, PRAGUE, 12-13 SEPTEMBER 1996²²

The meeting was conducted on the basis of the results of the Panels instituted by the First EU-CEEC Forum on the Information Society, held in Brussels, 23rd June 1995 (see above). These panels have met in March 1996 to produce conclusions and recommendations in their respective domains.

The participants agreed to continue their co-operation by starting concrete Information Society activities with a European dimension using the opportunities and mechanisms described in the Action Plan, and by exchange of information and further reflection among all interested parties within working groups and new panels as appropriate, and in particular on the following subjects:

- ?? Strategy and policy formulation for the Information Society; to examine how EU and CEECs policy making in this field could best be co-ordinated; to consider the information needs of governments for this purpose and to propose related actions, including the harmonisation of statistical data on the Information Society.
- ?? Implementation of demonstrations, pilot trials and projects and other actions designed to raise awareness of the potentialities of the Information Society in CEECs; to make recommendations and to find sponsors.
- ?? Education and training.
- ?? Application of Information and Communications Technologies in public administrations.

In September 1997, the EU-CEEC Forum on IS - Panel on the Implementation of the **Action Plan**²³ published a Report, including among others, the **Progress Report on the 30 ideas for European Initiatives towards the Information Society in the CEECs**²⁴.

²² <http://systec.be/jhlg/forum2.html>

²³ <http://www.mzt.si/mzteng/internat/eu-ceec/PECO002.HTML>

²⁴ <http://www.mzt.si/mzteng/internat/eu-ceec/progress.html>

2.2.1.3 THIRD EU - CEEC INFORMATION SOCIETY FORUM, BRUSSELS 9-10 OCTOBER 1997²⁵

The European Commission and CEECs are invited to:

- ?? Use the opportunities of the offered association to the Fifth Framework programme for research technological development and demonstration and develop a feasible financial contribution scheme as well as mechanisms for the non-associated countries.
- ?? Create a PHARE multi country programme devoted to the Information Society, for the specific purpose, among others, of supporting the participation of individuals and organisations from CEECs in cooperative Information Society actions.
- ?? Following the conclusions of the Bonn ministerial conference, to request that the EU Information Society Forum organise a Europe wide Information Society awareness day in 1998.
- ?? Establish a joint high level committee, comprised of EU and CEEC government representatives, in order to regularly review the implementation of the conclusions and recommendations of this Forum and report to a ministerial conference to be organised in 1999.

At the Third EU-CEEC Information Society Forum the European Commission and the CEECs decided to establish a **Joint High Level Committee**²⁶, comprised of EU and CEEC government representatives, in order to regularly review the implementation of the conclusions and recommendations of the Forum, and to report to the Ministerial Conference in Warsaw on 11-12th May 2000

From its establishment onwards the activities of the EU-CEEC Forum are coincident with those of the JHLG²⁷.

2.2.2 THE WARSAW CONFERENCE, 11-12 MAY, 2000²⁸

Two main conclusions were drawn at the session on "Regulatory Framework for Telecommunications and Information Society." The first was that the prime aim of regulatory policy is to ensure that the sector can be financed, and the second, that regulatory policy should build the trust of consumers. The issues of data protection and privacy, regulatory aspects of e-commerce and electronic signature, and operator liability for illegal content, aroused strong interest. The second parallel session, on "Research and Development, Innovation and Enterprises," likewise focused on two main subjects: "e-business and SMEs - A Changing Industrial Landscape" and "Feeding Innovation: R&D in IST." It also dealt with the Fifth Framework Programme in the field of IT, venture capital, and the role of chambers of commerce in promoting SMEs in the Information Society.

²⁵ <http://europa.eu.int/ISPO/peco/forum3.html>

²⁶ <http://europa.eu.int/ISPO/peco/peco.html>

²⁷ JHLG Meetings:

April 8, 1998 <http://europa.eu.int/ISPO/peco/mtg0804.htm>

July 6, 1998 <http://europa.eu.int/ISPO/peco/mtg0607.htm>

November 8, 1998 <http://europa.eu.int/ISPO/peco/mtg1611.htm>

July 8 1999 <http://europa.eu.int/ISPO/peco/mtg0807.htm>

²⁸ <http://is2000.pl/>

“Culture, Education & Training, Public Administration and Services of General Interest” was the subject of the third parallel session, which examined the issues of the impact of computers and the Internet on rural schools and rural communities, of public access to information and e-health.

The final document of the forum outlined concrete measures and targets. Recommendations were also made to the separate governments and business communities of the CEECs, as well as to the EC.

“The European Commission and CEECs are invited jointly to:

- ?? Monitor progress in candidate countries towards integration with the EU internal market and produce regular status reports. The topics to be monitored include, for example, interconnection charges, Universal Service and affordability; telecommunications tariff rebalancing; local loop unbundling, Internet access costs; cross border telecommunication tariffs; and e-Europe targets.
- ?? Continue the work of the JHLC in reviewing the implementation of the recommendations of the 3rd EU-CEEC IS Forum.
- ?? Extend the JHLC’s mandate to agree upon a work programme that leads to the implementation of the conclusions and recommendations of this Ministerial Conference.
- ?? Follow the approach of the eEurope initiative and that the JHLC should take the lead in establishing a work programme for actions in the CEECs in the areas of the **e-Europe** initiative by the end of the year 2000. Progress in defining the work programmes will be reviewed in a JHLC workshop in Hungary during November 2000”.

2.2.3 ESIS II²⁹

At the beginning of 1997, ISPO, (the Information Society Promotion Office of the European Commission) launched a project called ESIS (European Survey of Information Society), with the objective to build an Inventory of projects as well as to assemble European data concerning promotional activities undertaken by public authorities and private actors, be they European, national, regional or local. Other aims were to monitor and to analyse new regulatory developments in the field of telecommunications and Information Society as well as to present a mapping of the actors, notably the public or private network facilities offering Information Society infrastructure, services and applications.

Due to the success of this project and following several requests from local actors, it has been decided to extend ESIS to Central and Eastern European and Mediterranean countries and areas. This phase of the project started in March 1999 and will last until 2001. It is called ESIS II and concerns 25 countries and areas of the Central, Eastern and Mediterranean countries. The work is performed in a decentralised manner, by contractors who have been selected by the Commission following an open call for tender.

*ESIS II*³⁰ is the only structured source of information about IS state-of-the-art & developments in the CEECs, drawing and updating the country & synthetic reports on

²⁹ <http://europa.eu.int/ISPO/intcoop>

³⁰ www.eu-esis.org

Basic Facts and Indicators, Alternative Networks, WWW/Internet Indicators, and IS key persons and organisations. Within ESIS II awareness initiatives are also undertaken in the various CEECs, such as conferences, seminars, etc.

2.2.4 IST - KALL INTERNATIONAL CO-OPERATION IN THE CEECS

KALL is carrying out international co-operation activities oriented to the enlargement countries (all associated to the FPV) and to Other European countries in Eastern Europe. The main objective is to support their participation in the FPV (*R&D Co-operation*), to stimulate the exploitation of European technology and technology-based services, product and organisational practices developed within KALL projects (*Broad Adoption*) and to involve enlargement countries in the development of a global policy and regulatory framework for the digital economy (*Policy Development*).

KALL is actively supporting the organisation of international conferences in the CEECs on electronic commerce and digital economy (annual conferences on electronic commerce - Bled, Slovenia; South Eastern European Conferences on electronic commerce - Tesseloniki, 1999; Sofia, 1999-2000 and Nicosia, 1999-2001)

3. CEECs - ESIS II BASIC FACTS AND INDICATORS³¹

The latest report³² gives figures and graphs for the period 1996-2000 on:

?? Telecommunications Services and Equipment.

?? PCS, Internet and television.

“At the end of 2000 the total number of telephone lines (conventional, ISDN and mobile) in the CEEC can be estimated at around 54 million. Evaluated at 24,2 million by the end of 1996, it shows a constant annual growth rate (CAGR) of 22% per year between 1996 and 2000.

Nevertheless, between 1996 and 2000, growth in mobile phone lines has been much higher than growth in conventional lines. As a consequence:

?? The mobile share in the total of all telephones lines has increased in CEEC, growing up from 5% to 38% between 1996 and 1999.

?? On the contrary, the share of all telephone lines held by conventional lines decreased from 95% to 60%.

Concerning ISDN, it appears that this service is not developed. By the end of 2000, ISDN subscriptions represented less than 1,2% of the total number telephone lines in CEEC”.³³

³¹ www.eu-esis.org/esis2basic/esis2basic.htm

³² ESIS II Report : *Information Society Indicators in the CEEC countries*, January 2001

³³ *ibidem*, pg.5

TOTAL NUMBER OF LINES PER 100 INH. – EVOLUTION 1996-2000³⁴

	1996	1997	1998	1999	2000
Albania	1.5	2.4	3.5	4.5	5.2
Bosnia	8.1	9.3	22.3	26.0	24.8
Bulgaria	32.2	33.0	35.1	38.9	44.3
Czech Rep	29.3	36.9	45.8	57.1	77.6
Estonia	34.9	43.7	53.9	64.1	2.0 (est)
Hungary	30.6	37.4	44.0	51.7(est)	60.8 (est)
Latvia	30.6	33.2	37.3	42.6	46.9
Lithuania	28.4	35.8	39.0	39.4	43.0
Poland	17.5	21.8	26.7	36.9	44.5
Macedonia	38.9	39.7	40.4	42.2	45.6
Romania	14.2	16.4	19.0	23.5	32.3
Slovenia	35.6	41.0	48.7	76.1	104.7
Slovakia	23.7	29.6	37.3	47.9	52.9
CEEC Average	20.1	23.9	28.5	35.9	45.0

“In all the CEEC countries mobile lines hold an increasing share of the total of all telephone lines. Albania and Lithuania show a constant annual growth rate (CAGR) of approximately 40% between 1996 and 2000. All other countries had CAGR above 65%. In Bosnia, Romania and Slovakia, the average increase of mobile lines as a percentage of all telephone lines is particularly high (between 100% and 150% between 1996 and 2000)³⁵.”

“One can also notice the dynamism of the Czech and the Slovenian mobile markets: mobile lines at the end of 2000 represented 50% and 55% of all in telephone lines respectively.

Albania, Bosnia, Macedonia and Bulgaria have a relatively low mobile share on the total of telephone lines (below 20%). Other countries have a mobile share between 25% and 43%, that is to say around the CEEC average rate (37.6%)³⁶.”

³⁴ ibidem, pg.10, TABLE 2

³⁵ ibidem, pg 20

³⁶ ibidem, pg 20

NUMBER OF MOBILE LINES PER 100 INH. – EVOLUTION 1996-2000³⁷

	1996	1997	1998	1999	2000
Albania	0.1	0.1	0.1	0.3	0.9
Bosnia	0.0	0.2	0.5	1.4	2.6
Bulgaria	0.4	0.7	1.6	4.0	8.2
Czech Rep	2.0	5.1	9.4	19.2	38.9
Estonia	4.8	10.5	17.4	26.8	41.1(est)
Hungary	4.6	7.0	10.6	16.1	29.8
Latvia	1.1	3.1	6.9	11.9	15.9
Lithuania	1.7	7.5	8.9	8.1	10.8
Poland	0.6	2.1	5.0	10.6	15.5
Macedonia	0.5	1.3	2.0	3.5	8.3
Romania	0.2	1.1	2.9	6.0	12.5
Slovenia	2.1	4.6	9.8	33.3	57.3
Slovakia	0.5	3.7	8.7	17.0	21.5
CEEC (Av)	1.1	2.6	5.0	9.8	17.0

PC PENETRATION GROWTH RATE IN THE CEEC – 1998 – 2000³⁸

Total number of PCs per 100 inh*			
	End 1998	End 2000	Growth rates
Albania	0.1	0.1	17%
Bosnia	n.a	n.a	n.a
Bulgaria	3.3	4.4	33%
Czech Republic	9.0	13.0	47%
Estonia	n.a	n.a	n.a
FYR Macedonia	n.a	n.a	n.a
Hungary	2.5	3.6	43%
Latvia	7.5	11.3	51%
Lithuania	5.4	8.0	44%
Poland	12.0	15.5	30%
Romania	2.0	3.2	51%
Slovakia	8.6	13.3	54%
Slovenia	21.2	27.3	29%
Average CEEC	7.0	10.0	42%

“We can notice that the overall PC penetration rate has significantly increased for all the CEEC over the past five years.

- ?? Slovenia, Latvia and Romania have experienced the fastest growth through the past couple of years with rates above 50%.
- ?? Hungary Lithuania and Czech Republic have then shown steady sustained growth, with rates ranging from 43 up to 47%
- ?? The remaining countries have experienced under average growth (34%) with rates ranging from 17% up to 33%. Countries being part of this category are respectively Albania, Slovenia, Poland and Bulgaria.³⁹

³⁷ ibidem, pg.18, Table 6:

³⁸ ibidem, pg.33

³⁹ ibidem, pg 32

“At the end of 2000, the average number of **Internet users** per 100 inhabitants was 8.4 in the whole of the CEEC countries.

One can distinguish several groups of countries:

- ?? Estonia, Lithuania, Poland and Czech Republic where penetration rates range respectively from 26.3 to 10 per 100 inhabitants.
- ?? An intermediary group including Latvia, Slovenia, Hungary and Romania with a number of Internet users respectively ranging from 8.2 to 3.1 per 100 inhabitants.
- ?? A third group composed of Bulgaria FYR Macedonia, Bosnia and Albania with a number of Internet users ranging from 1.24 to 0.16 to 0.3 per 100 inhabitants.”⁴⁰

“As for the Internet users **growth rates** per country (End 1999 - End 2000), we can notice:

- ?? Outstanding growth rates in Lithuania, Bosnia and Czech Republic, with rates ranging from 250 up to 400%. These rates partly explain high penetration rates relative to the Czech Republic and Lithuania both ranked among the top 5 in terms of Internet penetration in 2000.

Poland and FYR Macedonia have then experienced respective growth rates being equal to 100 and 103%.

The remaining two categories have growth rates under the global average of 86%.

- ?? Hungary, Estonia, Bulgaria and Latvia have shown rates ranging respectively from 30 up to 58%.
- ?? At last Romania, Slovenia and Albania had growth ranging respectively from 10 up to 23%.

It is interesting to notice that the global growth average is equal to 86% in the whole of the CEEC. This rate is fairly high and shows the significant place of the Internet IT in national rolling out strategies.”⁴¹

“As for Internet Service, the number of **ISPs** differs greatly between countries : from 6 ISPs in Bosnia up to 500 in Poland.

Note that Poland, Romania, and Bulgaria, which are part of the Top 5 in terms of number of inhabitants, are also ranked in the Top 5 in terms of number of ISPs.

The large gaps between the previously three cited countries can be explained as follows:

- ?? Recent development of Internet and recent liberalisation of market. Indeed, actors are numerous in emerging phases of a market. Consolidation phases include mergers and acquisitions, events that lead to a reduction of the number of actors.
- ?? Then main Internet access providers may have numerous subsidiaries and offices throughout the country. Subsidiaries may have been registered as access providers, boosting the real number of access providers⁴².

⁴⁰ ibidem, pg 35

⁴¹ ibidem, pg 37

⁴² ibidem, pg.38

INTERNATIONAL PROGRAMMES AND ACTIONS ON THE THEME OF THE INFORMATION SOCIETY

CHAPTER MEDITERRANEAN COUNTRIES

GIAN LUCA BALDONI – KRISTIEN MICHOEL

I. CONTEXT

- ✍ *Economic structure and recent evolutionary performances*
- ✍ *The transition to a knowledge-based economy*
 - ?? *Information technologies and Internet in TMCs*
 - ?? *An agenda for public policy*

The relations between the European Union and the countries to the South and East of the Mediterranean are based on a proximity policy, which reflects the political and strategic importance of the region to the EU. The necessity to co-operate in economic fields but also on highly sensitive political themes such as migration, security and terrorism, called for a global and comprehensive policy with long-term objectives to tackle issues causing concern and common challenges.

During the past years, the political leaders of the European Union have confirmed their commitment to a closer co-operation and integration of the EU and the Southern Mediterranean Countries. Romano Prodi, President of the Commission of the European Communities, underlined on several occasions that the European Union has an important role in the Mediterranean Region: based on its experience of half a century of integration, the Union should show how important objectives can be reached starting from concrete realisations in specific sectors of great strategic and economic importance⁴³.

The support of the EU to the development of the Mediterranean Partner Countries has, since the seventies, become tangible through bilateral agreements between the EU and the single Mediterranean countries⁴⁴.

On top of these bilateral relations, a framework for multilateral co-operation was created. In fact, in 1995, the 15 Member States of the EU and the 12 Mediterranean Partner Countries⁴⁵ expressed, with the so-called Barcelona Declaration⁴⁶, unanimously their common intention to establish a Euro-Mediterranean area of peace and stability, to create an area of shared prosperity, and to work on the improvement of mutual understanding among the peoples of the region. And more recently, on 19 June 2000, the European Council agreed on a common strategy for the Mediterranean area⁴⁷. The political weight of

⁴³ Prodi R., Un'idea dell'Europa, Bologna, Il Mulino, 1998.

⁴⁴ For an overview of the current status of bilateral relations, see Annex.

⁴⁵ The twelve Mediterranean Partners, situated in the Southern and Eastern Mediterranean are Morocco, Algeria, Tunisia (Maghreb); Egypt, Israel, Jordan, the Palestinian Authority, Lebanon, Syria (Mashrek); Turkey, Cyprus and Malta; Lybia has observer status at certain meetings.

⁴⁶ The Barcelona Declaration was adopted at the Euro-Mediterranean Conference of 27 and 28 October 1995.

⁴⁷ OJCE L183, 5 of 22.7.2000

this consensus is important: it allows for further decisions to be taken by the EU Council of Ministers by qualified majority voting.

As a concrete step to implement the objective of creating an area of shared prosperity, the Barcelona Declaration establishes the objective to form, by the year 2010 as a target date, a Euro-Mediterranean Free Trade Area, which foresees free trade in manufacturing goods and a progressive liberalisation of trade in agricultural products. This is the expression of a double commitment: not only to progressively liberalise trade between the EU and the MPCs (vertical trade liberalisation), but also to increase co-operation among Mediterranean countries themselves (horizontal integration).

Especially with regard to the latter, there is ample scope for improvement. As a result of trading, tourism and migratory movements, the Mediterranean partners are firmly integrated in the European area (70% of trade of the Mediterranean Partner Countries is with the EU), but poorly mutually integrated, with inter-regional trade corresponding to less than 10% of total foreign trade. In this context, it is sufficient to remind that trade among EU Member States has increased seven times since 1987; although the creation of a Euro-Med free trade area will not amount to creating a single market, these figures give an idea of the growth potential at stake.

Regional integration entails economic transition. The dismantling of customs duties, the essence of the process towards the creation of a free trade area, requires substantial reforms to the fiscal, economic and industrial sectors to face the opening up of competition and to give rise to the better use of resources and increased efficiency this brings about. Both the governments and the private sector of the Mediterranean countries will face significant social and economic challenges during the process of progressive trade liberalisation, but they can count on substantial financial support and technical assistance from the EU through the MEDA Programme⁴⁸ to take forward their adjustment efforts and reforms. The interests at stake are mutual, because together with EFTA and the Central and Eastern European Countries (CEECs), at a later stage, the free trade zone will include some 40 States and 600-800 million consumers, and thus become one of the world's most important trade entities.

Not only do the Mediterranean Partner Countries have to prepare themselves to withstand the increasing pressures from global competition once their borders will start to gradually open up, they also have to face the important challenges of the information age. In fact, in one of the most significant developments ever to emerge in the communication industry, the new Information and Communication Technologies (ICT) are redrawing the economic environment in which firms operate and therefore changing the relationships between economic operators throughout the globe.

A number of economic research papers indicate that economic growth is being increasingly influenced by the availability of efficient telecommunications and informatics infrastructure⁴⁹. The magnitude of opportunities and threats that co-exist for developing economies as a consequence of the networking revolution puts considerable pressure on governments to provide the necessary infrastructure and to take forward regulatory

⁴⁸ Council Regulation (EC) No 1488/96 on financial and technical measures to accompany (MEDA) the reform of economic and social structures in the framework of the Euro-Mediterranean partnership.

⁴⁹ For a review of relevant literature, see Analysis 2000, *The Network Revolution and the Developing World*. Report prepared for World Bank and *infoDev* Washington D.C.

reforms. At the micro-level on the other hand, new technologies provide unprecedented opportunities for firms to reduce costs and to increase market coverage (both at home and abroad), facilitating the realisation of economies of scale and scope.

The economies of the Mediterranean countries have two characteristics in common. The first one is that all of them seem to be characterised by a dualism between the presence of a few industrial giants, and an enormous variety of Small and Medium-Sized Enterprises (SMEs), that may be rural, manufacturing or commercial, and that often have emerged from an informal sector in which the various activities are continually mixed⁵⁰. For instance, in Turkey 99% of firms in the manufacturing sector are SMEs, in Libya 98%, in Egypt 94% and in Jordan 93%⁵¹. The second characteristic is that a large share of their Gross Domestic Products (GDP) comes from labour intensive traditional industries such the processing of leather, fibres and agricultural products.

So far, the Mediterranean economies have derived considerable comparative advantage from low labour costs, but over the past years they have started to face increasing competition from emerging economies such as in Asia and Latin America. But in this period of radical change, where Mediterranean economies have to face both the competitive pressures of regional integration and the structural changes of the New Economy, the adoption of new technologies is a necessary step in the process of maintaining industrial competitiveness. New technologies allow firms to enter into strategic partnerships with foreign partners and, by doing so, to improve the quality of their products and services up to international standards. In this context, Euro-Mediterranean partnerships can play a crucial role, and the uptake of new technologies on both sides of the basin could prove to be essential to maintain industrial competitiveness in the face of global competition.

2. ICT DIFFUSION IN THE MEDITERRANEAN COUNTRIES

Regarding ICT diffusion in the Mediterranean countries, the situation is extremely divergent. Not only are there important differences between the countries that are member states of the European Union and their Southern and Eastern Mediterranean Partners, there exists also a substantial heterogeneity among the countries of the second group in terms of uptake and diffusion of information and communication technologies.

Different political contexts and national economic priorities have determined the development of different national models, and the IT and telecommunications sectors. With regard to the uptake of new technologies, and the diffusion of the Information Society, this variety of national models results in substantial differences among the Mediterranean countries. As illustrated in Table 4, ICT diffusion in Mediterranean Partner Countries ranges from 0.06% in Algeria and Syria to over 17% in Israel, on average well below the penetration rates in the European Union. Among the Mediterranean Partner Countries, only Israel, Cyprus and Malta have penetration rates of over ten%, which go close to the least performing of the EU Member States in terms of Internet diffusion (see tables 3 and 4).

⁵⁰ Bianchi, P. (1996), "Euro-Mediterranean partnership and SME development: towards shared growth through complementarity", paper presented to the Euro-Mediterranean partnership workshop on *The Development of Small and Medium Size Enterprises*, Milan, June 4-5-6, p. 6.

⁵¹ PROMOS data (2000).

Notwithstanding the heterogeneity among the countries, and the low level of diffusion in most countries, generally speaking the development of the Information Society is a theme of increasing importance on the political agenda of the Mediterranean policy makers. All countries are going through a phase of complex economic reforms and structural adjustment programmes that foresee, amongst others, privatisation of production and liberalisation in sectors that were dominated by state enterprises to an extensive degree.

Table 1. Internet diffusion and penetration in EU countries.

Country	Number of users	% of population
Sweden	4,500,000	50.72
Finland	2,270,000	43.93
Denmark	2,300,000	43.10
The Netherlands	6,800,000	42.79
United Kingdom	19,470,000	32.72
Austria	2,600,000	31.98
Belgium	2,700,000	26.36
Ireland	941,000	24.78
Germany	18,000,000	21.74
Italy	11,600,000	20.13
Luxembourg	86,000	19.66
France	9,000,000	15.26
Greece	1,333,000	12.42
Spain	4,600,000	11.50
Portugal	700,000	6.97

Source: NUA Internet Survey, 2000.

Table 2. Internet diffusion and penetration in MED countries.

Country	Number of users	% of population
Israel	1,000,000	17.12
Cyprus	80,000	10.55
Malta	40,000	10.21
Lebanon	227,500	6.39
Turkey	2,000,000	3.05
Jordan	87,500	1.92
Tunisia	110,000	1.16
Egypt	440,000	0.65
Morocco	120,000	0.40
Libya	7,500	0.15
Syria	20,000	0.12
Algeria	20,000	0.06
Palestina	23,520	n.a.

Source: NUA Internet Survey, 2000.

This is especially relevant for the telecommunications sector: a progressive liberalisation of this sector is a necessary step to enhance the market for ICT and provide the conditions

for the development of the Information Society. By only looking at the European experience in this field, it becomes clear how the liberalisation of the telecommunications sector substantially contributes to the development of all kinds of economic activities related to the so-called new economy.

This does not take away the fact that, alongside these reform processes, the needs of the Mediterranean countries in terms of infrastructure remains very high. In fact, the minor diffusion, compared with EU countries, of basic infrastructure such as telephone lines, ISDN line, personal computers, Internet Service Providers etc. continues to form considerable barriers to the uptake of ICT. Specifically as far as the potential of e-commerce is concerned, there is also the problem of a lower spreading and integration into the economic system of credit cards. Combined with an often high taxation of payment through electronic means, and in general the lacking of privacy protection rules, these are all important issues calling for specific policies.

However, although the needs in terms of infrastructure and committed policies remain very high in the Mediterranean countries, there is unanimity on the growth potential of the area (see Table 3).

In the first place, most countries of the region register a rapidly growing population: in fact, between 1985 and 1995, the average growth of Mediterranean countries was more than 2% a year, whereas the 15 EU countries only registered an average growth of 0.4%. The total population of the 12 Mediterranean Partner Countries is expected to reach 240 million at the end of 2000⁵². The age pyramid is also fundamentally different to the one of EU countries, with young people (under 15) representing more than 30% of population, against 17% in the EU, and old people (over 65) only 5%, against 16% in the EU.

Table 3. Growth trends in 12 Mediterranean Countries.

	1996	1997	1998	1999	2000
Socio-economic data					
Population ("000)	221,664	226,320	231,076	235,944	240,923
GDP (billion euro)	463.2	479.1	498.4	519.7	539.8
Per capita GDP (euro)	2,089	2,117	2,157	2,202	2,240
Telecoms equipment					
Main lines ("000)	25,586	28,216	30,564	33,001	35,640
Main lines / 100 inhab.	11.5	12.5	13.2	14.0	14.8
Cellular subscribers ("000)	2,279,9	4,086,5	5,632	7,593	9,781
IT					
PCs ("000)	2,520	3,024	3,618	4,343	5,207
PC/100 inhabitants	1.14	1.34	1.57	1.84	2.16
Internet users ("000)	414	669	1,075	1,665	2,398

Source: EITO, 1999

Another factor of importance for the development of these countries is the rapidly changing status of women. Several countries, including Egypt, Morocco and Tunisia, have launched

⁵² EITO p. 294.

family planning programmes, and in several of them, women are increasingly taking part in economic activities.

Last but not least, over the past few years, several countries of the region have experienced a generational change in the political leadership. This has taken place at such a vast scale that it will almost certainly entail consequences for the area as a whole over the coming years. In fact, among these new young leaders, awareness of the relevance of the Information Society and the potential for development is generally high.

Taken together, these factors indicate how the Mediterranean countries are going through a process of modernisation, which is not only involving the economic system, but society in general. Evidence from industrialised countries has underlined how young people and women - though to a lesser extent - are, in general, two groups of the population that tend to exploit the opportunities of the Information Society very well, thereby contributing substantially to its development. In this sense, the success of the cybercafés (more than 100.000 in Morocco) or Publinets, as they are called in Tunisia, emphasise the potential. Combined with the presence of a renewed political leadership, this is likely to generate positive effects on the development of the Information Society and the uptake of new technologies.

3. EU PROGRAMMES AND ACTIONS

- ✂✂The commitments of the Barcelona process*
- ✂✂Participation in the IST Programme*
- ✂✂EUMEDIS*

As stated in the Action Plan itself, although eEurope does not contain explicit references to actions in the international field, "it will have implications for the Union's external policy"⁵³. In fact, new technologies and their networking facilities are increasingly seen as a potent tool to increase co-operation with peoples and firms of third countries.

Specifically with regard to the Countries of the Mediterranean basin, the main instrument through which the EU can promote the development of the Information Society and encourage the MPCs to invest in this field, are the bilateral association agreements and the framework for regional co-operation that was set up following the Barcelona Declaration of 1995.

The economic chapter of this Declaration stressed, in fact, that the support for the development of the Mediterranean scientific and technological community, together with the upgrade and modernisation of local telecommunications infrastructure, were two pivotal elements for the success of the Euro-Mediterranean partnership. This was further confirmed during the "Construction of the Euro-Mediterranean Information Society" Conference which was held in Rome on 30-31 May 1996, where political representatives of the different countries concluded by encouraging competition and liberalisation in the telecommunications sector. As a fundamental part of the Barcelona process, more than 1500 experts from the whole region have regularly met during the past three years and have in this way contributed to the definition of an overall Action Plan on the development of the Euro-Mediterranean Information Society.

⁵³ European Commission, eEurope Action Plan, p.3 (2000).

On February 22nd 1999, the European Commission approved a comprehensive regional MEDA initiative for the development of the Euro-Mediterranean Information Society specifically designed “to reduce the region’s informational and technological gap vis-à-vis the neighbouring countries”⁵⁴. The name that was given to this initiative is **EUMEDIS**, (Euro-MEDiterranean Information Society), the largest programme ever undertaken by the European Commission in the development of the global Information Society. It should be read as a concrete answer to the political message of the *Communication on Information Society and Developing Countries*, which underlined the need for a “dialogue between developed and developing countries, the start of a process that should lead to a vision of the global information society shared between the social actors concerned by development” and the final declaration of the *Bonn Conference on Global Networks*, which underlined that “international co-operation is essential to tackle the barriers limiting complete realisation of the potential of Global Information Networks and to ensure that the full benefits are available not only within individual countries, but also throughout Europe and throughout the world”. The same declaration particularly stressed the support of the Ministers for co-operation actions with Central and Eastern European Countries and with Mediterranean Countries.

The EUMEDIS programme was officially launched in March 2000 and aims essentially at three concrete objectives organised in two strands of action: on one hand the creation of a network of Mediterranean Information Society Focal Points and the interconnection between the European research network and the Mediterranean research networks, and on the other hand financial support for pilot projects in five sectors of intervention. The sectors are: health care, education, electronic commerce, tourism and cultural heritage, and ICT for industry, business and innovation⁵⁵. The foreseen contribution of the EU for projects of consortia between firms or organisations from both sides of the Mediterranean amounts to 45 million Euro. It is complementary to a regional telecommunications regulatory framework programme launched at the beginning of 2000 by the Commission with a financial coverage of 2.5 million Euros.

From a broader point of view, it is interesting to consider the overall situation of the IS related projects currently present in the Mediterranean area, i.e. not only considering the EU funded programmes. Data provided by ESIS⁵⁶ (one of the most comprehensive sources on this issue) report of 235 projects in MEDA countries, considering the planned, the realised and the on-going ones. Out of these projects more than 1/3 are completed or fully operational; 46% are underway and 11% are only planned but not yet implemented.

Around half of the projects focus on social issues and 43% on business sector. In particular, education and training is the main field of intervention of the IS projects. The commercial services and retail are among the most important sectors for these projects, which are mainly developed by the private sector (banks and large commercial companies). SMEs have proven difficulties in realising projects in these two fields, which are exploited mainly by large enterprises.

Tourism and Public administration services are as well important sectors in terms of number of projects, which are financed by the public administration.

⁵⁴ Guidelines for Applicants, EUMEDIS Pilot Projects.

⁵⁵ For more information, please see www.ispo.cec.be/eumedis.

⁵⁶ ESIS reports and data are available at: www.eu-esis.org

Finally, it is interesting to highlight that the projects are mainly focused on national (49%) and international (20%) issues, percentages that are similar to the EU percentages.

Current state of bilateral relations between the EU and single Mediterranean Partner Countries.

Country	Status of Bilateral Relations ⁵⁷
Morocco	Euro-Med Association Agreement (2000)
Algeria	Co-operation Agreement (1977)
Tunisia	Euro-Med Association Agreement (1998)
Egypt	Co-operation Agreement (1977)
Jordan	Signature of Euro-Med Association Agreement pending
Palestinian Authority	Euro-Med Association Agreement (signed in 1997)
Israel	Euro-Med Interim Association Agreement (1997)
Lebanon	Euro-Med Association Agreement (2000)
Syria	Co-operation Agreement (1977)
Turkey	Co-operation Agreement (1977)
	First Generation Association Agreement (1963)
	Customs Union (1996)
Cyprus	Candidate country for EU Accession
	First Generation Association Agreement (1972)
Malta	Candidate country for EU Accession
	Customs Union foreseen in 2000-2001
	First Generation Association Agreement (1970)
	Candidate country for EU Accession

4. PROGRAMMES AND ACTIONS IN THE AREA. RECENT DEVELOPMENTS AND POLICY TRENDS

There already exist signs that a new generation of policies for development is being implemented, which put new technologies at their core. Several of the national programmes for the promotion of the Information Society are giving voice to what was made explicit in several occasions by the new leaders: that addressing the challenge of the new economy must be top priority for the Mediterranean countries in the face of the increasing competitive pressures of the global economy.

For instance, **Syria** is working very hard on conquering a strong position. In addition to its population growth, and its highly developed trade fair system, the country is displaying a series of initiatives that prepare firms and citizens for the future. For instance, the Syrian Computing Society⁵⁸, a non-profit organisation based in Damascus to promote and to effectively contribute to the diffusion of IT in Syria, is presided by Bashar Al-Assad, the President of Syria, himself.

As far as their relations with the countries from the European Union is concerned, several SEMCs have explicitly addressed the idea of co-operation in their national policies. There is growing awareness about the potential of foreign private investment for infrastructure and to boost local production and innovation. In this context, it is to the European countries that the Mediterranean ones are looking as preferred potential partners. Specific measures

⁵⁷ The date indicates the year the agreement entered into force. As the Agreements are of a “mixed” type, drawing on both EC and Member States’ competences, after signature they have to undergo a lengthy ratification process by the national parliaments of the EU Member States.

⁵⁸ www.scs-syria.com

in national plans are intended to encourage local firms to co-operate with European firms to acquire innovation and technological know-how.

For instance, when we look at the case of **Tunisia**, several initiatives of the national government have brought about growth in the IT sector. In 1994, the Tunisian government implemented a “Fund for the Promotion and Use of Technology” with the objective to boost R&D projects for its SMEs. And in 1995, in the framework of the Association Agreement with the European Union and in the light of the prospective of a free trade area with Europe, the government of Tunisia launched a courageous programme for the economic and industrial modernisation of the country. This Programme of “Mise à Niveau” foresaw amongst others a contribution of up to 70% of total cost (up to a maximum of 20.000 Tunisian Dinars) to firms that acquire technological innovation from European countries. Results have shown that after France, Italy is the country to which Tunisian firms are mostly directed when they search for innovation.

Similarly, the **Egyptian** government launched a “Technology Development Programme” wherein it became clear that the Egyptian government had identified foreign investment as a crucial factor with a strong potential to boost local innovation: it foresees highly attractive incentive packages for national and foreign investors to encourage investments in the IT sector.

These national initiatives, which are manifold and not limited to the ones referred to in this text, all contribute to creating an environment that is favourable to Euro-Mediterranean co-operation.

In parallel to these government policies, several initiatives at the intermediate level between government and firms are being developed by third party institutions, such as Chambers of Commerce, business associations, agencies for technology transfer, etc. For instance, a group of European Chambers of Commerce (Milan, Lyon, Barcelona and Athens) together with institutions of North-Africa (Industrial Federations of Egypt and Algerian, Moroccan and Tunisian Chambers of Commerce) and the Middle-East (Chambers of Istanbul, Damascus, Amman, Beirut, and the Israelian and Palestinian federation of Chambers) have joined their forces to create a Mediterranean Business Network (Med-BN), with the objective of creating, through the service of a portal site, on-line co-operation between firms belonging to different geographical areas. By doing so, it has the aspiration to help firms, and especially SMEs, to realise the full potential of the Internet and e-Commerce⁵⁹.

Another example is the initiative of the Italian *Confederazione Nazionale dell'Artigianato e della Piccola e Media Impresa* (CNA), which has had for a couple of years, an agreement with the Egyptian organisation PCU, the union which represents the co-operatives of the country, for the development of common SME policies. Together, and with support of the highest political levels in both countries, they are creating a “city of handicraft”: an area outside Cairo, equipped with the latest technologies and specialised services to firms, where entrepreneurs will have the possibility to develop their ideas and initiatives⁶⁰.

When looking at cases of co-operation between firms active in the field of software production, multimedia and information system - that is, those firms typically referred to as

⁵⁹ Il Sole 24 Ore, 21.7.2000.

⁶⁰ Italia Oggi, 13.09.2000

giving body to the “new economy”, we note a strong interest on behalf of firms of the Mediterranean countries to collaborate with European partners. Their interest in this field goes to co-operation agreements as offshore developers, but also for localisation and distribution of products or services. Several SMEs have expressed their interest in the so-called activity of “arabisation”, which is translating European products into Arabic and customising them to the Arab market. In a second phase, these products can then be distributed on the overall market for Arabic products.

A country that is making a special effort into promoting its local system as a centre of reference for offshore production of software products is **Egypt**. The Egyptian IT sector was estimated in 1998 to be worth around 452 million Euros, with strong potentialities to triplicate the turnover in the next 5 years thanks to the positive effects of the increase in population and the various privatisation processes that were underway⁶¹. The Egyptian government is playing an important role in this phase, by pushing through the privatisation of Telecom Egypt and of the mobile communications sector. This process of gradual liberalisation has strongly contributed to the development of the private sector, and in particular with regard to the market for ICT. In this context, the Egyptian government launched a “Technology Development Programme” which comprised a set of measures, including amongst others the equipment with ICT of more than 6000 public schools. Through this Programme it became clear that the Egyptian government had identified foreign investment as a crucial factor with a strong potential to boost local innovation: the Programme foresees highly attractive incentive packages for national and foreign investors to encourage investments in the IT sector. The Egyptian government also set up several Business and Technology Centres (BTDC) to provide consulting, marketing and human resources services to promote SME development. Moreover, a recently created non-profit organisation, *Expo Link*⁶², has the objective to promote this and to assist Egyptian SMEs with market research and promotional activities. The NGO works in close contact with the Egyptian Ministry of Communications and IT. With regard to concrete firms’ experiences, the main company active in this field is *ISIS Information Systems International Services*⁶³, presided by the President of the Egyptian Software Association, which concentrates on software development in various fields, mainly for international clients from Europe, Asia and the US. The company has around 250 employees and is located in Cairo. As far as smaller firms regards, we may highlight *Com & Com*, an Egyptian firm active in the field of on-line and off-line multimedia production which regularly collaborates as off-shore developer with an Irish company (see Box 1).

Box 1 Com & Com

Name: Com&Com Computer and Communications

URL: www.dotcomdot.net

Profile:

Com&Com was established in 1997 as a private company in the field of multimedia productions, web sites and IT applications. Com&Com is specialised in the production of small businesses programmes and applications, including accounting and internal auditing. The company also provides total Internet solutions, and has developed web sites for over 80 Egyptian companies. It is an internationally oriented firm which, also thanks to the Egyptian government incentives, acts as a gateway for domestic investors in international markets.

⁶¹ EITO, 1999.

⁶² www.expolink.org

⁶³ www.isisintl.com

Highlights:

Com&Com has played an active role in two important campaigns: the first one to revive, support and increase tourism in Egypt through multimedia productions, and the second one, to promote e-commerce in Egypt. The firm developed one of the first on-line shopping malls: www.emall-egypt.com, and created the first Egyptian magazine on-line: www.Egyptguide.net. In 1999, it was awarded a prize for its multimedia production "Age of the Pharaohs".

Another Egyptian company, *DMS Data Management Systems*, specialised in software applications, has several international co-operation agreements, such as the one with Datatex, specialised in the production of information systems for the textile and apparel sector (see Box 2).

Box 2 **DMS**

Name: DMS Data Management Systems

URL: www.dms.com.eg

Profile:

DMS was created in 1983 in occasion of a major project: the automation of the Egyptian national insurance ministry. Drawing on this experience, the firm has continuously grown and expanded onto international markets. DMS has five major offices: two in Cairo, Egypt, one in Damascus, Syria, one in the U.K. and a fifth in Saudi Arabia. Moreover, it has an extensive network of partners with whom they co-operate, such as the Italian firm Datatex, which specialises in IT applications for the textile industry.

DMS focuses on IT solutions for healthcare, maintenance and finance. With an annual rate of growth of about 40% (turnover), DMS has become one of the Middle East and Africa's largest producers of IT applications.

Highlight:

HMIS - Hospital Management Information System. Designed by a group of medical and managerial experts, and developed by DMS, this integrated managerial system handles medical and administrative procedures in hospitals. It is a user-friendly multi-language, multi-hospital, on-line data processing system for day-to-day management which is currently used in more than 35 health organisations. The system, based on Internet-Intranet solutions according to the customer's requirements, has a truly innovative approach to the management of patients files, blood banks, medical records, emergency admission etc. After an agreement signed in 1990, IBM is marketing this system through its marketing channel in 35 countries.

An interesting case is *Virtual Souk*⁶⁴, a project initiated by the World Bank which brings together more than 700 mainly women artisans of villages in Morocco, Tunisia, Lebanon and Egypt. With the support of non-governmental organisations, the project helps the artisans to sell their goods directly through the Internet, and thus dispersing with the middlemen. The main problem faced by this initiative was reaching people and convincing them to visit the web site, but, equally relevant, convincing potential clients of the trustworthiness of their commercial activity. And this is where Virtual Souk is helping the artisans: with the substantial support of a French company specialised in web site development, promotion on the web, and e-commerce facilities, the project takes care of all commercial and organisational aspects. All electronic transactions are processed through a clearinghouse in Paris and artisans are not paid until clients receive the

⁶⁴ www.elsouk.com

products. The case of *Virtual Souk* illustrates how partners on both sides of the Mediterranean can play a complementary role and how their co-operation can be mutually beneficial, and sometimes even essential for the successful outcome of the venture.

5. COUNTRY CASES

References and key actors

Algeria

The Algerian Government has undertaken a consistent process of reform. The main national policies focused on IS are:

- ?? Development of IS.
- ?? Liberalisation of Post and Telecommunications.

Key actors within the Government are:

- ?? The Ministry of Post and Telecoms (www.barid.dz).
- ?? Inter-ministerial commission for agreements of IS policies.

Cyprus

The main actors at the national level are:

- ?? The Ministry of Communications and Works.
- ?? The Ministry of Interior.
- ?? The Ministry of Education.
- ?? The Ministry of Finance.

A ministerial committee has been created in order to define an Action Plan for the development of IS.

Egypt

In this country, in 1999 a new Ministry was established: the Ministry of Communication and Information Technology. Within the ministry a specific unit, the "Information Society Development Office", is co-ordinating the initiatives in the field of IS.

Information on the Government policy and programmes can be collected in: <http://www.sis.gov.eg>.

Israel

Israel is the most advanced country of the Mediterranean area in the field of IS and ICTs diffusion and application.

The Ministry of Communications plays a key role in this field as regulator and in the policy design, in developing the telecommunications infrastructures (<http://www.moc.gov.il>).

Furthermore, other ministries are involved in the IS field, in particular:

- ?? The Ministry of Trade and Industry (namely, the Office of the Chief Scientist and e joint committee on e-Commerce with the Industry Association).
- ?? The Ministry of Science (and in particular, the National Committee for IT infrastructures and HILA – Preparation of Israel for Information Age).
- ?? The Ministry of Finance (co-ordinating the TEHILA project).
- ?? The Ministry of Education and Culture.
- ?? The Ministry of Foreign Affairs (with a successful experience in using Internet for the dissemination of information, <http://www.israel-mfa.gov.il>).

Jordan

After a significant re-organisation of the government, Jordan has now defined the competencies of the Ministries. As far as the IS issues are concerned, three ministries are involved:

- ?? The Ministry of Telecommunications and Post (and in particular its Regulatory Commission: www.trc.gov.jo).
- ?? The Ministry of Trade and Industry.
- ?? The Ministry of Education.

A newly created Economic Consultative Committee (ECC), within the Government, provides recommendations and launched at the end of 2000 an *e-government* strategy.

Lebanon

In this country, the key Ministries involved in IS development are:

- ?? The Ministry of Post and Telecommunication (www.mpt.gov.lb).
- ?? The Ministry of State for Administrative Reform (www.omsar.gov.lb).
- ?? The Ministry of Transport (www.public-transport.gov.lb), that is estimated to be a key figure in promoting the Information Society.
- ?? The Ministry of Industry (www.industry.gov.lb).
- ?? The Ministry of Economy and trade (www.economy.gov.lb); under this Ministry a new public institution (“The National ICT Committee”), was created in August 2000 in order to tackle with IS related fields.

Malta

The main initiatives and programmes in Malta are directly supported and co-ordinated by the Prime Minister Office (<http://www.magnet.mt>). In particular this office is leading three important institution for the IS issues:

- ?? The Malta Information Technology Training Services (MITTS), which is considered as a Maltese Government IT agency;
- ?? The Central Information Management Unit (CIMU);

?? The Management Efficiency Unit (MEU), both active in the implementation of IS strategies in the public sector.

Morocco

According to Esis reports, three ministries participate in the promotion and regulation of the initiatives of information technology:

- ?? Ministry of Communication and Cultural Affairs.
- ?? Ministry of Commerce and Industry. On October 2nd, 1998, the Ministry established a working committee in charge of monitoring information technologies (CSTI). This committee is assigned with developing a national strategy in this area.
- ?? Ministry of Economy and Finances.

Another important actor is the Office of Post and Information Technologies (SEPTI: "Secrétariat d'Etat auprès du Premier ministre chargé de la Poste et des technologies de l'Information") with a specific responsibility for the promotion and the development of ICTs.

Palestinian Territories

The Ministry of Post and Telecommunications is the most important institution dealing with IS development. Other key actors in the public administration related to IS are:

- ?? The Office of the President through the office of his Economic Adviser;
- ?? The Ministry of Planning and International Co-operation, and namely its special division called the Government Computer Centre (GCC).

Finally, an important role is played by the "Information and Communication Technologies Advisory Board (ICTAB)", which allow the exchange of information and contributions from universities, private sector, prominent economists, and the Ministry of Post and Telecommunications.

Syria

The recent events in the country have produced significant changes in the Government and in its policy. The process of re-organisation and re-definition of the policy in Syria is still on going, therefore it is hard to have a clear idea of the current situation of the policy and responsibilities in the IS field.

Nevertheless, the Ministry of Telecommunications and its Public Establishment of Telecommunications (STE) are still key organisations in telecommunication issues. It has the regulatory and policy making authority in this field

Another important actor is the Syrian Computer Society (SCS), which is assisting the Government in defining an overall IS policy.

Tunisia

In this country, several initiatives and programmes have been put in place in order to develop research and the Internet diffusion and application. Among the main public actors there are:

- ?? The Ministry of Communications, and in particular its National Commission on Distance Education (Internet and Education).
- ?? The Secretary of State for Science, Research & Technology (SERST).
- ?? The Secretary of State for Informatics.

Turkey

Key actors within the public sector are:

- ?? The Ministry of Transportation and its two directorate generals, Directorate General of Communications and Directorate General of Wireless Communications, are key organisations in telecommunication issues.
- ?? Ministry of Finance.
- ?? Ministry of Internal Affairs.
- ?? Ministry of Education.

Furthermore, National Councils have been set up in order to deal with the IS issues: The most important are:

- ?? Kamunet Higher Council (an advisory body for the Prime Minister's Office);
- ?? Electronic Commerce Co-ordination Committee (an informal consultative body formed by the Undersecretary of Foreign Trade).

PROGRAMMES AND ACTIONS ON INFORMATION SOCIETY IN THE LATIN-AMERICAN COUNTRIES

PIER PAOLO PATRUCCO - NOMISMA

1. NETWORKING IN LATIN AMERICA AND THE DIGITAL ECONOMY

ICT-enabled networking in Latin America and the Caribbean is relatively a new phenomenon⁶⁵. Most of the networks were established only during the past decade and several countries had only e-mail facilities, in the form of store and forward UUCP (Unix-To-Unix Copy Protocol). In 1989, Brazil and Mexico were the first countries in Latin America to connect to a full interactive Internet. Although, as far as web-based communication systems have been introduced, Latin American countries have been characterised by an increasing development of the new opportunities of the Digital Economy, particularly via the implementation of several regional networks. Several nations within the region have more than 1000 hosts each (as of January 2000): 446,444 in Brazil; 404,873 in Mexico; 142,470 in Argentina; 40,565 in Colombia; 40,190 in Chile; 25,385 in Uruguay; 14,281 in Venezuela; 9,230 in Peru; 7,471 in Costa Rica; 6,754 in the Dominican Republic; 4,852 in Trinidad & Tobago; 1,922 in Ecuador; 1,772 in Guatemala; 1,660 in Paraguay; 1,235 in Panama and 1,028 in Nicaragua⁶⁶.

Although, when considering absolute values of the diffusion of the ICT in Latin America, connectivity remains much smaller than the more advanced countries. The number of Internet users in Latin America and the Caribbean consists of only 2 or 3% of the total worldwide Internet users. However, it is important to emphasise that the rate of growth of hosts in many of the Latin American countries is amongst the highest in the world. For example, the number of hosts for Argentina, Brazil, Colombia, Costa Rica and Trinidad & Tobago doubled between January 1999 and January 2000, and grew more than 90% in Guatemala and Peru. In this same period Mexico had an impressive increase of 259%. More than nine million online users in Latin America will log on by the end of 1999, and the number will increase to 38 million in 2003 - this projected increase of nearly 50 percent annually marks it as the region with the highest expected growth rate internationally, exceeding that of the U.S., Europe, and Asia. However, penetration within the region will remain low, reaching a projected 6.8 percent of the population in 2003 from a current penetration number of 1.8% (Jupiter Communications, www.jup.com).

⁶⁶ See Saul Hahn, "Case studies on development of the Internet in Latin America and the Caribbean", Organization of America States, 2000, www.isoc.org/isoc/conferences/inet/00/cdproceedings/8d/8d_5.htm.

⁶⁶ These statistics include only geographic or "country code," ccTLD, domains. They do not account for hosts in the countries registered in the "generic top level domains," gTLD, ("com", "org", "net" and others). Data source: Internet Software Consortium (www.isc.com), quoted in Saul Hahn, *op. cit.*

In this context, the increasing governmental actions oriented to promote private sector investment and competition in the IT markets⁶⁷ is the key factor enhancing the growth of the Latin American IT market, which produced a turnover of 17.6 billion US\$ in 1996. The annual growth rates amount to 18.2%, which is 7.3% above average. In a few years, the turnover is supposed to extend to 115.9 billion US\$ - that is, it will have multiplied by 6.5. The main source of the development is the Brazilian market, with a share of about 37% (www.idc.org). Even more recently, as far as its revenues rose up from 12 billion US\$ in 1990 to 82 billion US\$ in 1998, the privatisation of the formerly state-owned companies have become the central element of structural change in Latin America. Within such a process, the most important operation was, in 1998, the sale of the Brazilian telecom Telebras, which has been split into twelve independent companies and auctioned off for 20 billion US\$.

Finally, forecasts about the Internet in Latin America are extremely impressive. The number of hosts is annually growing for more than 50%, and the growth of e-commerce comes up to peaks of 1,000 percent, in some countries. The number of users annually rises for more than 30% and is supposed to match between 20 and 65 million in 2003, according to different studies and sources⁶⁸.

Table 1. The development of the IT industry's turnovers in Latin America (in million US\$)

Sector	1997	21st c
Telecommunication	49,000	*82,000
Hardware and software	9,370	**20,000
Services	8,450	***13,900
IT total	66,800	115,900

Source: IDC Latin America 1999, Constance 1997, Yankee-Group 1999. Estimated value for the year: * 2007; ** 2001, *** 2002

However, although IT performances are increasing, these figures are generated on an extremely low initial level. During the summer of 1999, the latest UNDP report proved that Latin America's Internet participation makes up only 0.8% of the global capacity. Contents still come from, and profits go to, the Northern metropolitan areas. The question of the development potential of the Internet cannot be treated in isolation. The IT infrastructure of Latin America, dial-up capacities, and hardware diffusion, in that they remain relatively underdeveloped, should be central concerns in ICT-enhancing policies and initiatives.

1.1. The technological lag and ICT-enhancing policies and initiatives

One of the main problems that have to be faced when considering the technological lag between developed and developing countries is that of costs. In the USA, unlimited access to the web is charged with only 20 US\$ per month; in Latin America, however, costs vary between 12.75 US\$ in Peru and 260 US\$ in Cuba. As a result, the great majority of the Latin American population prefer to communicate via "traditional" technologies.

⁶⁷ Elmer Lenzen, "Information technologies and Internet in Latin America", 2000, www.interasia.org/vietnam/hanoi_lenzen.html.

⁶⁸ For an overview, see Elmer Lenzen, "Information technologies and Internet in Latin America", 2000, www.interasia.org/vietnam/hanoi_lenzen.html; NUA Surveys on Latin America, www.nua.ie/surveys; www.idc.org.

Table 2. Internet access and costs in Latin America in 1999

Country	Date	Number of users*	% of population online	Average monthly costs of Internet in US\$	GNP/head in US\$ per year
Argentina	April 1999	586,000	1.70	54.00 \$	8,498
Belize				20.00 \$	5,623
Bolivia	October 1997	8,000	0.11		2,617
Brazil	July 1999	2.7 million	1.70	26.96 \$	5,928
Chile	April 1999	150,000	1.05	40.27 \$	9,930
Costa Rica	April 1999	30,000	0.89	40.00 \$	5,969
Dominican Republic	April 1999	25,000	0.32		3,923
Ecuador	October 1997	5,000	0.04	45.00 \$	4,602
Haiti	July 1998	2,000	0.27		917
Honduras				39.29 \$	1,977
Colombia	April 1999	350,000	0.95	35.56 \$	6,347
Cuba	May 1999	22,000**	0.20	260.00 \$	3,100
Mexico	April 1999	600,000	0.65	26.10 \$	6,769
Nicaragua	April 1999	10,000	0.23	30.00 \$	1,837
Paraguay	October 1997	1,000	0.02		3,583
Peru	April 1999	20,000	0.08	12.75 \$	3,940
Puerto Rico				29.00 \$	
Trinidad & Tobago				81.71 \$	9,437
Uruguay	April 1999	90,000	2.83	29.95 \$	6,854
Venezuela	April 1999	380,000	1.75	54.35 \$	8,090
Latin America	July 1999	5 million	1.12	36.23 \$	

© Macondo 1999, quoted from Lenzen, 2000

* Commercial ISPs

** state-owned ISP CENIAI.

Sources: ITU/Siemens, IABIN, News.com, IDC, Handelsblatt, Cyberatlas, Reuters, Delatrade, UNDP 1998

The technological gap between developed countries and Latin America is not only a matter of costs. When considering the proper Digital Economy-enhancing environment there is

wide scope for a number of relevant issues. Particularly, connectivity conditions, the development of users skills and knowledge of new technologies, and the promotion of co-operation so as to gather the necessary complementary business experiences and knowledge bases, appear as central concerns for ICT-oriented technology policies in the developing countries⁶⁹.

More precisely:

1. Connectivity. Restricted access to PCs, Internet devices, modems, telephone lines, and Internet connections is an important consequence of the high costs of connection. Steps to reduce this gap include devising cheaper access devices (such as publicly accessible kiosks or Internet cafés), lowering tariffs on the import of computers and modems, creating Internet community access centres (with leased lines and shared devices), and bringing down access prices by creating a favourable climate of competition among Internet service providers (ISPs).

2. Knowledge and skills. To close the digital skills gap, emerging economies need to improve the capacity of their workforces to play roles in the Internet age. This includes improving Internet access and educational offerings in schools and colleges, creating digital libraries for universities, and promoting professional training institutes.

3. Co-operation. No single sector can take on the Internet economy by itself; much co-operation at the national level is needed to overcome the gaps between government, academia, the private sector, civil society, and international organisations. This should occur at the national, provincial, regional and urban levels; it can also extend to groupings based on culture or language.

At the same time, online and offline forums need to be actively promoted within proactive environments and communities (e.g. schools and universities, communities of citizens in main urban areas), so as to bring in larger and more diverse sections of communities to discuss issues of common interest, particularly the issue of how to effectively exploit the challenge of the Digital Economy. Particularly within Latin America, the development of virtual communities of users parallels the growth of what might be called academic “associationism”. An evidence of this trend is the proliferation of many kinds of co-operative networks and associations of individuals and institutions, which do not yet function in a virtual environment.

Such a preliminary discussion of the conditions and obstacles characterising ICT-based networking and co-operation in Latin America may show ground for a tentative agenda of policies and initiatives oriented to the promotion of the ICT and the Digital Economy in Latin American Countries; one where the focus of attention should gradually shift from the infrastructure and technology to the users, resources and information contents. As the ECLAC/CEPAL document “Latin America and the Caribbean in the transition to a knowledge-based society. An agenda for public policy”⁷⁰ stated, the “relative degree of underdevelopment and the financial constraints they [Latin America Countries] have to face as they begin to make the transition to information and knowledge-based societies, make it necessary for them to undertake a determined investment effort in order to build

⁶⁹ Madanmohan Rao, “Struggling the Digital Divide: Internet infrastructure, content, and culture”, October 2000, www.isoc.org/oti/printversions/1000rao.html.

⁷⁰ www.eclac.org/publicaciones/secretariaejecutiva/3/lcl1383/lcl1383i.pdf.

up their physical infrastructure and to develop the necessary human resources. They will also need to construct the “institutional infrastructure” that the State requires in order to perform effective oversight and supervisory functions that will redefine the links among the public sector, business enterprise, consumers and citizens” (p.5).

Learning on and by means of new communication technologies and the provision of public services via Internet-based technologies can be thought of as the results of the adoption and diffusion of “ICT to foster communication among civil society, State institutions and the market” (p. 5). As we can see in the following paragraphs, LACs are experiencing public policies and initiatives oriented to combine digital communication and co-operation both *intra* the area and with Europe. Considering intra-area ICT-based co-operation, top-down and national programmes seem oriented to the development of infrastructures and human resources, as well as bottom-up and localised initiatives are undergoing a number of cases of scientific and technological networks, eLearning and public access to the digital net. When taking into account the co-operation with the European Union, the ALFA Programme aims to improve academic co-operation, as well as the AL-INVEST Programme is oriented to the creation of business opportunities for co-operation. Finally, the EUROLAT-IS Programme has the wider scope to boost Euro-Latin American collaboration in areas of application of Information Society Technologies.

The next paragraphs (2.1 and 2.2) will aim to compare the so far introduced issues as *desiderata* with actual policies and initiatives that take place in Latin America in order to foster the Digital Economy. For example, bottom-up initiatives to increase Internet diffusion are emerging in Latin America via virtual communities, public net and public sites of access (see 2.2.4 and 2.2.5). At the same time, the five country cases of national policies seem to be oriented toward the implementation of the necessary infrastructure, equipment and access conditions (see 2.1). Moreover, important initiatives are concentrated on the development of new skills and knowledge by means of educational and scientific network, eLearning initiatives and local programmes oriented to enable the proper ICT-based skills (see 2.2.2, 2.2.3 and 2.2.4). Finally, co-operation, associations and “clubs” are rising within the scientific and technological community as well as among citizens (see 2.2.1 and 2.2.5).

2. PROGRAMMES AND ACTIONS IN THE AREA

2.1. TOP-DOWN AND NATIONAL PROGRAMMES: FOUR COUNTRY CASES

2.1.1. BRAZIL⁷¹

In May of 1999, at the invitation of the Ministry of Science and Technology (MST), a discussion group began to meet in Brasilia to consider the possible outlines and guidelines for a plan of action aimed at strengthening an Information Society in Brazil. Such a program would translate into concrete projects for the initiative approved by the National Science and Technology Council, in December of 1998, and that influenced many of the actions proposed by the MST and included in the federal government’s 4-year development plan – the 2000-2003 Governmental Plan (*Plano Plurianual*).

⁷¹ This paragraph is based on “Information Society in Brazil – Green Book”, www.socinfo.org.br.

Within this context, the MST formed the Implementation Group of the so-called Information Society Program in Brazil. On December 1999, the Program was official launched by the President of Brazil. Beginning in January 2000, the group began to work on the preliminary detailed proposal of the Program, through the creation of Thematic Groups for discussion, the contracting of studies and the analysis of experiences abroad.

The *Green Book on Information Society in Brazil* is the result of this effort and aims to address both the strategic and the concrete actions levels of national IS-enhancing policies, not only *per se*, but most of all because the new digital paradigm is to be though of as, in a more general sense, an unparalleled opportunity to boost the national economy and competitiveness.

In this regard, the Program attempts to contribute, in an effective manner, to: 1) the construction of a more just society, where principles and goals are observed for the preservation of our cultural identity, based on the wealth of diversity; 2) the sustainability of a standard of development that respects differences and pursues regional equality; and 3) the effective participation of society, the cornerstone of political democracy.

As a consequence, the goal of the Information Society Program is to integrate, co-ordinate and foster actions for the utilisation of ICT, in order to contribute to the social inclusion of all Brazilians in the new society and, *at the same time*, help the country's economy secure the necessary conditions to compete on the global market. The Program's execution presupposes the sharing of responsibilities between the three sectors: government, free enterprise and civil society. For this intent, the program will unfold along the following broad *Lines of Action*:

- ?? *Market, employment and opportunities* – promote the greater competitiveness of Brazilian companies and an expansion of small and midsize companies; support the implementation of electronic commerce and the offer of new forms of employment, by means of the intensive use of ICT.
- ?? *Universalization of services for citizens* – promote the universalization of access to the Internet, pursuing alternative solutions based on new mechanisms and new means of communication; promote systems for collective or shared access to the Internet; as well as foster projects that encourage a greater sense of citizenship, national pride and social cohesion.
- ?? *Education in the information society* – render support to projects aimed at learning, continued education and distance education based on the Internet and networks, by fostering schools, the qualification of teachers, self-instruction and certification in ICT on a large scale; implement curriculum reform aimed at utilizing ICT in academic and educational activities, on all levels of formal education.
- ?? *Contents and cultural identity* – promote the generation of contents and applications that emphasise Brazilian cultural identity and matters of local and regional relevance; foster digitalisation systems for the preservation of artistic, cultural and historical heritage and science and technology data; as well as foster R&D projects for the generation of technologies with application in projects of cultural relevance.
- ?? *Government at everyone's reach* – promote the computerisation of government administration and the employment of standards in its applicable systems; create, prototype, and foster applications in government services, especially those that involve the ample dissemination of information; foster greater qualification in the management of ICT in government administration.

- ?? *R&D, key-technologies and applications* – pinpoint the strategic technologies for industrial and economic development and promote R&D projects applied to these technologies in universities and in the productive sector; conceive and encourage the use of mechanisms of technological dissemination; foster pilot-applications that demonstrate the use of key-technologies; promote the widespread qualification of professionals, including researchers, in all aspects of ICT.
- ?? *Advanced infrastructure and new services* – implement a basic national infrastructure of information, integrating the various specialised network structures – government, private sector and R&D; adopt policies and mechanisms to ensure safety and privacy; foster the implementation of networks, high performance processing and the experimentation of new generic protocols and services; speed up the transfer of network technology from the R&D sector to other networks and foster their operational integration.

Each line of action will be, in turn, translated into a series of *concrete actions*, with specific planning, budgeting, execution and monitoring.

2.1.2. ARGENTINA⁷²

The *Programa Nacional para la Sociedad de la Información* (PSI) has been implemented within the activities of the *Secretaría para la Ciencia, la Tecnología y la Innovación Productiva* (SETCIP) of the Presidential Office.

The National Program for the Information Society aims at: 1) favouring the public access to the information; 2) contributing to the productivity of the SMEs by means of increasing their access to the Digital Economy, 3) promoting the use of the new technologies in areas like health care, education, business; 4) qualifying the labour force and to modernise the public sector of the whole national territory. Especially, health care, education and employment seem to be conceived as central aspects considered by the PSI.

Therefore, the national programme for Information Society in Argentina is structured in different initiatives and actions. The following are main lines of actions and programmes within the general framework of the National Programme:

- ?? *Nacion.ar* (www.nacion.ar). It aims to create an intelligible, transparent, modern and speedy government. It offers the citizens a portal, customised on citizen's demand of information and public services where citizens will be able to find the resources offered by the National Government. The object is to build an interaction space among citizens, companies and government through a channel that generates value added for the different social groups, in turn creating key opportunities for the development of e-Government in Argentina. Among the objects stated in the programme, the necessity to consolidate the relationships between civil society and government, to offer transparency to the public administration and to improve the efficiency in the administrative processes are central concerns.
- ?? *Programa Argentina Digital* (www.pad.gov.ar). The Project Digital Argentina (PAD) is supported in its first phase by a line of credit of the National Bank of Argentina to finance, with facilitated interests rates and funding conditions, households to

⁷² This paragraph is based on Secretaría de estado para la Ciencia, la Tecnología y la Innovación Productiva-Presidencia de la Nación, *Programa Nacional para el Desarrollo de la Sociedad de la Información –República Argentina* (versión preliminar), February 2001, and www.nacion.ar/PSI/info/programas.asp.

purchase 1.000.000 of personal computers of last generation and printers, with its respective connection to Internet and a basic training. For a monthly quota of 33 US\$, over 36 months a family will be able to have a new PC with access to Internet. The cost of the Program for users will be sensibly below any similar offer in the market of private loans. This way, this initiative of the SeTCIP and of the National Bank of Argentina will allow Argentina to enlarge in 30% their park of computers and to have access to the new computer technologies for those parts of the population that have lower financial resources.

?? *Telemedicina*. This is a project enhancing the co-operative medical practice among professionals of health, carried out at distance, in real or deferred time. Telematic in Health is based on activities, services and systems dedicated to health, carried out at a distance thanks to computer and communication technologies. The Telematic of Health includes different sub-programmes: Tele medicine, Tele education in health, Telematic in medical investigation, and Telematic in sanitary administration. To carry out the program, strategic alliances at international level as well as national and regional levels has been implemented in order to provide an excellent medical service. At the international level partners are the following: UIT, OMS, UNESCO, Ministry of Health of France, Polytechnic University of Madrid and Institute Pasteur. At national level participants are the Ministry of Health, the Ministry of Education, national universities, associations and professional schools, national unions, as well as at the regional level provincial ministries of health and municipal secretaries of health are involved.

?? *TeleEducation*. The TeleEducation Project aims at the implementation of terminal systems associated to on-line education programmes, as well as the development of digital networks, so as to have effective tools for communication and access to information. Moreover, the development of applications oriented to enable on-line education frameworks, and the building up of training programmes oriented to promote the use of new technologies to the whole society and the academic community in particular are central concern in the project. Four main programmes have been launched, receiving the relevant resources:

1. *Restructuring the education programmes which already exist by means of 1700 mini LANs (local area nets) located in libraries.*
2. *The program of computer literacy, with 11700 accesses to satellite-TV in public schools.*
3. *The program of labour training, with 50 virtual classrooms in universities and service centres.*
4. *The program of educational television, with special space for educational television on national public television.*

?? *Civit@s*. The main objective of the programme is to foster the municipalities for the equitable entrance from the Argentineans to the Society of the Information. The project is organised starting from its four components:

1. Experiences pilot of intelligent cities. The technology that is implemented consists of nets of fixed technology, a net of TV for cable and a wireless net. Inside the activities to develop, the municipal personnel's training and the population stand out in general, to which are offered initial technical attendance. On the other hand, the Secretary for the Technology, the Science and the Productive Innovation (SeTCIP) contributes all the questions related with the technical support, permanent consultancy and arbitration in the conflicts. As for their implementation, the development will be progressive, including in the first

year to a hundred municipalities, the second year at three hundred and in the third at six hundred.

2. Municipal web sites with interactive services. Planned activities consist of development of the web site, the municipal personnel's training and the necessary technical attendance. It is necessary to highlight the constant co-ordination settled down with all the PSI projects. In this sense, the SeTCIP provides the development of platforms and services, the lodging of sites and the formation of the local providers.
 3. Informatisation of Municipalities. Terminals will be implemented for 1930 municipalities and the quantity of informational teams by municipality will depend on the span of the same one. Main activities are the qualification of teams, the creation of economies to scale and the advice to ICT-suppliers and Internet providers.
 4. Development of applications for municipal administration. For the implementation of the applications a competition will be carried out between young programmers for the development of innovative software for municipal administration. The software will surrender gratuitously to the municipalities. The SeTCIP will participate actively in the whole process of selection, development and distribution.
- ?? *Centros Inform.ar.* The Project Argentinean Centres for the Access to the Information consists on the installation of Centros Inform.ar in towns or places that, due to the unemployment, unfavourable socio-economic conditions, its marginal geographical or urban situation, don't have computer technology or the rising access to the communication and the knowledge in great scale. The Centros Inform.ar are equipped with computer infrastructure and access to the Internet dedicated to the community use. In each Centros Inform.ar the project qualifies two coordinators, one technician and other pedagogic that will be in charge of the operation of the Centre. Approximately 1400 Centros Inform.ar distributed in the whole national territory are operative at present. The objective of the Project Centros Inform.ar is to put to the population's of low resources disposition, located in areas far from the urban or suburban centres, the technologies of the information and the communication with the purpose of contributing to its insert in the labour market, to consider them you condition necessary for the democratic development of the society and the expansion of the economy. In this context, their high-priority objectives are: 1) to offer alternative access to the technologies of the information in gratuitous form; 2) to contribute to the implementation of Projects of Community Social Promotion originally starting from the necessities and demands characteristic of the diverse realities, granting priority to the areas of the employment, the work, the education and the health; 3) to develop training contents and labour requalification; 4) to contribute to the development of the micro and small company; and 5) to encourage the development of contents dedicated to the local promotion, in support to the productive activities and the commercialisation of regional products.

2.1.3. VENEZUELA⁷³

Under the joint leadership of public officials and private entrepreneurs, Venezuela has seen the creation of a remarkable and original entity known as the Venezuelan Chamber of

⁷³ This paragraph quotes from UNCTAD, *Building Confidence. Electronic Commerce and Development*, 2000, www.unctad.org/en/docs/posdtem11.en.pdf, pp. 114-115.

Electronic Commerce⁷⁴ (Camara Venezolana de Comercio Electronico, or CAVECOM-e for short). This independent body has several priorities and areas of activity, including: 1) promoting of e-commerce activities by Venezuelan enterprises, at home and abroad, 2) establishing electronic commerce as a well-recognised sector of economic activity, in Venezuela and abroad, 3) contributing to improving the local legal and normative frameworks in order to enhance the development of e-commerce, 4) strengthening research, development and training related to e-commerce, and 5) being an interlocutor for private and public players involved in e-commerce, nationally and internationally, and participating in relevant discussions with such players.

Among the activities already undertaken by the Venezuelan Chamber of Electronic Commerce, some have already generated tangible results, such as sensitisation seminars and workshops, the publication of a book on “Electronic Commerce: legal frontiers”⁷⁵, and through the Venezuelan Federation of Chambers of Commerce (Fedecámaras), the active promotion of practical tools such as the Venezuelan Electronic Invoice.

2.1.4. PERU⁷⁶

Created under the auspices of Prompex (Peruvian Commission for the Promotion of Exports)⁷⁷, the Peruvian Institute for Electronic Commerce (Instituto Peruano de Comercio Electronico, IPCE)⁷⁸ has been created to fulfil a large array of functions, including:

- ?? To be a counterpart in national and international projects, to co-ordinate with international bodies and similar competent entities, and to co-ordinate domestic and international initiatives and investments.
- ?? To play a leading role in the suggestions for legal and regulatory adaptation, and to make recommendations about the adaptation of the Domestic Legal System. In this context, IPCE will suggest actions for the suppression of legal barriers for traditional commerce. To do so it will identify and suggest the dismantling of existing legal and regulatory obstacles and will be ready to:
 - ?? Prevent and correct the creation of new barriers to electronic commerce developments.
 - ?? Provide solutions for adapting the national rules for accounting and auditing to e-commerce.
 - ?? Promote the ideas that (a) commercial laws should uphold the commerce practiced through electronic networks and that (b) Governments should adopt non-regulatory policies for e-commerce, recommending mediation in cases of conflict; promoting the creation of a Peruvian Cyber tribunal; making recommendations and coordinating with the relevant public entities in order to strengthen the Electronic Data Interchange.
- ?? To spread electronic marketing strategies, and contribute to the promotion and facilitation of electronic marketing and interactive marketing strategies, such as virtual fairs and business rounds.
- ?? To establish and create mechanisms aimed at national enterprises under the concept of “always open”; to promote the application of initiatives based on

⁷⁴ See <http://cavecom-e.org.ve>.

⁷⁵ See Cavecom-e, “Comercio electrónico: fronteras de la ley”, Caracas, 1999.

⁷⁶ This paragraph quotes from UNCTAD, *Building Confidence. Electronic Commerce and Development*, 2000, www.unctad.org/en/docs/posdtem11.en.pdf, pp. 116-117.

⁷⁷ See <http://www.prompex.gob.pe>.

⁷⁸ See <http://www.prompex.gob.pe/ipce.htm>.

- business experience; and to build selected partnerships with business partners to obtain successful results in national sales.
- ?? To promote Internet-based transactions; to encourage electronic transactions; to take actions focused on technical interoperability and mutual acknowledgement of transactions beyond borders; and to establish and create mechanisms for identity control and solvency of the economic actors involved in digital economic transactions.
 - ?? To promote intermediation changes, including actions focused on the presence and reinforcement of national cyber-intermediaries and Peruvian electronic brokers, to study and analyse the establishment in the country of virtual intermediaries that offer added-value services (brokerage, partner-seeking, and so on).
 - ?? To promote e-commerce solutions; to recommend existing standards and coordinate their international participation in modifications or innovations towards standardisation; to develop e-commerce software solutions; and to experiment selectively with new interactive technologies.
 - ?? To spread knowledge; to propagate the use of reliable technologies (signatures, digital certificates, mechanisms for electronic payment, insurance); to train electronic commerce users about its features; and to co-operate with universities and educational institutions in order to include subjects related to e-commerce in the study programme.
 - ?? To generate confidence and awareness; to create awareness among economic actors about the new digital globalisation; to build confidence in e-commerce instruments, processes and networks; and to get the support of public authorities, the media, prestigious brands and companies for the use of electronic commerce.
 - ?? To create social impact and public interest; to pay attention to public interest objectives, such as privacy protection, intellectual and industrial property rights and consumer rights; and to encourage e-commerce contribution to the creation of new jobs.
 - ?? To promote the use of Spanish in electronic commerce, and to promote the Spanish language on the Internet for e-commerce usage as a way of integrating the international Spanish-speaking community into it.
 - ?? To encourage the use of the Internet for the acquisition and selective propagation of commercial information; to make inventories of existing Internet-based systems and networks in Peru focused on e-commerce; and to try to establish synergies among them.

As a consequence of the mentioned functions, the IPCE will permanently monitor global e-commerce trends and will take pertinent action to further adaptation by Peru. IPCE is a semi-public entity in which private enterprises, local government authorities and international experts participate. In 1999, it selected two priority areas of activity: business-to-business electronic transactions, and “virtual banking”.

2.2. BOTTOM-UP AND LOCALISED INITIATIVES

2.2.1. SCIENTIFIC AND TECHNOLOGICAL NETWORKS IN LATIN AMERICA⁷⁹

The “Hemisphere Wide Inter-University Scientific and Technological Information Network (RedHUCyT) project” (<http://www.redhucyt.oas.org>) is an initiative of the Organization of American States (OAS) aimed to help local initiatives in the member states in either the creation or expansion of networks within their countries. Within the scope of the project academic institutions, governments, phone companies (PTT) and the private sector collaborate and co-ordinate their activities in order to create many of the first Internet points of presence (POPs) in this region. Essential to these developments were the local network managers and officers at participant institutions, and their dedicated teams of experts, who made these projects possible.

Particularly, out of the close collaboration established with many US agencies and centres, in particular the U.S. National Science Foundation (NSF) and the Network Startup Resource Centre (NSRC) of the University of Oregon, important collaboration was established with many of the science and technology communities’ *intra* the Latin American area.

The RedHUCyT, through its Caribbean University Project (CUNet), in partnership with the University of Puerto Rico (UPR), in the early stages of networking development provided basic support to the Caribbean countries to implement their first electronic nodes for mail exchange. Soon after, the first full interactive Internet POP was established in the Caribbean (outside Puerto Rico) at the University of the West Indies (UWI) and the Technological University (previously CAST) in Jamaica. An earth station for satellite communication was recently (1999) provided to UWI by OAS and will allow for the rapid expansion of their network. Also, recent support and equipment was provided to many educational institutions in the Caribbean to facilitate their full access to the Internet and to expand their campus information technology facilities. Some examples are the National Institute for Higher Education in Trinidad and Tobago, the Barbados Community College, the Sir Arthur Lewis Community College in Saint Lucia and the College of the Bahamas. Another important recent example is the project’s support in funding the equipment (routers, CSUs/DSUs, servers) that was critical in getting five of the main universities connected to full Internet, and initiating the development of the Dominican Republic’s academic backbone that supports the *Red Universitaria Dominicana Académica y Científica*.

Moreover, in recent years, the Inter-American Council for Integral Development of the OAS (CIDI) provided additional funding to RedHUCyT, which also sponsors workshops and seminars in the region in order to improve skills, share knowledge and train network managers. During the past decade, important support was provided to the Latin American School of Networks (ESLARED), based at the *Universidad de los Andes* (ULA) in Merida, Venezuela. The project also funds many of the Latin American and Caribbean Networking Forum workshops.

⁷⁹ This paragraph relies on Saul Hahn, “Case studies on development of the Internet in Latin America and the Caribbean”, Organization of America States, 2000, www.isoc.org/isoc/conferences/inet/00/cdproceedings/8d/8d_5.htm and Saul Hahn, “Networking in Latin America and the Caribbean and the OAS/RedHUCyT project”, 1995, www.isoc.org/HMP/PAPER/168/. The former provides country in-depth case studies while the latter describes the original statement of the OAS/RedHUCyT project.

A few examples of such workshops and training activities, which show the active co-operation characterising scientific communities in LACs, are:

- ?? The first edition of the Forum, "Inter-American Networking," was held in Rio de Janeiro, 1991, co-ordinated by the Brazilian national research network *Rede Nacional de Pesquisa* (RNP; www.rnp.br/index_e.html) and OAS/RedHUCyT, an event sponsored by several international and national institutions.
- ?? The Second Workshop of Internet Networking Technologies (www.ing.ula.ve) that took place at ULA in Mérida, Venezuela, 14-19 June 1999. This activity was part of:
 - ?? The Network Training Workshop -held in parallel in San Jose, California, and Merida - as part of the annual INET meetings of the Internet Society (ISOC; www.isoc.com). The event was organised by the Forum of Latin-American and Caribbean Networks (ENRED) and ESLARED, and co-sponsored by the World Bank and other international organisations. This workshop trained professionals from Latin America and the Caribbean in the design, operation and maintenance of Internet networks.
- ?? In 1998, The Workshop em Tecnologia de Redes para America Latina e Caribe (WALC '98; www.walc98.rnp.br/index_esp.shtml), also as part of the parallel ISOC workshops, took place at the Federal University of Rio de Janeiro (UFRJ).

In Chile, close collaboration was established with Red Universitaria Nacional (REUNA), the Science and Technology Council (CONICYT) and the Catholic University, particularly for training activities. The INFOCYT project, a regional portal for science and technology supported by OAS, was launched during a regional meeting in Santiago, Chile, organised under the auspices of REUNA and CONICYT with support of Red Científica Peruana (RCP) and the other participants' countries. CONICYT is currently providing general co-ordination, and during 1999, the project branched out to other countries including Guatemala and El Salvador, which also host the system.

More recently, earth stations for satellite communication to the UCR and CRNet, UWI, and the National Science and Technology Research Council (CONCYT) in Guatemala have been provided. Through the years, CRNet, has had a vigorous expansion. It recently installed an additional new receive-only antenna with a capacity growth up to 10 Mbps to deal with traffic congestion, and UCR completed an ambitious project to interconnect about 80 different locations with a state-of-the art high-capacity campus network (<http://ns.ci.ucr.ac.cr/reducrl/>). As a second phase of the original OAS projects that supported the first full Internet connections in Honduras and Nicaragua, in 1999 a project was developed –(with the Ministry of Commerce and Industry and the support of a local Internet service provider (ISP)) to install new networks in Nicaragua. This will allow access to many more academic institutions located in remote areas, particularly in the Caribbean region. These include the Bluefields Indian and Caribbean University (BICU) and the *Universidad de las Regiones Autonomas de la Costa Caribe Nicaragüense*, among others. Finally, satellite earth stations have been provided also to the National Research Council of Mexico, *Red Científica Peruana* (RCP) of Peru, *Universidad de los Andes* in Venezuela and the *Universidad Nacional de Asuncion* in Paraguay.

These projects and initiatives helped some countries in the initial phase to expand and develop the networks, and in others, to facilitate growth. RCP for example, has had through the years a spectacular growth, and RCP has expanded to new and innovative projects. In Bolivia, RedHUCyT originally assisted the Bolivian Data Network (BOLNet;

www.bolnet.bo) to provide full Internet access for the first time, in 1995, connecting three main public universities to the Internet. In Argentina support was provided to the Secretariat of Science and Technology, and to RETINA –(the *Red de Teleinformatica Argentina*) that connects to the U.S. Internet through a separate satellite link. The National Nuclear Energy Commission (CNEA) is one of RETINA's main institutional members, which integrates more than 25 education and research institutions. Some of these networks have become national service providers. In Uruguay, for example, basic equipment was provided to the Technological Laboratory of Uruguay (LATU; www.latu.org.uy) to facilitate its connection to the Internet through the *Universidad de la Republica*. Also, support was given to the National Institute of Agricultural Research (INIA; www.inia.org.uy) to implement the Regional Network for Information on Agricultural Research in the Southern Cone, a regional consulting service with databases of information about researchers, publications and projects on agriculture.

2.2.2. SCHOOL NETWORKS IN LATIN AMERICA⁸⁰

The creation of an educational system which will enable the relevant Ministries of Education to unify and link their countries educational institutions is at the core of the implementation of ICT-based school networks in Chile, Mexico, Brazil and Argentina.

2.2.2.1. *Enlaces* (Chile) (www.enlaces.cl)

The Chilean [Ministerio de Educacion](#) (Ministry of Education) through their [Programa de la Calidad y Equidad de la Educación \(MECE\)](#) (Program for Education Quality and Fairness) seeks to introduce improvements and innovations in teaching so as to improve the quality and fairness of the Chilean educational system.

Within this context, the purpose of the Chilean Educational Program *Enlaces*, ongoing since 1993, is to make the technology available to financially aided schools, whether municipal or private, primary or secondary.

Enlaces relies upon the issue that the improvement of education quality by using information technology in schools depends on the attitude and on the work of teachers. Hence, teachers who join the project (20 per school) are trained for two years and are given technical support. Free Internet and a variety of educational software are also available to them. They become familiar with the programs so as to be able to apply them to the teaching-learning process.

The target of *Enlaces* for the next two years is to allow net primary and secondary schools to form a nation-wide school community able to interact regardless of their physical location or socio-cultural characteristics. This net not only supplies the means to include ICTs in the education process but is committed to controlling its use as well. From time to time they evaluate the impact of ICTs on education by means of tests and surveys given to students and teachers. They also supervise technology use, teaching experiences, and administrative use of the tools.

Enlaces is linked by e-mail and education bulletin boards. It uses a technical support and training system made up of high prestige universities. This system, known as [Red de Asistencia Técnica de Enlaces](#) (RATE) (*Enlaces*” Technical Support Network), provides

⁸⁰ This paragraph relies on Julian Dunayevich et al., “Comparative study: school networks in Latin America”, 1999, www.isoc.org/isoc/conferences/inet/99/proceedings/2e/2e_2.htm.

connectivity and technological and pedagogic support to groups participating in the project. The universities are divided into six Zone Centres (four geographic zones: North, Centre, South, and Austral South) and 21 Executive Units. *Enlaces* provides the following to public or private subsidised schools: a computer room equipped according to number of students, connectivity, software, and two years of technical support. To ensure optimal use, computer specs are updated every year.

2.2.2.2. Red Escolar (México) (<http://redescolar.ilce.edu.mx/>)

Red Escolar (School Network) is the name given by the [Secretaría de Educación Pública](#) de México (Mexican Public Education Secretary) to a project planning to introduce ICTs to education. This project, which started as a distance-learning plan for adults, brings the Internet to every education level classroom with the purpose of making available to students information on different subjects, giving them a different research source and the possibility of expressing themselves.

Through *Red Escolar* the government provides computers with resources to access the Internet, as well as a variety of school educational software to public elementary schools and teacher training high schools, thus serving their needs.

Red Escolar as well as Chile's *Enlaces* aims to decentralise the curricular and administrative network aspects. It furthers the developments of government programs of computer education and is enriched by similar projects created by federal organisations. The Secretaría de Educación Pública de México (Mexican Public Education Secretary) set guidelines to be followed by the net. The Secretary also encouraged *Red Escolar* to promote reading and writing skills and math, as well as an interest in research and in teamwork, to facilitate access to information sources, and to consult directly with specialists, using e-mail and discussion forums.

Red Escolar began its work in 1996. During the first stage, approximately 400 schools, which already had computers, joined. In 1998 the net was made up of 400 primary schools, 600 high schools, and 32 teacher centres, as well as teacher training schools. They estimate that by late 1999 there will be almost 2,000 schools, half of which will be equipped with their own resources while the rest will receive contributions from several organisations.

The project expects financing to come through a three-legged participation scheme where the federal government, the provinces, and society will add their contribution. One of the most fundamental bases for the network are universities and other higher education institutions, which provide training, undertake the education of academic leaders, and integrate their students to the social service projects promoted by the network. In any case, IADB and the World Bank have granted the government loans intended to fund the project's progress. 70% of infrastructure and equipment investments are supposed to come from the federal government, 20% from the province or municipality, and the school would fund the remaining 10%. The school will also bear the costs of the telephone connection, the space, and furniture for the.

2.2.2.3. Proinfo (Brazil) (www.proinfo.gov.br)

The [Secretaria de Educação a Distância](#) del [Ministério da Educação](#) (Ministry of Education's Secretary for Distance Learning) is in charge of implementing the *Programa*

Nacional de Informática na Educação (Proinfo) (Educational Computing National Program). The Brazilian government is planning to introduce ICTs to diminish education opportunity differences among students of public and private schools.

Teachers are trained to know how to apply the technologies to daily tasks, given the fact that studies performed show that 20% of the teachers are skilled and use ICTs, while 20% are unskilled and resistant to using them. The remaining 60% are unaware of what to use them for. Brazil decided to implement this program in a decentralised manner, so that each state would be able to adapt it to its own characteristics. However, national authorities are pedagogically responsible for *Proinfo* and are in charge of school equipment for a five-year period. The government approves projects for each state.

In 1998 *Proinfo* reached close to 6,000 schools (about 8 million students), 13.4% out of a 44,800 public school universe made up of primary and secondary schools, each one attended by over 150 students. *Proinfo* estimates the minimum hour/student ratio needed and evaluates resources and equipment in relation to fulfil this. This is an uncommon characteristic among the projects reviewed.

Proinfo uses microcomputers, MS-Windows IBM compatible PCs (as used in every government office in Brazil), and a variety of software programs needed for school work, such as word processors, spreadsheets, data bases, and others. Colour printers, graphic interfaces, and the hardware and software needed to provide access to the Internet and [TV-Escola](#) (the Brazilian TV education system) are included.

With respect to the availability of financial resources, the investment for 1997-1998 was estimated at about US\$300 million for training, technical support, purchase of equipment, remodelling of facilities, school networking, and creation of two NTE. The outlay for this investment was made jointly by the Ministry of Education, through its own resources and loans, the provinces contributing 20%, and municipalities and the general public contributing the remainder.

2.2.2.4. RedEs (Argentina) (www.esc.edu.ar)

The *RedEs* project is implemented by the [Ministerio de Cultura y Educación](#) (MCyE) (Ministry of Culture and Education) with the purpose of improving communication and exchange of information between schools and libraries, as well as national, provincial, and municipal education authorities.

RedEs is built on the basis of existing programs, such as the following, to which its activities will be linked:

- ?? [Red del Plan Social Educativo](#) (Social Education Plan Network), a project that gives access to the Internet to those benefiting from the Plan de Becas (Scholarship Plan).
- ?? [Red Telar \(Todos en la Red\)](#) (Everyone in the Net), a project that, based in the Red de Escuelas, provides schools with pedagogical content and promotes learning projects carried out by teachers and students.
- ?? [Red Electrónica Federal de Formación Docente Continua \(REFFDC\)](#); Federal Electronic Network for Continuing Teacher Training) provides distance training to teachers in every school in Argentina.

- ?? *Biblioteca Nacional de Maestros* (Teachers' National Library), is an organization that plans to coordinate and manage a consortium of educational information jointly with Centro Nacional de Información Educativa (National Centre of Educational Information). The consortium members are documentation centres, pedagogic libraries, community libraries, and multimedia resource centres at schools.
- ?? *Proyecto de Descentralización y Mejoramiento de la Educación Secundaria* (PRODYMES; Project for Decentralizing and Enhancement of Secondary Education), a project that subsidizes 630 secondary schools implementing the education reform with over 250 students and a high quantity of failing students. PRODYMES subsidizes computers, infrastructure, and other goods for these schools.
- ?? *Red Federal de Información Educativa* (REDFIED; Federal Educational Information Network). The purpose of this organization is to supply reliable statistics to be used to plan, monitor, and evaluate the educational systems as well as changes in it.

Agreements with the telecommunication companies were signed so as to connect the schools. This was done with the purpose of reaching schools more easily, without the need to carry out an initial investment in data network development. Schools are provided with a telephone line and two daily hours of free phone service to access the Internet. Registration and data network use are free.

In order to subsidise the largest part of communication costs, agreements were made with the telephone companies. This would allow a large number of educational institutions to be connected all over the country without the need for a significant initial investment in data network development. In order to ensure the resource availability, it was established that the line installed for *RedEs* will be used solely for such purpose. As a long-term success criterion, the network is expected to achieve self-sustainability, along the lines of the decentralisation promoted by the education reform.

2.2.3. ON-LINE EDUCATION IN VENEZUELA⁸¹

The project RENa was created two years ago to connect schools (public and private) to local and international networks (the Internet) with the purpose of incorporating information technology and communication into the nation's educational system. It seeks alliances and agreements among and commitments from three types of organisations: innovative schools, the vendors of educational software, and national universities. It also seeks to organise the Venezuelan School Net, with support from telecommunications and Internet companies and a shared responsibility with the Ministries of Education and Science and Technology.

Presently RENa is working on producing online educational content (www.rena.e12.ve) for the three stages of basic education. A space has been created in the Web for primary teachers and children from first through ninth grade. The Web site is centred on satisfying the needs of children in the first (first, second, and third grades), second (fourth, fifth, and sixth grades), and third (seventh, eighth, and ninth grade) levels. The site addresses searching for information, curricular coverage of the new educational plan on a national scale, and the production of information. The site will allow teachers to keep up-to-date

⁸¹ This paragraph is based on Edmundo Vitale et al., Venezuelan Education in the web (the RENa web site), 2000, www.isoc.org/isoc/conferences/inet/00/cdproceedings/6c/6c_4.htm.

with educational changes, school-related events, and other news and activities and share this information to improve education.

The RENa Web site aims to:

- ?? Satisfy any search needs related to the information required by the Venezuelan National Primary Curriculum.
- ?? Present information in an interactive multimedia setting through an active, fun, and child-friendly interface.
- ?? Offer quick, appropriate, and trustworthy information to teachers, children, and parents through an economical and permanent medium.
- ?? Offer information using a framework and language geared toward children.

Moreover, RENa is a tool for acquiring up-to-date information for pedagogical projects and assists in the interchange of ideas, projects, and problems with other institutions, students, teachers, and specialists through e-mail and a chat system. It helps students learn how to use new technology. Finally it aims to reduce existing differences between public and private, metropolitan and rural areas by providing public schools with good technology and Internet access to schools in the rural areas formerly not able to participate in the global digital world.

The Web site has been divided into three parts. The first, on the home page, offers users general information about how to chat with other schools, how to use the Internet, what RENa is, what Web sites are related to RENa, and other topics. The home page has a special space for teachers with up-to-date information on research results, programs from the Ministry of Education, and news related to education and teaching. There is a space for teachers and students to present their queries on any educational subject, discuss their problems, and offer solutions and help to people at other schools.

The second part of the Web site is related to the Venezuelan educational curriculum. It is structured especially for children and covers nine subjects: science, citizenship, geography, history, language, art, mathematics, technology, and sports. Each subject area has various components in common, such as "Did you know that," where children can gain general knowledge; "For your teacher," which outlines the current curriculum for teachers and has activities for teachers to use in their classes; and "Biographies," which helps children learn about famous people who have contributed to Venezuelan and world history.

The third part of the Web site is devoted to getting to know Venezuela. Information here will appeal to children and tourists alike.

In that one of the original aims of the project was to provide new educational opportunities, phases II and III of site's development will incorporate strategies that aim to enhance the teaching and learning process, especially focusing on teaching children to think about, analyse, and understand concepts and physical phenomena in a more practical way through demonstrations. Nevertheless, the site is not completely finished and currently, the second stage is being carried out.

2.2.4. EGOVERNMENT AND EDUCATION IN CHILE

As far as the “Presidential Commission on New Information and Communication Technologies 1999 Report” suggested that Chile lagged significantly in the development of its information infrastructure, new programmes to face such a gap have been implemented⁸².

More precisely the Report suggested that:

- ?? Information infrastructure was distributed very unequally across geographic and social environments.
- ?? The majority of small and medium-size businesses were not connected to the Internet; reasons frequently cited were high access costs, scarcity of information and value-added services useful to small firms, lack of security needed for conducting business in the digital economy, and lack of an entrepreneurial culture that makes daily use of the Internet.
- ?? There was no plan to computerise the public sector, which delayed construction of a government information highway.
- ?? The quality and breadth of domestic content available over the Internet were very inadequate in general.

Following (but only partially: out of the new regulations regarding tariffs on services provided by Telefonica CTC Chile, there is no trace of public policies oriented to ICT adoption by SMEs) such indications, three main national programmes have been implemented.

1. *Modernization of the State*. A State Intranet and Internet are being developed, and in 1999 the government instituted a central server that provides links to any server in the State field⁸³.

The government’s new, electronic system of purchasing and outsourcing is expected to increase the information flow between government offices and private suppliers and to generate greater transparency in this market⁸⁴. The initiative follows the examples set by successful systems in other countries. Based on relational database and Internet technologies, the system will notify potential providers by e-mail about coming acquisitions; and any potential provider can register free of charge. In addition, information on every purchase is publicised, and the system allows the generation of historical summary reports. It is expected that the new system will result in annual savings of US \$200 million.

Electronic services provided by the state in such areas as taxation and customs have been expanded too, thereby simplifying procedures for individuals and businesses. Income tax return affidavits were already received over the Internet in 1998. In 1999 the Chilean Internal Revenue Service (SII) initiated projects for receiving Monthly VAT return forms and income tax return forms via the Internet. The number of declarations to the SII via the

⁸² Informe Final de la Comisión Nacional de Nuevas Tecnologías de la Información y Comunicaciones, Chile, January 1999, www.modernizacion.cl; Irit Askira Gelman, “The Internet in Chile: 1999 was a good year”, 2000, www.isoc.org/oti/printversions/0200prgelman.html.

⁸³ www.estado.cl.

⁸⁴ www.compraschile.cl.

Internet has increased considerably since it was initiated in 1998⁸⁵. That year, 37,000 declarations were received; in 1999 the number grew to 182,000. This year it is expected that 400,000 declarations will be received over the Internet. Information flow will soon become bi-directional: the SII will offer access to a database on which it will be possible to learn what companies, banks, and insurers state about a person, and to correct such statements if necessary.

2. *Enlaces* (www.enlaces.cl). Chile's major success to date in the spread of digital information networks has been the fast and extensive diffusion of digital networks in educational institutions, such as the Enlaces (Connections) network linking primary and secondary schools and the Reuna2 high-speed network connecting the universities. Enlaces was initiated in the early 1990s at Catholic University in Santiago as a pilot project. It involved primary and secondary schools, mainly in rural areas of the country, where educational resources are scarce. The broad goals were to enhance efficiency, quality, and equity in education. By 1995 Enlaces covered 100 primary schools and had acquired national significance.

In November 1998 CTC committed to provide free and unrestricted Internet access for all primary and secondary schools in the country. In 1999, 6,500 schools (consisting of all of Chile's subsidised secondary schools and half of its primary schools) were to be connected to the Internet. Those schools instruct 3 million students (90 percent of the nation's children). The most recent update mentions the successful connection of more than 2 million students.

3. *Reuna2* (www.reuna.cl). As of 1999, Reuna2 was the fastest academic network in Latin America, with a trunk line speed of 155 Mbps. Besides serving as a technological platform for the improvement of current Internet services, such as electronic mail, file transfer, and navigation of the World Wide Web, Reuna2 also studies new broadband services with the potential to enhance co-operative research and offer new ways of teaching and working. These services include large-scale room-to-room video-conferencing, multiple-site video-conferencing, interactive distance education, video on demand, telecommuting, and telemedicine.

Reuna2 now faces two primary challenges. The first is to ensure bandwidth availability and reliability of connections for universities and science and technology institutes across the country. The second is to participate effectively in initiatives such as the U.S. Internet2 project⁸⁶.

2.2.5. LOCAL PUBLIC NET AND CITIZENSHIP: THE BRAZILIAN EXPERIENCE⁸⁷

The "Citizens" Network-Information for Citizenship" was the first Latin American freenet, providing free dial-up access to the Internet since July 1993. It started with a gopher server, with two modems at 2.4 kbps to permit access to the Municipality of Recife databases (at the time, with high inflation rates in Brazil, a very popular service was a weekly price survey in supermarkets to assist citizens in price bargaining) and to other gophers on the Internet worldwide. When the national backbone bandwidth increased

⁸⁵ www.sii.cl.

⁸⁶ www.modernization.cl

⁸⁷ This paragraph is based upon Claudio Marinho, "The citizens" network of the municipality of Recife, Brazil: lesson from the experience with the first Latin American freenet", 1997, www.isoc.org/INET97/proceedings/E2/E2_2.HTM.

(from 9.6 kilobits per second [kbps] to 2 megabits per second [Mbps]) in August 1995, the “Rede Cidadao” Web site was deployed, providing free Point-to-Point Protocol (PPP) connections to the citizens and disseminating information on Recife and its people all over the Internet.

With six new dial-up lines for PPP access, and plans to have 20 more evening-switched lines conveniently sized not to hamper the emergent local Internet service provider (ISP) business, the site averages 5,000 daily hits, one of the highest in Brazil. Approximately 40% of the accesses are international, with a recent growth in the Brazilian figures due to the phenomenal dissemination of the Internet in Brazil –(the figures for the Brazilian Internet users have gone from 100,000 to around 500,000, with perspectives of getting to 1,000,000 users this year or next year).

The freenet is also associated with other municipal projects to disseminate the use of computers and the Internet among poor families in the urban periphery. For example, the City Hall has five public training centres for “computer literacy” activities aiming at the local market for poor boys and girls, and a 20-PCs local area network (LAN) routed to the point-of-presence of the Internet in Recife to train municipal teachers in the use of the Net. On the other side of the local spectrum, that of the specialised work force, the experience is in line with the initiative to support the Softex2000 (a national software export program) small firms -some of them with good perspectives to export through the Internet. This, together with such initiatives as an ATM metropolitan area fibre optics network being deployed by the state telecom in co-operation with the City Hall and the local university, configure a local strategy that is expected to be implemented with the participation of public and private organisations and individuals.

Concerning the municipality of Recife Internet strategy, it was a twofold strategy. At the micro level, the municipality had the clear understanding that the restless change characterising new communication technologies forced the municipal informatics enterprise to adapt conveniently, innovating and transforming the organisational environment. At the macro level, it has been highlighted that a new role would be more highly demanded from the local government constituency, that of supporting the regional economic basis in a coherent way to facilitate the globalisation of the economy.

In order to give more details on the features and strategies characterising such a project, partnership is key to explaining the success of the project itself. From the very beginning of the Web site phase of the “Citizens” Network”, the project was implemented as a co-operative initiative.

The Web pages resulting from partnerships with citizen’s non-profit communities or individuals wanting to publish information on the city of Recife, especially initiatives linked to the city’s rich colonial architecture, its musical culture, and the beautiful and cheerful Carnival, were the main reason for a very rapid public exposure. In this concern, the networking effect between digital and “traditional” communication systems is something to draw attention to: being pioneers in a new medium means super-exposure in the old (press, television), bringing more attention from the public, more initiatives, more exposure, in a self-reinforcing diffusion mechanism.

At the social level people engaged in the process of eLearning give place to one of the most significant effect the Internet could ever expect to achieve. New opportunities with

Web design, content provision, site support and operation, and so on, all these and the challenge of a new subculture in formation (the cyberculture) rose, as well as new opportunities for the development of new on-line communities of citizens. In this context, the purpose of the project is to bring innovation to early adopters – both at the business and social level – giving them an important lead-time advantage. In this regard, the “Citizens Network” can also reinvigorate the social milieu for the necessary changes the new ICT paradigm imposes - even in a peripheral, poor region like north-eastern Brazil (www.emprel.gov.br).

In addition, the access to the Municipality of Recife databases - including urban economic and social indicators, the plans for investment in the poor areas of the city resulting from a public-participation budgeting process, price surveys in supermarkets and bookstores (these especially at the time a new school year begins) - is an example of the ways in which the freenet has been thought of as support and help for citizenry.

Finally, special efforts have been recently concentrated on converting some of the administrative services that require the presence of the citizen at the City Hall to HTML/database Internet transactions. The goal is to avoid citizens having to go to the City Hall for administrative services. The municipality get freenet also involved with a lot more issues that involve citizenship: for example, for the recent municipal elections the Web site has been opened to all candidates from all parties to launch their home pages.

3. EU PROGRAMMES AND ACTIONS

3.1. THE COMMITMENT OF EU-LA SÃO PAULO DECLARATION

The “EU-LA São Paulo Declaration” is the result of the European Union-Latin America Forum on Global Communication, held in São Paulo on 12-13 June 1999 (http://europa.eu.int/ISPO/docs/intcoop/latin_america/sao_paulo_120699.pdf). Following the recommendations of the European Latin American Forum of Initiatives on the Information Society held in Costa Rica on March 1998. It aims to promote initiatives that create synergies between the public and private sectors of both regions in order to seize the opportunities and face the challenges that a global economy presents in the development of an integrated Information Society.

Identifying specific areas of mutual interest in Information Society where common efforts could further prosperity and harness the detrimental effects of existing inequalities, the EU-LA São Paulo Declaration set up an agenda for initiatives and policies oriented to the implementation of such an integrated Information Society. Central concerns to this agenda are the following:

?? “*Liberalisation and market access*” is the first point, addressing ways in which both regions could improve the proper environment and enhance the production, diffusion, accumulation and sharing of knowledge and technology. More precisely, key points underpinning these fields are: 1) the implementation of a transparent regulatory framework which combines the principles of harmonisation and cohesion and aims at ensuring long-term investment and partnership strategies; 2) the progressive elimination of tariff and non-tariff barriers, in order to strengthen economic association, further relations between Latin America and the European Union and in turn improve reciprocal market access. In this context, the role and importance of GATS 2000 and the Information Technology Agreement (ITA) in

contributing the definition of a global framework for Information Society are stressed; 3) the convergence and adjustment of the regulatory framework to the new technological context; and 4) ensuring the public access to networks according to the provision of the GATS telecommunication annex on Access to Public Telecommunication Network.

- ?? *“Standardisation for interconnection and interoperability”* is the second point, accounting for the necessary structure of the communication system and underlining the necessary efforts so as to favour the diffusion of new technologies, services and applications. In this context, special emphasis is dedicated to implementation of market-driven standards, which should be the result of co-operative and knowledge-sharing activities between sub-regional, regional and international organisations involved in standardisation and related activities.
- ?? *“Globalisation and co-operation”* is the third point, dealing with the opportunities and challenges of globalisation. It especially concentrates on the development of an international and co-operative framework for electronic commerce, assessing the issues of Internet governance, legislation, infrastructure and financing. In this regard, the Global Business Dialogue on Electronic Commerce (GBDe) forum, the initiatives of the Inter-America Development Bank, the World Bank or the European Investment Bank, and the European Commission’s AL-INVEST programme are key partners to address issues concerning the development of IS infrastructure, financing programmes, and SMEs-oriented co-operation initiatives.

3.2. THE EUROLAT-IS INITIATIVES

EUROLAT-IS (www.ffii.nova.es/eurolatis/eurolatis.asp) is a Thematic Network which general objective is to favour collaboration between the European Union and Latin America in fields of application of Information Society Technologies. More specifically, it aims at boosting the number of concrete actions undertaken by consortia of European and Latin American companies, researchers and intermediaries, in areas of importance for social and economic development in the Latin American region.

The first stage of the implementation of EUROLAT-IS is developed by the co-ordinator (www.ffii.nova.es/eurolatis/eurolatis.asp?MN_menu=MN_UC) together with the members of the Network and consists of preparing Thematic Action Plans for the organisation of Thematic Workshops to be held in Latin America. Since 2001, five thematic workshops have now been planned, four of which have already taken place:

Country	Theme	Begin date	End date
Guatemala	Electronic Commerce and New Ways of Working	03/02/00	04/02/00
Brazil	Technologies and Engineering for Software, Systems and Services	28/06/00	30/06/00
Chile	Information Society Technologies for Education and Training	11/12/00	13/12/00
Honduras	Regional Digital Economy	02/04/01	04/04/01
Ecuador	Information Society Technologies for Environment and Tourism	11/06/01	13/06/01

The themes and content of these workshops are the result of interactions and co-operation within a body of experts (the Euro-Latin American Information Society Steering Committee,

www.ffii.nova.es/eurolatis/eurolatis.asp?MN_menu=MN_SC) including industrialists, directors of national research institutes, as well as administrators directly involved in the elaboration and implementation of Science and Technology Policy in the countries of Latin America. Within this context of co-operation, consultation with the European Commission IST Programme is a key activity and one of the objectives of EUROLAT-IS is also to enhance co-operation with other EC Programmes, such as AL-INVEST and ALFA.

The purpose of each Thematic Workshop is to bring together and enable members of the consortia, to build proposals for projects and other activities for submission to relevant programmes such as the FP5 IST programme.

High goals have been set with regard to the impact of Thematic Workshops in terms of boosting collaboration. We expect that on average each Thematic Workshop will result in the definition of at least 20 well-developed ideas for collaboration, articulated in terms of issues addressed, objectives of the action, socio-economic benefits to both the European and Latin American partners, and the kinds of partners required to make the action a success. It is intended that at least one half of these ideas will be transformed into mature complete proposals and submitted to the relevant funding sources, in particular the IST programme.

3.3. THE AL-INVEST PROGRAMME AND THE CREATION OF BUSINESS OPPORTUNITIES FOR CO-OPERATION

The new political and economic conditions under which Latin America has been from the onset of the 1990's, has motivated the European Commission into launching the AL-INVEST Programme (www.al-invest.org).

This programme has the goal of increasing European investments in Latin America, as well as enhancing commerce between both regions.

The beneficiaries of the programme are companies that have access through economic operators who are participants of the programme, chiefly Eurocentres, Chambers of Commerce, Industrial Associations, Foreign Trade Institutes, Development Agencies and private consultants.

The AL-INVEST network is basically made up of 2 sub-networks: one network of operators in Latin America called the Eurocentre network, and one network of operators in Europe called the COOPECO network:

?? **Eurocentres:**

(www.al-invest.org/cesai/Document.nsf/All/EurocentreEN_app?opendocument)

The Eurocentres (Eurocentros de Cooperación Empresarial (Eurocentres for Enterprise Co-operation)) are a network of Latin American organisations, usually set up under the auspices of existing organisations, which are responsible for the promotion and organisation of activities taking place within the AL-INVEST programme.

The Commission has published a call for the presentation of applications. This call is exclusively reserved to Latin-American organisations that wish to set up a Eurocentre. If you are a private Latin-American organisation complying with the requirements described, you may present your application.

?? **Coopecos:**

(www.al-invest.org/cesai/Document.nsf/All/CoopecosENapp?opendocument)

The COOPECO network is a network of European organisations supporting industrial co-operation and investment promotion in Latin America. The COOPECO network is open to new European members. Applications are accepted from any organisation complying with the eligibility criteria.

In that the AL-INVEST aims to promote business co-operation between Europe and Latin America, it operates by means of 1) *the network of Eurocentres*: Latin American economic operators chosen by the Commission as focal points for the rest of the operators and the companies. These form a network working in contact with the delegations of the European Commission in Latin America; 2) the *TIPS System*: informative on-line services provided for 10,000 companies per year.

Moreover, the *AL-INVEST sectoral meetings* (www.al-invest.org/cesai/Document.nsf/2ee226613ef1fbdac12568790060cbdf?OpenNavigator) are the main instruments of the programme. They are events organised by a group of economic operators, who draw up a schedule of personal interviews with 25 companies. The operators propose these events to the Commission, who agrees to co-finance an annual 50 events.

Finally, services of secretariat are provided for the economic operators.

3.4. THE ALFA PROGRAMME AND ACADEMIC CO-OPERATION

Academic association and co-operation has been widely furthered by international organisations with the aim of promoting the development of academic networks for academic integration, to facilitate the international transfer and management of information and knowledge. In this regard, the non-virtual communities that have emerged, for example, from the UNITWIN Programme promoted by UNESCO, have been of particular importance for the development of the Internet and the Digital Economy. In fact, such academic communities have been sources of potential users, starting points for the implementation of virtual communities, in turn being sources of information resources and contents which could add significant value to the on-line networks⁸⁸.

In this context, in 1994 the European Commission started the ALFA Programme to support the development of networks for academic co-operation between European and Latin American Institutions of Higher Education (www.alfa-program.com/).

⁸⁸ Jose Silvio, "Potential users and virtual communities in the academic world", 1995, www.isoc.org/HMP/PAPER/083/txt/paper.txt.

As far as the first phase of the programme, approved on March 1994 for a duration of five years, has come to its final term at the end of 1999, the programme is now in its second phase that was approved in December 1998 for a duration of six years.

In order to maintain the impetus initially created concerning the preparation and development of joint project between European and Latin American academic institutions, the ALFA Programme aims to create and strengthen new links between the academic communities of both regions. More effectively, it aims to create systematic and sustainable mechanisms of co-operation between institutions in Europe and Latin America, in order to favour the mobility of human resources and the exchange of knowledge contents between the two regions and at the regional level in Latin America.

As a consequence of such objectives, the programme is structured in two parts: the sub-programme A and the sub-programme B. The former is dedicated to joint project on institutional management, while the latter supports joint project on scientific and technical training, with activities including student and postgraduate mobility between European Union Member States and Latin American Institutions (as well as between Latin American institutions).

To give evidence to the effectiveness of the programme, some results from the first phase of the programme are the following (www.alfa-program.com/uk/alfa1.htm, for results concerning the 1st phase; www.alfa-program.com/uk/resultados.htm, for ongoing results of the 2nd phase):

- ?? During the first stage of the ALFA Programme (1994-1999) there were 7 calls for proposal, 2,918 proposals were submitted and 846 were approved.
- ?? 1,055 institutions participated, of which 599 were European and 456 were Latin American.
- ?? According to the type of project, 183 projects (21.6 per cent of the total approved) were supported by sub-programme A contributing in 6,089,923 Euro; on the other hand, 663 projects (78.4 per cent of the total approved) were supported by sub-programme B contributing in 26,662,107 Euro.
- ?? When analysing the participation by country, institutions cover the wide range of countries both in Europe and Latin America.
- ?? When analysing the number of grants and exchanges between LA-EU, EU-LA and between Latin American Countries, the following table shows high level of mobility of human resources:

B3 Projects	EU-LA		LA-EU		LA-LA	
	Grant Recipients	Months	Grant Recipients	Months	Grant Recipients	Months
PhD	126	1,740	405	5,826	75	1,050
Masters	40	393	175	2,277	35	328
Speciality	43	179	170	968	55	281
Others	28	271	133	1,399	36	236
B4 Projects	EU-LA		LA-EU		LA-LA	
	Grant Recipients	Months	Grant Recipients	Months	Grant Recipients	Months
Degree level	129	958	206	1,594	34	150

