VI Olimpiada de la Mente

París, 16 de noviembre de 2000

The United States continues to lead the way in the Information Society in all respects. In its expansion among the majority of population strata and in the impact it has had on the economic indicators of the so-called New Economy. The said impact includes aspects such as growth in productivity and a break in the economic cycle or, in other words, greater stability of economic growth during the last 15 years marked by lows in inflation and steady growth in employment figures. Even more importantly has been the drive towards investment in all areas of new information technology, and the development of a venture capital culture linked to the potential of the WEB.

This level of speed, growth and reach experienced by the North American New Economy has not been matched in the rest of the world. Elsewhere even though most countries have recognised the importance of Internet, policies formed to address the new situation and to take advantage of the new possibilities opened up by the whole new era of communication have not yet enjoyed such spectacular results.

This is certainly the case in Europe or, to a greater extent, in the Hispanic world. Over five hundred million Hispanics worldwide share the same language and a similar culture, but we still lag far behind in the race to embrace new information technology and to position us in the new communications era. Statistics show that even the Spanish-speaking population who live in the United States lag behind the rest of that country's population in terms of use and understanding of Internet.

One of my major concerns during recent years as President of Alicante University has been the introduction of new information technologies into the University and its surrounding local economy. The more I learnt about communications technology, the more I became aware of the need for universities to play an active role in addressing digital divides detected on a local, as well as international, level.

Let me talk today about two major projects I have had the opportunity to design during the past four years at my University. The first is the creation of a global network designed to spread cultural and scientific knowledge via a digital library around the whole of the Hispanic world. The second is the attempt to actively encourage local industry to take an interest and active part in the use of new information technology. Our local industry is made up of traditional industries, small often family-owned companies, tourist and other service-related firms and with this in mind at the University we designed a tailor-made Science Park centred around the development and application of new technologies aimed at improving out own communication with local industry, and their communication with the rest of the world.

I think we can draw useful conclusions and arrive at policy recommendations from both experiences and will talk more in length about these at the end of this paper but the main conclusion is that the whole concept of Internet communications culture has made it easier sometimes to develop global projects involving international co-operation among different and disperse countries than to develop projects equally necessary on a local level.

International projects are possibly more viable if they are carried out among countries linked by a common language, but their real strength lies in the desire and need of the participating countries to adopt a more active role in the new global information society. On a local level however many other barriers exist in political, academic and industrial circles where passive or active opposition and fear of change makes it extremely difficult to introduce innovation and new technology. It is these barriers which must be overcome if we are to take advantage of new communication channels to benefit local industry and local economies and to help them not to fall behind in the drive towards technological modernisation.

My own experience has been that it is in fact easier to create one digital library project in which over a dozen countries and more than fifty prestigious academic and cultural institutions work together, than to consolidate a science park aimed at encouraging businesses to invest and modernise and ultimately at strengthening a stagnant traditional economic system with high levels of unemployment.

The Miguel de Cervantes Digital Library is a project financed by an overall budget of two thousand million pesetas (EUROS), sponsored by the Hispanic world's largest bank, Banco Santander Central Hispano, and developed by the University of Alicante. Various national libraries collaborate in the

project by donating unique collections including the National Libraries of Chile, Mexico, Peru, Argentina, Cataluña and the National Archives of Cuba. The Digital Library has also signed cultural, academic and technological agreements with some of the world's most prestigious universities such as Stanford, Harvard, Cornell, Berkeley, with the Ibero-American Education Television Network and with other key academic and cultural institutions within Spain and Latin America and in other countries.

In just over one year on the WEB the Miguel de Cervantes Digital Library has received over 35 million visits and has created a network of communication and collaboration between different academic institutions aimed at developing spin-off projects which take advantage of the initial idea. In fact the initial idea was relatively modest in that we aimed to digitise thirty thousand classical Hispanic works (Literature, History, Philosophy and Science) which were no longer subject to copyright laws and could be freely distributed over the WEB.

We underestimated the sheer scale of operations made possible by the digital age as well as the enthusiasm of academics, librarians and students who had for a long time felt left out by an Internet dominated by English-language materials. The movement of information and communication between academic and cultural institutions, researchers and companies has helped to add new dimensions to the classical concept of digital library. What we have now is a whole group of inter-related projects based on the use of new technologies that multiply the benefits for the Hispanic world. Such projects include, but are not limited to, to the use of literary or historical material to produce new works centred around language analysis, dictionaries or even encyclopaedias which take their references from the solid base of knowledge provided by classical works. Some of the most outstanding initiatives undertaken as part of the Miguel de Cervantes Digital Library include working towards:

Technological innovation. The Library has provided the University with a practical scenario on which to base new technological tools (metadata, xml and other methods). This has enabled us to participate in a major European project funded by the Fifth Framework Programme with other partners such as the National Libraries of France and Norway and various key universities and technology businesses from Germany, Austria, the United Kingdom and Italy). Widening the concept of equal opportunities for users of Internet. The digital divide does not only limit the access to new communication systems of economic groups. It also tends to increase difficulties experienced by handicapped members of society already at a great disadvantage compared with the majority of the active population. For this reason the Miguel de Cervantes Digital Library has created a Voice Library for Hispanics and students of Spanish who have sight problems and a Sign Language Library for users with hearing difficulties. We have been moved by the messages of gratitude received from students and Hispanics all over the world who have for the first time been able to listen to works recited by some of Spain's best known voices or, in the case of more contemporary works, by the authors themselves.

Forging new relationships and alliances. We have taken great care to talk to groups who feel threatened by the New Information Age, and to work alongside them towards cultural change. We have tried to change the concept editorials and publishers have of digital libraries as a threat, and have tried to get them to join us in working together towards a common aim. This aim is to help more people, more social classes and more countries reach and enjoy a greater number of books than they are able to do at present. Not only classical works but also newer modern books by contemporary authors. This new understanding has helped us to create a section within the Digital Library called Primera Vista, where Hispanic editorials allow us to digitise chapters or all of contemporary works and it is particularly well received by users who visit the library to read modern literature.

Innovative content. The beauty of information technology is the scope with which you can reach all kinds of people and satisfy different tastes. As well as classical digitised material, we have included monographic collections including:
Author libraries on contemporary and classical Hispanic authors Sections on well-known theatrical groups and use video images transmitted via Internet

The Library of Historic Events (such as the Discovery of America or the Expulsion of the Jesuits from Spain) stimulates collaboration between specialists, historians and Hispanists from universities all over the world. They will soon be able to access a digital copy of rare and protected original documents, manuscripts and maps.

The digitisation of national archives of Hispanic countries, which until now have been, confined to their national libraries or government departments

A Scientific Journal Library based on the Highwire model developed at Stanford by Michael Keller with the application of a specific URL for each article. This represents a revolution for academic publishing and research as it means that scientific articles are increasingly considered as ongoing processes and a new network is created between researchers all over the World. Authors will be able to introduce changes, improvements and new discoveries that in turn can be sent on to subscribers. And hyperlinks linking the work to recommended bibliography or related scientific works can be updated at the author's will.

Creating new links between Science and Culture. A digital library helps to make science and technology more compatible with culture. The Miguel de Cervantes Digital Library has tried to make its sections user-friendly, reaching out to as many different social and cultural groups as possible, communicating with academic research on the one extreme and with users interested in literature and culture on the other. Initiatives in this area include:

Debate forums (one of the most successful popular at present).
Chats centred on certain topics.
Competitions.
Interactive proposals for new sections, Hispanic author commemorations or anniversaries.
Specialised authors collections.

"My Library" whereby users can design their very own Miguel de Cervantes Digital Library, mark pages, receive news etc.

Global Communication.

This concept of global communication made possible by a universal library led us to introduce and recommend within the framework of the Miguel de Cervantes Digital Library many of the other reliable resources available on the WEB. A directory of resources provides a description in Spanish of includes more than 3000 libraries and digital collections world-wide and the library includes files of more than 60.000 books digitised in other languages taken from projects such as the Gallica Project promoted by the Bibliotheque Nacional de France, the Classics of the MIT, Perseus by Tufts University etc.

A new platform for different Hispanic languages and culture. For global communication to really work, promoters must learn to stand aside when new actors are ready to step in. The Miguel de Cervantes Digital Library has invited other key Hispanic institutions to participate in our project by creating their own Digital Library within the framework of the Digital Library, conserving their own identity by using our help and technology. Although the data base, technology and often the employees involved in digitising and arranging material are the same, institutions such as the National Libraries of Chile, Cataluña and Peru, the National Archive of Cuba, the 15 Spanish universities members of the Lluis Vives Institut and the College of Mexico already have their own portal. Each Portal respects their particular image and identifies their collections and resources as their own. Because of this policy the Miguel de Cervantes Digital Library can include material which would have been unimaginable had we wanted to work on this project alone. Last week the Pablo Neruda Foundation conceded the
rights to digitise its material to the National Library of Chile, works which we will include in the portal dedicated to the said Library.

In summary then, and without wishing to bore you with further results of a project which as you can probably tell has absorbed me during the past two years, it is clear that when a common goal or interest is identified, new information technology enables the international community to break new ground, overcome cultural barriers and participate in a collective project which a few years ago would have been impossible.

New information technology can help to promote exciting university and academic co-operation and stimulate collaboration between cultural institutions in general if projects are conceived and run by supranational bodies rather than governments as has happened in this case.

Indeed I am often unsure whether a passive attitude by governments represents a disadvantage to potential projects or an advantage. On the one hand the WEB content tends to evolve freely and dynamically without regulations and with a lack of active governmental intervention. The way in which Internet manages to overcome administrative, political and legal obstacles that often hinder spontaneous international collaboration is one of its greatest assets.

In this way, the role of governments should be to avoid introducing rushed legislation whose supposed aim is to establish more secure areas on Internet. I would in fact argue that virtual safety

is still much greater than presential safety in many areas around the world and governments have yet to properly address the day-to-day safety of hundreds of millions of people around the globe.

I believe the role of governments at this stage should be to support with decisive and relevant policies their countries' cultural move towards the new Information Society. Policies should centre around educating the population about how to take advantages of the new opportunities made available to them by new technology and how to understand and use the tools and resources bought to them by Internet and other technological discoveries. Governments must strive to encourage supranational initiatives, which provide a basis for international co-operation in the sharing and digital delivery of knowledge.

It never fails to astound me how most governments in developed countries still do not offer a digital version of the new legislation passed by their parliaments. I find it dismaying that many government web pages tend to fall in the trap of offering propaganda rather than useful information aimed at providing citizens with a practical service where they can undertake administrative tasks online, such as paying fines or taxes.

I also find it somewhat contradictory that while there is a general lack of legislation determining web content and operations, there seems to be such a determination to preserve intellectual property. Although I do not want to enter into this debate, I would say here that I believe that the growth of the web network will in itself change the whole concept of intellectual property and that the concept of free access to knowledge will, rightly, impose itself in the end. Different national laws protecting intellectual copyright for example have already become totally vulnerable as has been shown by the sheer volume of supposedly copyright material already freely available on the Internet. Maybe we should even go back and take a look at the ideas of Karl Marx related to collective knowledge, providing of course we have enough imagination to provide economic incentives necessary to adapt these to modern times and to guarantee individual or collective recognition of the knowledge.

My final point relating to our project a universal library in the Hispanic world is that we have experienced real forces of international co-operation, which have provided us with our real source of inspiration. And I think this is important. With modern technology we can establish flowing educational network. A wide basis of knowledge that can connect researchers, teachers and students worldwide is one of the ways in which can overcome the digital divide, pulling along with us lesser developed countries. This will only be possible if efforts are complemented and helped along by national and international policies and funding made available to help create the minimum infrastructure necessary in underdeveloped countries. If this is achieved then we will have made a giant step towards real global communication and education.

The Miguel de Cervantes Digital Library is included within the framework of a science park project called Medpark. This project was originally designed by Alicante University and has recently been slowed down by the regional government, which has questioned the University's application for more ground to further develop the project. This in itself demonstrates the degree of difficulty involved in going from an international level, where a whole range of institutions understand the importance of co-operating through new technologies and where communication is positive and constructive, to a local level where cultural change is often much more deeply rooted and where much time must be spent on educating, explaining and convincing.

Medpark's main aim is the development and creation of spin-off projects, joint ventures, the attraction of venture capital for projects linked to information technology and business incubators. Although it is still very young, the Park has attracted projects such as:

   The European Space Geodesy Lab (currently being developed in collaboration with the NASA Geodesy Lab),
   The Miguel de Cervantes Digital Library
   The design and production of a virtual campus whereby students and staff can carry out all administrative operations online and which creates a solid platform from which presential universities can promote communication between students and faculty. Over a hundred universities have adopted this model all over the world
   The design and production of language courses for cultural and linguistic institutions world-wide such as the Cervantes Institute
   The design and update of one of the most complete systems of information available on the Internet
   The design and development of educational software
   A robotics laboratory

A lab producing advanced systems of cartography etc.

These projects have attracted the interest and funding of Spain's most important telecommunications companies and banks.

The area surrounding Alicante is characterised by the dominance of small and medium sized companies and traditional industry (leather, food, textiles, toys, and tourism). These businesses are still a long way from understanding the real meaning of concepts such as e-commerce and business to business, and they lack the confidence or vision to learn how Internet works. Even in the more solid business circles there is a general reticence towards the new technologies; many experienced business people feel uncomfortable and tend to reject the whole concept or underestimate the importance of learning how to apply new information technology to their particular business or sector. We are in danger of repeating what has happened in other countries such as Brazil or India; new technologies and communications create new barriers among the population. Small minorities learn how to apply new methods of information technology and use them to communicate and co-operate with other minorities from other countries while a digital divide is being created between companies, businesses, industries and generations in their own countries and immediate surroundings.

I believe this is an area where governments must start to implement active policies to educate the population in the correct use of new technology. Policies which evidently need to go far beyond the proliferation of Internet connection which is freely available all over most parts of Europe. The current state of development of Internet policy is one that starts at the top and has a long way to go before it reaches a local or regional level.

And yet it is at a local level where governments must realise that the information society represents a total revolution in the whole way of doing business. Policies and incentives need to be established so that local business and industry are no longer scared of the implications of information technology. Only then will new technology reach its full potential and revolutionise business, work methods, the efficiency of public and private services and only then will society start to enjoy the benefits.

However, and paradoxically, most governments still implement partial policies, which are still often fall short of much less funded but more imaginative individual or collective initiatives already found on the web. My position on this point is clear: regional and local government should work alongside universities, business and other academic and cultural institutions in preparing the way towards global communication. The first priority should be to consolidate a wide and complete move of administration and university towards the information society and once they have achieved this, they should adopt an active role in education and technology transfer to empower the local population to take full advantage of the latest opportunities offered by the information society and telecommunications.

In recent years government policies related to technology parks in Europe have tended to undermine the expertise and know-how available at local universities. It is vital that we find a way of working together to benefit local industry and to help local business take advantage of the whole new communications network. The experience of science parks in the United Kingdom should be studied and the role of universities and government should be carefully thought out. We must work now, more than ever, towards an effective system of technology transfer from University to local economy, towards the introduction of innovation and the move to technological change.

Global communication must not only be an ambition which takes us far away from our physical position and opens up new possibilities of international collaboration on a scale which only a few years ago would have been impossible to imagine. Global communication must also be bought home to our immediate surroundings, opening up new doors to local business and new possibilities to local, national and international economies.

For this to happen, let me put the following concrete recommendations forward for your consideration:

1.The digital divide must be considered on a local level (divide between industries, generations, and sectors) as well as an international level (between developed and underdeveloped countries).

2.Barriers created by a lack of understanding of new technologies must be overcome if we are to take advantage of new communication channels to benefit local industry and local economies and to help them to keep pace in the race towards technological modernisation.

3.Talk of the Digital Divide must include how to address the problems experienced by handicapped members of society, groups which are already at a great disadvantage compared with the majority of the active population in terms of the new opportunities presented by new information technology.

4.New relationships and alliances should be formed between promoters of new projects and groups or industries who feel threatened by the New Information Age. Once they are made to eel part of the process their opposition will fade away.

5.The role of universities in promoting new initiatives and linking the worlds of culture, heritage and science is vital as we move towards digitisation of knowledge, science and cultural heritage in one universal library. Universities active in this project must be given the freedom and, where possible, financial incentive to continue their work in this area. However, for global communication to really work, initial promoters must learn to stand aside when new actors are ready to step in and provide a supporting role rather than a leading one.

6.When a common goal or interest is identified, new information technology enables the international community to break new ground, overcome cultural barriers and participate in a collective project which a few years ago would have been impossible.

7.New information technology can help to promote exciting university and academic co-operation and stimulate collaboration between cultural institutions in general if projects are conceived and run by supranational bodies rather than governments.

8.The way in which Internet manages to overcome administrative, political and legal obstacles that often hinder spontaneous international collaboration is one of its greatest assets. In this way, governments should avoid introducing rushed legislation whose supposed aim is to establish more secure areas on Internet.

9.The role of governments at this stage should be to support with decisive and relevant policies their country's move towards the new Information Society. Policies should centre around educating the population on how to take advantage of new opportunities and resources made available to them by new technologies.

10.Modern technology can help us to establish for the first time ever a flowing global educational network based on knowledge and connecting researchers, teachers and students world-wide. Education could be one of the key ways in which we overcome the digital divide. To make this possible, academic efforts and initiatives must be complemented by national and international policies and funding in order to create the minimum infrastructure necessary for underdeveloped countries.

11.Governments must start to apply training policies related to use of new information technology on a local level so that local economies as a whole start moving towards the New Information Society. This will reduce the fear many small, traditional businesses still have about Internet and its implications and will avoid creating small minorities.

12.Administration and universities must find ways of working together to benefit local industry and to help local business take advantage of the whole new communications network with new education and training programmes aimed at business, industry and society in general.

13.At this time when technological discovery and advance is vital to our future we must work more than ever, towards an effective system of technology transfer from University to local economy.

14.Global communication must not only be an ambition which takes us far away from our physical position and opens up new possibilities of international collaboration on a scale which only a few years ago would have been impossible to imagine. Global communication must also be bought home to our immediate surroundings, opening up new doors to local business and new possibilities to local, national and international economies.