

CHAPTER VI

THE NET AND THE ECONOMY OF THE DEVELOPING COUNTRIES

How Can We Exploit the Resources of the Net in the Main Sectors of the Economy?

6.1 The Internet as a Development Factor

Unlike social progress, the *economic development of a country* can be analysed by considering the growth of three main sectors of the economy: **agriculture**, **industry** and **services** sectors, corresponding to the primary, secondary and tertiary sectors of the traditional national economic development. The distribution in the three areas is different depending on the country because of various reasons:

- ❑ The characteristics of **agriculture** in the various national economies are influenced by several natural factors, such as climate, morphology, and water resources, among others; but also by historical, economic and human factors, such as the means and the techniques for the cultivation, the prices of machinery and of the fertilizers and the costs of the products;
- ❑ The characteristics of the **industrial sector** in the various national economies show a disproportionate distribution pattern. There are regions and countries with a very high industrial concentration and there are regions and countries where industrialisation is not highly significant and industrial areas are remote. Furthermore, the most industrialised areas do not all have similar features: there are regions that developed many years ago, there are regions

where the first industrial development is a recent occurrence; there are also regions where a very rapid and impetuous modernisation process of the production systems is occurring now;

- The **services sector** constitute a sector that is hugely growing in the Developing Countries, not only as a support to emerging industrial activities but also as a producer of independent services aimed at improving the people's welfare.

The complexity of the economies of the various countries and the strong relationships among the economic systems have made it necessary for circulation, in the contemporary world, not only of goods and of people, but also of information. In our analysis of economic progress, we would like to focus exactly on this point, as through the availability of information, the primary, the secondary and the tertiary sectors can grow and promote the economic development of a country, by removing the gaps created with the passing of time.

The globalisation of the markets is giving rise to a need for detailed and precise information, which can be obtained only through deployment of the new information and communications technologies. In the following pages we will analyse what kind of contribution the Net could give to support the economy of the Developing Countries.

6.2 Agriculture

Agriculture has been the main economic activity of human societies for many centuries and even today it is the primary, if not the only one, source of income for most Developing Countries. In these countries, two types of agricultural systems are essentially exploited: *subsistence agriculture* and *plantation agriculture*. *Subsistence agriculture* applies to agricultural practice on limited land area, for the benefit of a family, group of families or small population of a village. Agricultural mode deployed in subsistence agriculture is generally manual, and sometimes, with the assistance of animal power, as the farmers are not able to secure sufficient capital to invest into irrigation works or into the purchase of machinery or of fertilizers. Under these conditions, the income levels are really low and are sufficient only for the survival of the farmer and of his family. Even animal breeding is sufficient just for family subsistence, as the animals, for the most part bovines and caprines, are bred in their natural state and their products are destined for family consumption or are exchanged with

cereals and legumes and other food crops produced by the farmers.

In the Developing Countries, in addition to subsistence agriculture, agriculture and commercial activity may be undertaken by big local landowners and by big, foreign multinational companies. Modern means and techniques of production and the relatively low labour-cost provided by the local population enable cultivation of extensive fields for just one product: coffee, tea, cocoa, peanut, pineapple, banana, or cotton, all invariably destined for export to the world's richest countries. This mode of agriculture constitutes plantation agriculture.

The majority of the world's Developing Countries are situated in the tropical, sub-tropical and monsoon areas, so there are different climatic regions where various kinds of crops are grown according to the different natural factors.

In the torrid zone, between the tropics, there are distinct areas from the point of view of the climate and of the environment; here different agricultural systems and various productions can be found:

- ❑ The **Equatorial Zone** has consistently high temperatures with heavy and regular rains during the year, which favours the growth of the pluvial forest. The equatorial zone is located around the Rio of the Amazons in South America, the Congo in Africa and in the South-East of Asia. In this climatic zone, agriculture is practiced just along the coasts of the rivers, owing to the general impasse imposed by the high costs of transport and of the communication routes;
- ❑ In the areas of the African and South American **Equatorial Forest**, along the coasts of the Gulf of Guinea and of Brazil, in some areas of the South-East of Asia and of Central America the two types of agriculture, namely, subsistence agriculture and the plantation agriculture, coexist. Subsistence agriculture in these regions are extremely primitive and are generally based on the cultivation of such crops as manioc, yam, and tubers from which carbohydrate-rich food is derived as the basic food of the local population. Plantation agriculture is extensive, comprising such commercial plantation crops as cocoa, coffee, sugar-cane, and oil-palm, which represent the main source of income for the people;
- ❑ Far from the equator is **Tropical Savanna Zone**, with its dry

farming. Dry farming is an extremely poor mode of agriculture, which exploits the very few months of rains for the cultivation of food crops, such as sorghum and millet. The production levels under dry farming, however, are really low and are often inadequate for the nutrition of the people;

- The **Monsoon Zone** is located along the coasts of South-East of Africa, the coasts of the Indian peninsula, all the Indo-Chinese peninsula, Japan and the South-East of China. All these areas are, more or less directly, under the influence of violent seasonal rains brought about by the monsoons which, during the rainy season, blow from the sea towards the land and taking heavy rains to the landmass. The monsoon rains provide a relevant source and supply of water, which makes it possible to cultivate rice and other plantations.

Expounded above represents a global overview of agriculture in the Developing Countries, from which the urgent matter of information on the different farming techniques and on the use of the various means becomes essential. In fact, modern agriculture in the most industrialised countries has introduced some relevant changes into the world farming system that can be adapted to the various agricultural environments, according to the different needs and the natural backgrounds.

A problem pertaining to agricultural production in some African countries relates to the invasion of agricultural crops by grasshoppers: grasshopper invasion results in destruction of crops by the grasshoppers. It seems a really urgent problem, but scientific knowledge developed in recent years both in the Developing Countries and in industrialised countries can solve it in many ways, including a deployment of bacteriological and biological methods. This problem and many others in the Developing Countries can be linked to the lack of information relating to agriculture and the scientific method. The Internet can fill in this gap in an easier way by making it possible for the Developing Countries to be updated on all the scientific knowledge developed and applied in the industrialised countries.

6.2.1 Support to Farmers

Farmers can make use of the new information and communications technologies (ICTs) to collect up-to-date information about the prices of

the raw materials and of the products, and even about the production trend of the various countries.

In Sri Lanka there is the example of a rural farm selling cocoa and exotic fruits to a dealer from the capital (Colombo) which, until recently, had to accept the price suggested by the seller. By installing a telephone line and connecting to the Net, the farm is to date able to know in real time the price of his products in the local market, and subsequently able to establish the selling price for the dealer. The farm is thus sure of selling its products at competitive prices and has, in fact, been able to redouble its profit on the local commodity market [Pano 97].

On the Internet we can find vast amounts of information on farming practices and research provided by big organisations, such as the *Consultative Group on International Agriculture Research (CGAIR)*, which deals with researches on various areas, including environment, agricultural production, biodiversity and biotechnology. Together with the latest news about farming and the environment, CGAIR provides practitioners with the latest researches and with connections to other sites where various themes, their annual reports and various pertinent studies can be found. TABLE 8 illustrates a list of organisations, distributed worldwide, especially in the Developing Countries, that provide, like CGAIR, their consultancy and research in agriculture and related areas for the support of farming practices [Cgia 98]:

ORGANISATION	DESCRIPTION
CIAT	International Centre for Tropical Agriculture: centre in Latin America. Focuses on tropical agriculture. The users can receive news, use the library and the link to other data base.
CIFOR	Centre for International Forestry Research: research centre for the management of forests, including, degradation. Provides a reference point for scientists and for developers interested in the future of the world forests.
CIMMYT	International Centre for the Improvement of Maize and Wheat: focuses on collection of information related to maize and wheat: surveys, new technologies, sowing and harvesting, practices etc.
CIP	International Potato Centre: specialises in every kind of potato worldwide.
ICARDA	International Centre for Agricultural Research in the Dry Areas: researches on aridity, desertification and land degradation
ICLARM	International Centre for Living Aquatic Resources Management: devoted research on aquatic resources worldwide and in particular to the fish breeding in different areas of the planet.
ICRAF	International Centre for Research in Agro-Forestry: specialises on agro-forestry research, including agricultural practices carried out in forest regimes, for the purpose of both food production for local consumption and wood and other forest products for the export market.
ICRISAT	International Crops Research Institute for Seeds: specialises in research for the improvement of seed varieties for use in various environmental regimes.
IIMI	International Irrigation Management Institute: specialises in research on irrigation techniques and management practices.
IITA	International Institute of Tropical Agriculture: dedicated to researches relating to agriculture, to plant health and the management of crops within the context of the tropical climatic regime.
ILRI	International Livestock Research Institute: specialises in research on the breeding of livestock, focusing on genetic and health research and on tight collaboration with national research agricultural systems.
IPGRI	International Plant Genetic Resources Institute: spearheads international research on plant genetic resources.
IRRI	International Rice Research Institute: dedicated to reserach on rice varieties worldwide. The institute's Rice Web provides a wide information resource about this cereal.
ISNAR	International Service for National Agricultural Research: focuses on agricultural systems and laws of every nation.

TABLE 8: Main Organisations - CGAIR, 1998

From these examples a conclusion can be drawn, namely, that even in the agricultural sector, the Internet has become an important source of information for all experts and practitioners in the sector and related

areas. Everyday websites on agriculture are visited more and more and new activities are promoted. WARDA - West Africa Rice Development Association , for example, only recently created its website, which will be dedicated to the provision of information to researchers and rice growers in West Africa. WARDA is an association dedicated to the cultivation of rice in West Africa [Cgia 98].

6.3 The Enterprises

The industrialised areas of the world are distributed in a disproportionate way worldwide: there are regions where industrialisation plants are predominant in spread and there are those regions where the presence of the industrialisation is rare. The distribution of the industrialised areas worldwide underlines, in significant measure, the difference between the North and the South: large industrialised areas are concentrated almost predominantly in the Northern hemisphere, while in the Southern hemisphere industrialisation is but a recent reality, having just begun to spread.

In fact, in the Southern hemisphere there are only a few countries with industrialised areas of significant importance; they are essentially small areas of recent creation situated in predominantly agricultural territories. They are called the Newly Industrialising Countries (NICs) and include, in most general terms, the following countries: Mexico, Chile, Argentina, Brazil and India, where Government intervention has led to a positive turning-point for national industrial development. It has not been easy, however, for these countries to make ingress into a world industrial context with a solid foundation and comprising large companies and enterprises characterised by large capital, solid scientific and technical knowledge, advanced entrepreneurial abilities and qualified labour, of the type found in most industrialised countries. However, progress has been possible, mainly due to the existence of certain conditions (donations, sponsors, and so on) and the participation of the industrialised countries or their multinational companies.

Many of these countries have been chosen by multinational companies for the installation of new factories, both because of the *low cost of the land for factories, and other installations, and because of the low cost and the relative abundance of the labour force*. Many countries of South-East Asia belong to this category of NICs, which includes Southern Korea, Taiwan, Singapore, Malaysia, The Philippines and Thailand.

A second important group of the Newly Industrialising Countries comprises those countries that have been fortunate to exploit large quantities of mineral and energy resources of the subsoil, such as oil, for instance. Some of these countries have used the income generated from the exploitation and export of these raw materials to promote a process for the construction of basic manufacturing plants: this is the case for Venezuela, Mexico, Indonesia, Nigeria and also most of the Arab states in the Middle East and the Gulf. Nevertheless, the development of the firms in these countries has been limited to very narrow areas, which have not succeeded in alleviating, through their production, the condition of general poverty of the population.

From this global survey on the industrialisation level of the Developing Countries, it can be remarked that the economic progress of these countries is still connected to the economies of the industrialised countries, because of the exports of raw materials and of the presence of the multinationals.

6.3.1 The Lack of Information

One of the main problems for people in the Developing Countries is the lack of adequate information. The improvement of the telecommunication infrastructure can increase the level of business of the small, medium and large enterprise as it definitively reduces the cost of the information and promotes new ways of organising the various sectors and enterprises.

The Internet and the new information and communications technologies make it possible for business enterprises to increase their profits through exposure to the global market worldwide. Past experiences have shown that technologies can change the methods of distribution of the goods and of the services, and can provide the most advanced firms with new opportunities to improve on the efficiency of distribution and to offer goods at competitive price levels to the consumer, using, for instance, telephone orders or 24-hour dispatch services.

To date the most important industrial sector is an economic sector which is backed by deployment and exploitation of the new information and communications technologies (ICTs). In November 1998, for instance, Prime Minister Atal Bihari Vajpayee (India) officially opened the first hi-tech park near Hyderabad, a central area of the Indian continent. In the high-tech park, an Indian “Silicon Valley” will be built over a land area of

160 acres with a planned expenditure of about 4 million US Dollars [Dea 98c]. This is not, however, the only experience in the area of the new information and communications technologies for India. India, a predominantly agricultural country has, in recent years, become dominantly competitive in the creation, transformation and the management of the distance programs, particularly in the area of software development. According to the National Association of the Service and the Informatics Engineering Societies this sector is the most successful in the Indian exports: about 50% per year, nearly the double in comparison with the exports of the world market in this sector.

All this has been possible due to the presence of the big information technology companies: *IBM, Digital, Hewlett Packard, Texas Instruments, Novell, Motorola, Bull, Sun and Oracle*, which all installed their offices in India after the opening of the commercial barriers in 1991, following decades of total protectionism. But the success of the Indian exports and industry does not come exclusively from the ICT sector related industry; since 1831 British businessmen, who had their own colonies in India, have decided to give rise to a national industry. At the beginning of the 19th century Jamshedji Nasarwanji Tata, founder of one of the Indian greatest industrial dynasties, installed a hydro-electric power plant and founded the Indian Science Institute. After independence in 1947 Prime Minister Jawaharlal Nehru dreamed of transforming Bangalore into the intellectual capital of his nation and transformed it, in less than two decades, into the town of the future in the sectors of aeronautics, electronics, weapons and telecommunications [Mond 97].

6.3.2 Advantages for Enterprises

Why does the Internet represent an important technology for enterprises in the Developing Countries? What advantages can Developing Countries derive from its use? The Internet has given rise to a revolution in the economic data in favour of a globalisation of the markets and of the improvement of knowledge. In fact, the Internet represents for the enterprises a new competitive *medium*, which can be exploited in many ways:

❑ **Advertising and Marketing:** The Net is the ideal medium to promote a company and its activities and to study the market where it operates or it would like to enter through its several applications, including sending messages to the various forums or newsgroups;

effecting a presence through construction of corporate web pages, thus attracting consumers' attention in the virtual marketplace. The Internet actually offers all the advantages of a permanent diffusion of a numberless quantity of information concerning products and services, and at relatively competitive costs compared with traditional marketing techniques;

❑ **Communication:** E-mail is to date probably the most used application on the Net, not only by a individual users, but also by the companies. E-mail can be easily adopted to respond to existing traditional corporate and organisational policies, as it can be made to be useful both within firms for workgroup collaboration and outside firms for communication with corporate partners, suppliers, brokers and customers. E-mail makes it possible to communicate at a regional, national or international level at competitive unit costs compared to some traditional means, including telephone communication or fax communication. Even the automatic mail server enables a company to distribute, automatically and on demand, brochures or other documents describing a company's products and services, especially to those users having just e-mail, which is a typical situation in the Developing Countries. Furthermore, there there is the need for consideration for deployment of the new on-line applications through the telephone or video-conferencing: these enable managers to take part in meetings with participants situated in real-time at geographically disparate locations worldwide, while comfortably sitting in front of their own computers at home or in their own offices;

❑ **Research, Diffusion and Exchange of Information in the Industrial Sector:** 'The Net' is easily the largest data bank in the world, as it contains data and information concerning all sectors of national development, including politics, economics, society, culture and science. *FTP* and *Gopher* applications, for example, enable access to these sources of information. Also, *Newsgroups* favour debates and meetings on specific themes among international experts. Some international organisations or the big multinationals regularly publish their works on the Internet such as, for instance, the World Bank, WTO or IBM;

❑ **Management and Recruiting of Staff:** The Net makes it easier to decentralise the work of a firm, say through the teleworking revolution, with all its economic and productive advantages. According to a survey by *Dataquest* [Datq 98], more than 60% of the American employers of enterprises of any size are connected to the Internet and have allowed

employees working under their responsibility to have access to it. This has potentials for adaptation or adoption in the Developing Countries, where many multinationals are known to recruit their staff through the Net.

The Internet, however, is used by the enterprises in particular for eCommerce. This new kind of commerce on a world scale could make it possible for Developing Countries to enter the large, competitive markets of the industrialised countries.

For the new and emerging operators, such as the majority of enterprises of the Developing Countries that would like to use the Internet as a selling channel, it is important to know that the users, namely, the potential customers, are encouraged to buy on line by the services offered, by virtue of lower price differentials, and also especially by the greater convenience of buying directly from the comfort of an armchair at home and by the possibility of finding a larger offer. On the Internet, the consumer can be provided with a relevant improvement of the service, as:

- ☐ It is possible to order and to pay at all hours from any computer connected on the Net;
- ☐ The selection among the various products in the virtual shop can be made in the same manner as a traditional physical shop, namely, by looking into all the kinds of goods and services offered;
- ☐ The comparison among the alternatives proposed by multiple points of sale requires less effort and is deemed more successful, as it does not oblige the consumer to move physically; and
- ☐ The products are delivered directly to the consumer's house.

6.3.3 Obstacles to the Diffusion of eCommerce

In spite of the foregoing advantages, one of the most relevant barriers to eCommerce the world over is the degree of insecurity connected with on-line transactions. Furthermore, in the Developing Countries the scarce availability of credit cards and the difficulty in buying, especially because of the language or of the low level of literacy, have an inhibiting influence on the diffusion of eCommerce.

According to a research made by Internet Arab World (IAW) [Didn98b] about the state of eCommerce in the Arab world, only 4% of Internet users in the Arab world buy products through the Net per year. *'This is due', the experts say in the study, 'to the lack of a large mass of users of the Net in these countries and to the impossibility to guarantee the security of the transactions'*. Abdul Kader Kamli, Chief Editor of IAW, says that *'If the Internet is likened to an informatics motorway, a lot of work has to be done in this road in the Arab world, especially if the information is exchanged with money'*.

The research shows that Internet users in these countries are really cautious in sending their credit card numbers through the Net. Most of the interviewed people (92%) made their purchases in firms that are not in the Middle East. They generally bought computer software (23%), books (22%), and various presents (10%). The amount of money spent by a single buyer ranges from US\$50 to US\$ 4,000. A proportion of the interviewed people use the credit card for the transactions, but only few of them send this information on-line: 27% of them send credit card numbers through the telephone, 31% via fax, and 15% via e-mail.

Apart from the problem of security, the technology providers mention other reasons contributing to the low diffusion of eCommerce. Some give more emphasis to certain reasons rather than to others according to the service they provide. For instance, only 50% of the ISPs interviewed mention the *critical mass of Internet users* against 71% mentioning the software companies. Many information technology multinationals consider the *low level of connectivity* against just 5% of the ISP. A few providers take into consideration the *high costs of construction and of managing the Web sites*: in fact, a small site has an average cost of US\$ 500, but this cost is perceived to grow in an exponential way if one decides to open an average or big site, which costs US\$10,500 US\$35,000 respectively.

The future of eCommerce in the Arab world, however, is promising: in Egypt the ISP community expects a growth of 1,000%, while the multinational companies expect their sales to rise by 100% within the next 12 months through this innovative commercial solution.

In Uganda a research was made on the existing situation of eCommerce in the country [Chas 98a]. The survey is based on the analysis of 100 Websites of factories, banks, ISPs, travel agencies and cultural services.

The results show that:

- ☐ 16% of the enterprises expect an increase of their sales through the Net;
- ☐ 4% of the sites pay for advertisements on the Net;
- ☐ 44% of the companies give a detailed description of their own products and services on the Net;
- ☐ 42% of the enterprises include both a description of the products information on the prices; and
- ☐ 55% of the companies respond to consumers through e-mail.

The research also values the percentage of buyers who have used on-line services to buy products and services. This is also the state of practice in countries such as Uruguay, the USA and the United Kingdom. In 1998 this figure was equal to 1% in the Southern American country of Uruguay, while it rose to 325% in the USA and to 47% in the UK [Chas 98b].

This new *medium*, which totally transforms traditional commerce through an embedding of the new information and communications technologies, has also developed and progressed in Asia: here there are organisations, such as Electronic Markets, studying the prevailing situation of projects and regulation policies to promote the diffusion of eCommerce in the region and also the strategies to deploy the medium successfully use in the local firms [Elec 98].

The relatively low diffusion of eCommerce in the Developing Countries, however, is not necessarily a disadvantage, from the point of view of a single enterprise or organisation, as *ab initio* the opening to new roads or to new markets is bound to face diverse types of impasse, but can also constitute a relevant advantage within the context of competition. The possibilities of success in a global market are varied and various, even for the enterprises. In order to reach good results, however, Developing Countries must take three different roads to making the transition to eCommerce:

- ☐ Understanding, from the point of view of the enterprises, the situation of the other countries and exploiting the occasions given to them by the big global market. It is a great world, really competitive too, which must be entered with a well-defined and qualified identity, or a world where a particular corner must be chosen;

- ❑ Understanding what possibilities can be found in the local market place, different from the advanced markets, but not necessarily impenetrable. Innovative and original methods have to be found in order to open the doors even of the crowded sectors to the international market;
- ❑ Understanding other national markets in their individuality: from those with the largest degree of diffusion on the Net to some of the least developed, backward ones where it could be interesting to play the role of 'pioneers' in the sectors considered to be the most promising by the enterprise.

6.4 The Services: the Banks and Tourism

To date banks offer many services to their customers through the Net: *payment services, home banking, account balances, information on the loans* and many more. Some of the big banks operating in the Developing Countries also use the Internet to send information to all their accounts subscribers who have access to the Net. Some examples are provided by *Banco do Brasil, Banco de Plaza Argentina, Bank of China, Industrial Commercial Bank of China, Central Bank of Kenya, and Banque Commerciale du Rwanda*, all of which to date give information on their own products and services and also offer the latest financial and monetary news on their corporate Web sites. Furthermore, on the Net there are not only commercial banks, but also organisations, like *Grameen Bank*, giving micro-loans to the poor people [Yunu 97]. This institution founded by Muhammad Yunus, lends money only to the poorest, that is, to those people who have nothing to offer as a guarantee and for this reason are not accepted by the traditional credit institutions. Owing to this policy, with low rates of discount offered to thousands of people (10% of the population of Bangladesh), women for the most part, got onto the path to alleviating poverty and gradually increased their income, finding in this way the courage to manage their own destiny. The bank has been operating also on-line for some years, so that it can help people in need worldwide, by introducing this new economic policy, which reviews all the traditional methods, into the industrialised countries, for the benefit of the poverty-stricken statum of population.

Another sector that exploits the Net in the Developing Countries is **tourism**, without which the economies of these countries would be at really low levels. With the deployment of the Internet it is possible to have

tourist information concerning any part of the world made available to anyone anytime anyplace. A person who would like to make a journey to one of these countries can find relevant information, not only on the flight time-tables or on the booking of the flight tickets, but also on other means of transport, hotels, villages, restaurants and tourist routes in the various countries. All this information can be found not only in the websites of the Ministries of Tourism of the various countries, but also in the Websites of local tourist operators such as, for instance, *AsiaTour* (www.asiatour.org), *TourismWorld* (www.tourismworld.com.au) or *TradePage* (www.tradepage.co.za/). In this way the tourist can plan his/her holiday in detail while comfortably sitting in front of his computer at home or office.

The Net provides also hundreds of other services, which we will not mention or analyse, that are not employed in a large measure in the Developing Countries, primarily because of lack of concomitant infrastructure. The relative underdevelopment of the enterprises of these countries in exploiting the Net for the commercial exploitation of their own products and services and for all the other applications can be interpreted in two somewhat diametrically opposite ways, namely: *a problem that cannot be solved or a chance to open new roads for the development* of the country. It has to be considered, however, that the road to success is not based on general formulae or on repetitive models, but on creativity, flexibility, patience, constant research and checks.