The ICT Service Industry in North Africa and the Role of Partnerships in Morocco

Giuseppe Bruno, University of Naples “Federico II”, giubruno@unina.it
Gianluca Esposito, University of Naples “Federico II, Gianespo@unina.it
Luca Iandoli, University of Naples “Federico II”, iandoli@unina.it
Mario Raffa, University of Naples “Federico II”, raffa@unina.it

ABSTRACT

In many developing countries, the growth of the Information and Communication Technology (ICT) sector is becoming a remarkable phenomenon. Such growth is influenced by a huge variety of economic (infrastructure and social development), institutional (finance and legal system) and environmental (education system and culture) factors. In this context, forms of partnerships between local firms and multinational companies can play a key role in fostering the development of the ICT-sector.

This article presents a study of the state of the art of the ICT sector in North Africa. Additionally, an in depth study of the situation in Morocco was carried out. It investigates, using several case studies, the value of the different models of partnership that have been created in the ICT service sector.

KEYWORDS

Partnerships, Developing Countries, ICT Service Industry, Offshore ICT Service Production, Outsourcing

INTRODUCTION

The use of Information and Communication Technology (ICT) is producing deep social, technological and economic transformation in developing countries. The growth of the ICT sector is crucial for the development of less industrialized countries, for both economic and social reasons. As regards the former, globalization is fostering competition. Therefore, firms operating in developing countries cannot any longer rely on low costs to gain competitive advantages both domestically and internationally (Doz et al., 2001). ICT helps these firms increase their competitiveness, and eventually move up the value added ladder.

On the social level, ICT plays a pivotal role in promoting social development (World Bank, 1999). The implementation of e-government-based policies (G2G, G2C, G2E) boosts public sectors reform programs. In this respect, ICT can contribute to the improvement of basic public services such as education and health care and to a reduction of the imbalance between such areas and urban ones.

Furthermore, the presence of well established local ICT-service firms is beneficial for developing countries: first of all, it fosters the adoption of ICT services by both
traditional manufacturing sectors such as textiles and service sectors such as tourism, with an eventual increase in productivity (UNCTAD, 2001); secondly, it can be crucial for the creation of value-added sectors that may attract foreign investments and promote export.

For these reasons, it is important to study how the ICT service industries grow and thrive in developing nations. A better understanding of factors characterizing this growth-path will eventually help government agencies support these industries by eliminating obstacles hindering the success of ICT service firms.

In this article, we analyze the state of the art of the ICT sector in several North African countries (Algeria, Egypt, Morocco and Tunisia). The aim of our study is to address the following research questions:

- What are the characteristics of the environment surrounding ICT-service-firms in North Africa?
- What strategies are used by ICT service-firms to survive and prosper in the difficult environment of a developing nation?
- What is the role of partnership models in fostering the development of local ICT service firms?

The first step of our study is a survey on the ICT service sector in North Africa. Secondly, we have focused on a follow-up qualitative study on ICT service firms in Morocco. Lastly, we have carried out an in depth qualitative study of some highly innovative firms in Morocco.

The article is organized as follows: first, we focus on factors that prevent firms in developing nations from both using and selling ICT services effectively. The role of partnership to support the development of ICT service ventures is underlined in the next section, following which the current trends in ICT service outsourcing are discussed. The research methodology is then illustrated and the results are described and commented upon. Finally, the last section contains conclusions based on the study.

**FACTORS FOR THE GROWTH OF THE ICT SERVICE INDUSTRY IN DEVELOPING COUNTRIES**

There is a vast amount of literature examining factors that play a key role in facilitating the growth of ICT in developing countries. These factors influence both local firms that use ICT services and those that sell such services. We classify these factors in the following groups: *infrastructure, finance, legal system, social development, education and cultural environment* (figure 1).
Figure 1. Taxonomy of Factors Affecting the Growth of the ICT Service Sector in Developing Countries

**Infrastructure:** Communication infrastructure is crucial for the growth of ICT services (Davis et al., 1989), in particular, for value added services such as ICT outsourcing and electronic commerce (Mann et al., 2000). Local firms that want to take advantage of ICT should be allowed to access ICT services. This includes physical access (to telecommunication infrastructures and networks) and economic access (whereby the price structure is not prohibitive). Both are crucial for firms selling ICT services in order to deal with global competition.

**Finance:** An efficient financial structure is critical for the growth and development of the ICT service-sector (Abdul-Gader and Alangari, 1994; Hassan, 1998; Lederer and Mendelow, 1990). An inadequate regulation framework and the lack of competition among financial institutions produce a shortage of financial resources. In many developing countries, the presence of inefficient traditional financial institutions is coupled with the absence of alternative resources, such as those provided by private equity funds (Frankel, 1998). Moreover, the lack of derivative instruments increases the exposure of export-based ICT service firms to risks such as exchange rate volatility. Last but not least, financial institutions are knowledge-intensive businesses that increasingly rely on ICT services. In this respect, higher competition in the financial sector would force local banks to invest in ICT services.

**Legal System:** One of the critical factors for firms selling ICT services is the availability of an adequate legal ICT-specific framework (Damsgaard and Lyytinen, 1999; Olsen, 2000). Although it is more difficult to replicate services than intangible products, inefficient intellectual property protection laws can discourage both local
and foreign firms from investing in ICT service-related activities. However, for
countries in the early stages of ICT dissemination, weak intellectual property rights
may represent an advantageous infant industry-strategic trade policy (Krugman and
Obstfeld, 2000), by providing inexpensive technological transfer (Maskus, 2000).
While such a policy may also facilitate local firms willing to take advantage of ICT
services without implementing huge capital investments, it may, on the other hand
discourage foreign investment.

Social Development: As much research points out, social development is beneficial
for the overall growth of the ICT market (Burn and Jordan, 1997; Janczewski, 1992;
Hassan, 1998; Kahn and Sayers, 1994; Lehmann, 1994; Lopez and Vilaseca, 1996;
Mundy, 1996; Palvia, 1998; Spletstosesser and Towry-Coker, 1999). A key element
for creating positive opportunities is to integrate ICT development policies with
overall development policies. In this respect, there are some factors that are
considered to be important. Palvia (1998) has classified such factors into broad
categories of interrelated variables including aspects related to the economic,
technological, cultural and political context.

Education: The availability of sufficient human resources will continue to be an
overriding issue in the development of ICT services. The lack of expertise directly
affects the growth of firms operating in this sector. Furthermore, the shortage of both
basic ICT skills and managerial competence limit the demand of local firms for such
services (Abdul-Gader and Alangari, 1994). It is not accidental that the most
successful developing countries in the ICT industry services, such as India, Malaysia,
and China have become increasingly able to train a remarkable number of ICT
technicians (Harindranath and Dhillon, 1994).

Cultural Environment: Differences among cultures play a key role in the development
and transfer of Information Technology (Shore and Venkatachalam, 1994; Day,
1996). As regards ICT service users, language may represent an obstacle, especially
resistance, may put a serious constraint on the growth of demand for ICT services
A case in point is represented by entrepreneurs operating in traditional sectors, who
are not biased towards investing in intangible assets such as software licenses,
consultancy and training. As regards to firms selling ICT services internationally,
cultural differences may influence the way they design and develop such services.

The negative interaction among all these factors can, in the worst-case scenario,
prevent the growth of the ICT-service industry in developing countries. On the
contrary, the presence of some key preconditions can have a positive influence on
both firms using ICT services and those selling such services. Moreover, these pre-
conditions can encourage the presence of foreign firms, laying the foundation for the
establishment of partnerships among foreign and local businesses.
PARTNERSHIPS FOR ICT SERVICE VENTURES IN DEVELOPING COUNTRIES

According to Hassan (1998), to implement export related activities, firms need to establish credibility, demonstrate a solid track record of product development, and show access to financial and managerial resources. Therefore, the fact that local markets are weak represents a serious constraint on the growth of ICT service firms. In other words, such firms cannot live off the domestic demand alone. There are three mechanisms that can help solve this problem: industrial districts, keiretsu and offshore partnerships.

**Industrial districts** are agglomerations of small-medium size firms, located in a specific area, highly specialized in one or more phases of production processes, and co-coordinated through both market-like mechanisms and personal relationships based on mutual trust (Becattini, 2000; Brusco, 1989; Mussati, 1990; Marchini, 1995). The mirror image of Industrial Districts is the emergence of deeply rooted local-competence centers. Such centers are crucial for ICT service firms based in developing countries, where there is a lack of competence regarding innovative sectors.

**Keiretsu** is another type of network that eventually allows ICT service firms to overcome domestic market inefficiencies. According to previous research (Lehmann, 1994; Dunning, 1993; Johanson and Vahine, 1990) such Keiretsus have to be centered around a “hub” from an information technology intensive industry. In developing countries, foreign ICT companies are the hubs, and local ICT ventures provide such hubs with services. For local firms, the Keiretsu turns into a micro market substituting the domestic market. On the minus side, the fragmentation of local competencies over many business segments could hinder the possibility of know-how sedimentation at the local level. Furthermore, businesses could come to depend excessively on the hub and the role of local firms could become marginal.

**Offshore partnerships** can benefit both local and foreign firms. On one hand, local companies can enlarge their market through international exposure and may enjoy an increase of their technological competence due to the possibility of more or less intensive know-how exchange. On the other hand, foreign companies can obtain two advantages: a) to have access to a low-cost, qualified local workforce; b) to enter strategic and developing markets. In the short to medium term, this strategy could be a way to overcome some structural fragility of demand in the domestic ICT service market and can contribute to the consolidation of weak local ICT companies.

The development of industrial districts, keiretsus and partnerships relies on the increase in the level of competitiveness of local ICT service firms and on the presence of some key structural factors. Such factors concern sufficiently efficient telecom-infrastructures, liberalization of the telecommunication sector, an initial kernel of local entrepreneurial ICT firms and inner country political stability (Aberdeen Group, 2001; World Bank, 1999).
The next section analyses the key features of new business models related to partnerships. It focuses on the offshore ICT service sector. It is an industry that plays a crucial role in the development of the ICT sector, it is vital for traditional sectors and it is a relatively low capital-intense sector.

CURRENT TRENDS IN ICT SERVICE OUTSOURCING

ICT outsourcing represents an important tool that can help create partnerships among foreign and local firms. In this respect, the driving force is, at least initially, the availability of a low-cost, skilled workforce in developing countries. However, nowadays ICT outsourcing is no longer considered simply a source of low-cost call center activities and data-entry labor and can be an incentive for the development of the sector. This phenomenon has been pointed out both in literature (Kahan and Sayers, 1994; Hassan, 1998; Enns and Huff, 1999; Mursu et. al., 1999) and by economic operators and international development agencies (World Bank, 1999; APEBI, 2000; Aberdeen Group, 2001).

According to these studies, it is possible to identify a set of factors that influence the capability of developing countries of attracting foreign investments remarkably (Figure 2). The presence of local entrepreneurs plays a key role in this. In order to positively influence the development of ICT-service outsourcing, local entrepreneurship should be characterized by quality certification, the presence of associations of local firms, a critical size and recognized technological competencies of local companies. This aspect may involve low added value activities, such as data-entry and call center related activities as well as more sophisticated forms of interaction requiring intense supplier involvement, such as consultancy activities. In the ICT service sector, factors such as mutual trust, technology transfer, knowledge exchange, intellectual property, project management methodologies, and skilled management characterize and drive partnerships more than in other sectors. This is due to the intangible nature of services and the high knowledge-intensive character of this industry (Klepper and Jones, 1998).

![Figure 2. Factors Influencing the Growth of the Off-Shore ICT Service Sector](image-url)
It is possible to identify four different types of partnership models:

- Direct ownership
- Off-shore development
- On site/Off-shore development
- Commercial partnership

As regards direct ownership, firms that establish their own offshore center aim at lowering costs and maintaining complete control over the ICT service life cycle. In many cases, their strategy is targeted at establishing their presence in developing markets with high growth potential. In this model, control over the whole value-chain is in the hands of foreign firms. However, in some cases, such firms can take advantage of partnerships with local companies only in order to perform low-value added activities such as data-entry.

In the offshore model, clients agree with offshore suppliers to carry out (partially or completely) service-related activities. The offshore model is evolving rapidly into a more sophisticated model of partnership called on site/off-shore model. In this case, the supplier’s staff works at the client’s site in developed countries and performs high value-added services, such as consultancy.

The so-called commercial partnership represents the simplest model. In this respect, the role of local firms is limited to selling services entirely implemented by foreign firms.

RESEARCH METHODOLOGY

The analysis of previous sections shows how a) the growth of the ICT service industry in developing countries is notably influenced by various factors and b) that the possibility of positive development in the ICT sector also depends on the form and models of collaboration and interrelation between firms operating in this sector, firms from the same country that operate in different sectors and multinational companies. Research to support this theory has been conducted in North African countries (Algeria, Egypt, Morocco and Tunisia). The countries chosen all have a strong political, cultural and social affinity and are particularly interesting because, due to the different influences and the intensity of critical factors, different directions in development can be seen, both from the quantitative and qualitative point of view.

The research began with a general analysis of the state of sector in the chosen countries and then developed by identifying different contexts and ever-growing aspects of detail and significance which allowed the authors to isolate and to generalize about some evaluations regarding the dynamics of development. For this reason, the study has been subdivided into three conceptually hierarchical phases, where the results of each preceding phase form the basis for the development of the next, with a greater level of focalization. The phases are: a survey of the ICT industry in North Africa, a follow up qualitative study of the ICT service industry and an in-depth analysis of partnership case studies between local and foreign firms.
The first phase was a survey of the ICT industry in North Africa and its objective was to obtain a picture of the state of the ICT sector in the North-African countries analyzed (Algeria, Egypt, Morocco and Tunisia). A preliminary analysis of the context was needed due to the lack of up-to-date information and due to the fact that the ICT service industry is very young and in its early stages of development. The results of the survey were used to set a context in which to develop a more in-depth analysis through a follow up qualitative study on the ICT services industry.

In order to identify development dynamics in their most advanced state, this analysis was focused on just one country – Morocco. The survey demonstrates that more favorable conditions exist in Morocco than in other countries as regards factors that may be an obstacle to the development of the ICT industry. Although Morocco has structural weaknesses, it is an important country to observe the growth phenomenon in the ICT service industry. The qualitative study produced a detailed picture and allowed us to describe the characteristics of local firms and their competitive strategies.

Various case studies were examined in order to analyze the phenomenon of partnership in this context through an in-depth analysis of partnership case studies between local and foreign firms. The results allowed us to draw several conclusions that concur with general theories expressed earlier.

**A SURVEY OF THE ICT INDUSTRY IN NORTH AFRICA**

**Purpose and Method**

The aim of the survey was to obtain an up-to-date picture of the state of the ICT sector in selected North-African countries (Algeria, Egypt, Morocco and Tunisia). The survey was conducted through an in-depth analysis of secondary sources of information (national and international) and on the basis of interviews carried out with people from various areas in the sector (government officials, university lecturers, researchers and entrepreneurs). The results take the form of qualitative and quantitative evaluations which compare and highlight factors that could be an obstacle to ICT development within the country, through a SWOT Analysis approach (Strength, Weakness, Threats, Opportunities) for each country (Porter, 1990).

**Main Results**

Table 1 provides some key figures on ICT diffusion in the selected countries of North Africa and a comparison with high-income countries as regards ICT indicators (ITU, 2000).

Despite good basic T/LC infrastructures, access to computers and telecommunication systems is still very scarce and most services are concentrated in urban areas. The average density of household phones, public telephones, computers and Internet subscribers is much lower than in high-income countries, even if very encouraging trends have emerged over the last few years, especially in Egypt and Morocco. In these countries, primarily due to the privatization process, there has been an unexpected boom in mobile communication.
The total number of Internet subscribers in Middle East North African countries in 2000 was estimated at around 300,000. However, according to the UN Economic Commission for Africa, each client PC supports an average of three users. Nevertheless, access to the Internet remains a privilege. Affordability barriers, PC costs and education levels have kept the Internet beyond the reach of most people. As a result, the level of e-commerce is currently very low.

Software development has improved over time. In general, companies are very small with an average number of between five and fifty employees. In Egypt and Morocco, high-quality software packages are produced locally and exported to foreign markets, primarily Europe and the Persian Gulf. Unfortunately, the growth of this sector suffers from shaky legal foundations such as computer piracy, even if governments are stepping up efforts to prevent and combat it.

The local electronics industry is still underdeveloped and hardware production is assembly-oriented. Computer components and accessories are imported from the US and the Far East. In Egypt and Morocco, there are commercial partnerships based on a two-level structure made up of several distributors and retailers. These relationships often involve an exchange of know-how and development of solutions that are compatible with products distributed by leading companies. This phenomenon is generally considered positive and it may lead to outsourcing practices of high-value added services in the middle-long term.

Besides common characteristics, there are significant differences in the level of ICT development between the countries studied. Key indicators such as mobile phone users and computer owners show that in Algeria, ICT is still at an embryonic stage while in Egypt, Tunisia and Morocco it has made notable progress over time. However, Tunisia still suffers from a significant delay with regards to the privatization process and is currently a small market for ICT multinationals. From many points of view, Morocco represents a best-practice example. The country has a number of indisputable strengths and conditions that are favorable to sector development:

- Cultural, linguistic and geographical proximity to Europe, which makes it a natural candidate for foreign businesses wanting a commercial presence in French-speaking Africa and in the whole region.
- A young population and a good education system.
- A politically stable situation with a liberal environment oriented towards the consolidation of democracy.
- Liberal economic policy and clear orientation towards the total and complete liberalization of the telecommunications sector.
- Government recognition of the strategic importance of the sector to development within the country.
- An active nucleus of local entrepreneurs in the ICT sector with clear development strategies and good know-how.
- The presence of leading multinational ICT sector companies in Morocco.
- A market in full expansion.
- The existence of good basic and specific infrastructures.
Table 1. ITC Indicators for MENA Countries (Source: ITU Report, 2001)

<table>
<thead>
<tr>
<th></th>
<th>ALGERIA</th>
<th>EGYPT</th>
<th>MOROCCO</th>
<th>TUNISIA</th>
<th>Total (*)</th>
<th>AFRICA</th>
<th>HIGH INCOME</th>
<th>WORLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (millions)</td>
<td>30.8</td>
<td>62.4</td>
<td>27.9</td>
<td>9.5</td>
<td>130.6</td>
<td>766.5</td>
<td>891.5</td>
<td>5980.9</td>
</tr>
<tr>
<td>Total GDP (B USS)</td>
<td>47.4</td>
<td>87.7</td>
<td>35.7</td>
<td>19.9</td>
<td>190.7</td>
<td>565.0</td>
<td>23263.6</td>
<td>29686.5</td>
</tr>
<tr>
<td>GDP per capita (US$)</td>
<td>1574</td>
<td>1347</td>
<td>1288</td>
<td>2135</td>
<td>1460</td>
<td>829</td>
<td>26288</td>
<td>5111</td>
</tr>
<tr>
<td>Telephone lines (k)</td>
<td>1600</td>
<td>4686</td>
<td>1466</td>
<td>850</td>
<td>8602</td>
<td>18617</td>
<td>521516</td>
<td>906714</td>
</tr>
<tr>
<td>Telephone lines per 100 inhabitants</td>
<td>5.20</td>
<td>7.51</td>
<td>5.26</td>
<td>8.99</td>
<td>6.59</td>
<td>2.43</td>
<td>58.50</td>
<td>15.16</td>
</tr>
<tr>
<td>Digital main lines (%)</td>
<td>70.0</td>
<td>86.0</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile subscribers</td>
<td>72000</td>
<td>1.481000</td>
<td>300000</td>
<td>55300</td>
<td>4608300</td>
<td>0</td>
<td>336904800</td>
<td>491342500</td>
</tr>
<tr>
<td>Mobile subscribers per 100 inhabitants.</td>
<td>0.23</td>
<td>2.37</td>
<td>10.7</td>
<td>0.58</td>
<td>0.75</td>
<td>1.00</td>
<td>37.79</td>
<td>8.22</td>
</tr>
<tr>
<td>Mobile subscribers as a % of tel subscribers</td>
<td>4.3</td>
<td>9.3</td>
<td>20.3</td>
<td>6.1</td>
<td>11.39</td>
<td>29.20</td>
<td>39.20</td>
<td>35.20</td>
</tr>
<tr>
<td>Telecommunications revenue (M USS)</td>
<td>266</td>
<td>1849</td>
<td>867</td>
<td>378</td>
<td>3360</td>
<td>12239</td>
<td>682740</td>
<td>841921</td>
</tr>
<tr>
<td>Telecommunications investment (M USS)</td>
<td>115</td>
<td>712</td>
<td>237</td>
<td>156</td>
<td>1220</td>
<td>4529</td>
<td>127612</td>
<td>188486</td>
</tr>
<tr>
<td>Investment as a % of revenue</td>
<td>43.1</td>
<td>38.5</td>
<td>27.3</td>
<td>44.6</td>
<td>36.3</td>
<td>40.1</td>
<td>18.7</td>
<td>22.6</td>
</tr>
<tr>
<td>Liberalization of TLC market</td>
<td>Partial, only mobile</td>
<td>Partial, only mobile</td>
<td>Total</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telecom equipment exports (M USS)</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>60</td>
<td>55275</td>
<td>62515</td>
</tr>
<tr>
<td>Telecom equipment imports (M USS)</td>
<td>149</td>
<td>335</td>
<td>50</td>
<td>57</td>
<td>591</td>
<td>2284</td>
<td>85494</td>
<td>110031</td>
</tr>
<tr>
<td>Computer(s) per 100 inhabitants</td>
<td>0.58</td>
<td>1.20</td>
<td>1.08</td>
<td>1.53</td>
<td>1.05</td>
<td>0.90</td>
<td>34.80</td>
<td>6.84</td>
</tr>
<tr>
<td>TVs per 100 inhabitants</td>
<td>10.70</td>
<td>18.30</td>
<td>16.50</td>
<td>19.00</td>
<td>16.17</td>
<td>7.00</td>
<td>25.90</td>
<td>67.70</td>
</tr>
<tr>
<td>Home satellite dish/antennas (k)</td>
<td>3500</td>
<td>669</td>
<td>957</td>
<td>100</td>
<td>5226</td>
<td>5595</td>
<td>61738</td>
<td>82445</td>
</tr>
<tr>
<td>Internet hosts</td>
<td>200</td>
<td>2355</td>
<td>75</td>
<td>33</td>
<td>2663</td>
<td>185330</td>
<td>69150849</td>
<td>72005852</td>
</tr>
<tr>
<td>Internet users</td>
<td>20000</td>
<td>20000</td>
<td>50000</td>
<td>30000</td>
<td>300000</td>
<td>2674000</td>
<td>186099</td>
<td>235449</td>
</tr>
<tr>
<td>Internet users per 10,000 inhabitants</td>
<td>6.5</td>
<td>32.0</td>
<td>17.9</td>
<td>31.7</td>
<td>23.0</td>
<td>34.9</td>
<td>2088.0</td>
<td>399.4</td>
</tr>
</tbody>
</table>
QUALITATIVE STUDY ON THE ICT SERVICE INDUSTRY IN MOROCCO

Purpose and Method

The aim of this phase was to analyze the business environment in the ICT service sector in Morocco, paying special attention to the characteristics of firms that deal in and sell these and the market in which they operate within the country. The study was carried out through an analysis of secondary sources of information and semi-structured interviews with entrepreneurs and local ICT experts (university researchers and government officials) conducted in situ over a two-week period with the aid of a questionnaire.

A sample of firms was chosen with the help of one of the most important Moroccan independent business associations, made up of firms that cover more than 90% of the ICT service market and more than 50% of local businesses. Thirty-five interviewees were chosen, among whom were entrepreneurs and managers of successful businesses. The questionnaire asked for general information on characteristics, organizational structure and business strategies, product information, current market conditions and future trends. The “Context” section contained questions relating to the entrepreneurs’ perception of the strength of factors that could be a possible obstacle to the growth and adoption of ICT within the country. The interviews lasted one hour on average. They were transcribed and information was synthesized in tables and through the elaboration of statistics.

Main Results

The ICT sector in Morocco, though still marginal in terms of its economic impact (5% of GDP at the end of 2001, more than 70% due to telecommunications), presents a notable growth and development rate. Taking into account peculiarities of the ICT market, we can distinguish between Telecommunications and ICT services; ICT services include business, information and media services as well as hardware and software distribution. Most companies, in fact, due to their limited size, offer both business and computer and information services. These activities are often accompanied by distribution of international brands of hardware or software.

According to some estimates (APEBI, 2001), the ICT service industry had an annual turnover of €0.2 billion at the end of 2001, excluding turnover derived from the sales of hardware for ICT applications, with an annual growth rate of 25-30%.

The level and means of competition in the ICT sector are very different according to the specific segment of the market. In particular, the IT services sector is characterized by the presence of numerous small and medium-scale information service companies and by large multinationals in the hardware and software sector. It is not possible to recognize competition between these two categories of companies for two main reasons: a) Moroccan businesses do not have the economic, financial or technological means of the large multinationals; b) Many information service companies have forms
of partnership with large businesses, which are mainly linked to the distribution and commercialization of hardware and software products.

The level of internal competition between information service companies is medium to low. Firstly, the growth in needs in internal and external sectors is superior to the productive potential of local companies. Secondly, many companies tend to specialize in very specific niche markets that have little competition. As regards foreign markets, most Moroccan businesses are not able to compete, apart from in very few cases, such as for electronic payment systems.

Most firms are small (5-20 employees) and have an entrepreneurial type of management, with no formal structures, a strong involvement on the part of the entrepreneurs in operative aspects and centralized decision-making. Large firms often have internal marketing, system quality and personnel management experts. In the opinion of the interviewees, the factors that most limit sector growth are internal demand of potential to be exploited, the lack of qualified human resources, the lack of support and incentives for growth for small and medium local firms, the inadequacy of several normative aspects and of the banking system in general with regards to sector needs.

The most interesting prospects for developments in the mid term regard the growth of internal demand from firms and the fact that public administration is moving towards e-government. In most cases, the interviewees identified the most important development opportunity in the short term as conquering a share of the market in the outsourcing of ICT services by foreign firms and the building of strategic partnerships aimed at a progressively more international business.

SIX CASE STUDIES OF PARTNERSHIP

Purpose and Method

According to the interviewees, the possibility of building a partnership with foreign businesses is considered a decisive factor for the promotion and growth of local firms in the ICT services sector. For this reason, six case studies of partnership between local and foreign firms were analyzed to answer the following questions: Which factors do firms perceive as relevant to favoring or impeding the formation of a partnership? What advantages can firms gain from the creation of a partnership? What are the models of partnership and how can they evolve?

The case-study method was chosen for the following reasons: a) the absence of previous studies concerning the theme of this research, b) the need to take into account data and information from multiple and diverse sources; c) the need for an approach which allows the phenomenon of partnership formation to be observed over time, in order to verify the processes which have lead to its establishment and its evolution. In particular, several significant cases related to successful examples of partnership have been analyzed. A partnership is considered successful when the entrepreneur perceives it as such and when the firm has realized significant benefits from the partnership in terms of performance (e.g., profit, market share, etc.)
The cases were chosen both on the recommendation of the association of local businesses and on the basis of the results of the survey. In order to observe the partnership phenomenon from different angles, firms which have a different kind of core business, size and models of successful partnership have been chosen for this multiple case study approach.

A more in-depth analysis was carried out through further meetings. The interviewees were asked to tell the story of the setup of the partnership, underlining the phases and critical events which were a turning point for the firm. We asked the following type of questions: How was the need for partnership born? In which phase of the firm’s life? How was the contact established? Which factors helped to strengthen the relationship? Has this relationship evolved over time and, if so, how? What benefits has the firm gained from this relationship?

We also analyzed company documents (e.g. web sites, brochures, advertising, internal documents, product information, CVs of those people employed in specific roles and product demos). The material collected was elaborated and the results were transcribed in a report, which was then seen by the interviewee to confirm that the information was accurate.

Case Study Descriptions

The title given to each case is based on the partnership model adopted and the features of the partnership process.

Case 1 – Direct Ownership: This concerns a large international company with its own facilities within the country, which produces telecommunication equipment and software for telecommunication management and maintenance. The company has 240 employees and a turnover of around $15 million. It has a TLC software production unit and is a typical example of direct ownership, where control of all the value-chain activities is in the hands of the multinational. It is interesting to note that the company, which has been in the country since the early ‘90s has grown strongly only in recent years. Foreign investment was not only the result of a low-cost workforce, but grew when the local market showed that it had notable potential. The company has no other local partners in software development.

Case 2 - High Added-Value Outsourcing: This is a medium-sized multi-product local firm that operates in the software development sector for CAD applications, and stock and inventory management, with 80 employees and a turnover of $3 million. Thanks to a start up at the end of the 90s, the firm’s market has grown in product scope and size and it has been able to insert itself into a very specialized niche related to software production for satellite navigation for cars. The start-up has led to greater internationalization, thanks to a partnership with a foreign firm and thanks to a deal with a car company that has adopted the system. This is an interesting example of a high-value offshore model which was not born, as is generally the case, from outsourcing on the part of a multinational company of its non-strategic production, but from the fact that a multinational has acquired specialist skills offshore.
Case 3 – The Critical Size: This case concerns one of the country’s leading software production companies, specializing in management software, integration, developing e-business solutions and consultancy. The firm has 180 employees and a turnover of around $8 and is made up of a group formed through the fusion of local firms. This grouping preceded the partnership with the foreign company because, in the managers’ opinion, a minimum size was considered a pre-requisite of attracting a foreign partner, maintaining an independent relationship and having greater bargaining power. The on-site/off-shore partnership model has been adopted, with a wide use of “en-regie” solutions, which means ‘loaning’ technicians who then work, sometimes for long periods, at the partner/client branch in the foreign country.

Case 4 – The Pure Commercial Partnership: This case concerns one of the country’s largest software distributors, with 33 employees and a turnover of $15 million, of which 90% is derived from business activity and 10% from assistance and installation services. The firm wants to expand its business network at a regional level and does not seem particularly interested in developing and marketing more sophisticated IT services, as it currently prefers to concentrate on the growth of internal demand for ‘basic’ services. Banks and large firms make up its biggest market segment. The small business segment is growing, while the private sector service segment is weak due to lack of demand.

Case 5 – Looking for Partners: This looks at a small firm in a phase of growth and consolidation after a start-up, with a turnover of $0.5 million and 22 employees. The firm produces software for insurance companies, accounting and banks and has a commercial partnership with a foreign company that distributes its products within the country and offers training and consultancy services linked to the product. The case is an example of many firms with similar characteristics that a) look for a deliberate development strategy within the partnership b) have considerable difficulty in overcoming the boundaries of single business deals. In the manager’s opinion, the major obstacles are a lack of trust and the need of the foreign firm to protect its know-how.

Case 6: Looking for Partnership in a Global World: This is a small firm (20 employees and a turnover of $0.6 million) which produces software for Geographical Information Systems to be applied in various sectors (distribution of electrical energy, water supply, land registry and airport management, etc.). The firm is similar in many ways to that of the previous case (size, life-cycle phases, etc.). It operates in a highly specialized niche sector and has developed an on-site/off-shore type of partnership model by opening a branch in a western country. Here too, the manager considers internationalization and the building of a strategic partnership to be essential for growth. One special feature of this strategy is a collaboration with a firm in a developing country (India), aimed at developing ERP solutions.

Case study comparison

This section compares the six case studies on the basis of variables that seem to play a major role in influencing the ability of local ICT companies in partnership development. Table 2 contains a short description of the case studies with respect to the variables.
### Table 2. The Description of the Case-Studies

<table>
<thead>
<tr>
<th>Case</th>
<th>Description</th>
<th>Case 2: added value Outsourcing</th>
<th>Case 3: The critical size</th>
<th>Case 4: The pure commercial partnership</th>
<th>Case 5: Looking for partners</th>
<th>Case 6: Looking for partnership in a global world</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Firm's core business</strong></td>
<td>Telecommunication equipment, software for telecommunication management and maintenance</td>
<td>CAD, Information systems for stock and inventory management, GPS systems for cars</td>
<td>ERP, software package integration and customization, software development, e-business, consulting</td>
<td>Software distribution of important foreign brands</td>
<td>Software package integration and software development for finance, assurance</td>
</tr>
<tr>
<td>2</td>
<td><strong>Other activities</strong></td>
<td>Consulting</td>
<td>Software Distribution</td>
<td>Marketing and sale services</td>
<td>Software distribution</td>
<td>Software distribution</td>
</tr>
<tr>
<td>3</td>
<td><strong>Number of employees</strong></td>
<td>240 (120 software developers)</td>
<td>60</td>
<td>180</td>
<td>33</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td><strong>Sales in 2001 (year sales growth rate)</strong></td>
<td>15 M$ (NA)</td>
<td>3M$ (50%)</td>
<td>8 M$ (30%)</td>
<td>15M$ (100%)</td>
<td>0.5 M$ (NA)</td>
</tr>
<tr>
<td>5</td>
<td><strong>Merging</strong></td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>6</td>
<td><strong>Export as % of sale</strong></td>
<td>NA</td>
<td>50%, 8-10%</td>
<td>0%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>7</td>
<td><strong>Current Market Scope</strong></td>
<td>Local, Regional and International</td>
<td>Mostly International</td>
<td>Local and International</td>
<td>Local and Regional</td>
<td>Local</td>
</tr>
<tr>
<td>8</td>
<td><strong>Organizational structure</strong></td>
<td>Divisional</td>
<td>Based on business area, Marketing department</td>
<td>Structured on Business Areas and competence centers</td>
<td>Informal</td>
<td>Based on projects, marketing department</td>
</tr>
<tr>
<td>9</td>
<td><strong>Quality</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>In progress</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
### ICT Service Industry in North Africa

<table>
<thead>
<tr>
<th>No.</th>
<th>Target country for partnership (or country of origin in case of Direct ownership)</th>
<th>Partners are distributors in other countries of the area</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>France</td>
<td>France, Canada, India</td>
</tr>
<tr>
<td>11</td>
<td>Direct ownership</td>
<td>On-site/off-shore</td>
</tr>
<tr>
<td></td>
<td>On-site/off-shore</td>
<td>Commercial partnership</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Commercial partnership, looking for partners willing to outsource software development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On-site/Off-shore</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Main advantages deriving from partnerships/outsourcing</th>
<th>Revenues, a certain amount of Know-how transfer</th>
<th>Revenues, knowledge transfer, market enlargement</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Low labor costs, language, availability of good skills, presence on local and regional market</td>
<td>Market enlargement, know-how transfer, Human Resources retention</td>
<td>Technology and Knowledge transfer, market enlargement</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Main barriers hindering partnership</th>
<th>Multinationals concerns for quality and know-how protection, lack of adequate country image promotion</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Human Resources turnover, lack of a sufficient number of qualified Human Resources, scarce incentives to foreign investments</td>
<td>Multinationals, scarce incentives to foreign investments</td>
</tr>
</tbody>
</table>
In all cases, entrepreneurs have some characteristics in common. Regardless of the company’s business, most entrepreneurs have good educational background, very often acquired in prestigious foreign universities, particularly in France and in the USA. In many cases entrepreneurs have attended MBA and PhD courses. Before starting their own business, almost all entrepreneurs have had previous experience in large multinational ICT companies. Overseas work experience has allowed them to acquire advanced technological background and to develop two fundamental competencies: a) managerial competencies (in particular, project management, planning, strategic analysis, marketing) and b) networking competencies (contacts in developed countries that in some cases help entrepreneurs create partnerships with foreign companies).

As shown in Table 2, the kind of core business of the company does not seem connected to the kind of partnership relationship established with foreign companies. Large-scale field studies are clearly needed to demonstrate the presence of possible correlation between a firm’s characteristics and the kind of partnership established. However, what seems to emerge here is that firms operating in very specialized market segments find it less difficult to set up a high added value partnership. In other words, foreign partners seem more interested in accessing specialized knowledge than in outsourcing low added value services.

With regards to other activities, Table 2 shows that non-strategic or complementary tasks are mostly related to software distribution of products of famous international brands and in some cases to consulting, training and assistance services. Although these relationships are only commercial ones, a longitudinal analysis of the case studies showed that such activities represent the first step towards the creation of more complex partnerships (off-shore software development, off-shore package integration, solution customization, etc.). This evolution has been observed in cases 2 and 3 and is pursued as a deliberate strategy in case 5.

As far as size, some research focusing on developed countries has shown that there is no strong correlation between supplier size and the intensity of the subcontracting relationship, especially regarding aspects of technology transfer (Esposito and Raffa, 1994). However, this idea seems to be rejected by local entrepreneurs interviewed by the authors. The argument given by interviewees is that, in order to build and manage a partnership with a foreign company, a minimum critical size of about 50 employees is needed. For this reason, many local companies have been involved in mergers and acquisitions, as in cases 2 and 3. Nevertheless, a major limitation on the growth of local companies is the lack of sufficiently qualified human resources. Contrary to other developing countries, such as India, Malaysia and China, North African countries are not able to provide a sufficient number of ICT technicians, both for demographic reasons and on account of an education system that is accessible only to a small elite. Therefore, it is no coincidence that almost all the entrepreneurs interviewed have identified the lack of qualified human resources as one of the major obstacles to company growth.
With regards to sales and growth in sales, the highest values are associated to firms which have high added value partnerships, as in cases 2, 3 and 6.

What also emerges is that partnerships are largely export-oriented. When the partnership model is on-site/off-shore, or purely offshore, production is mainly oriented to export towards developed countries, as seen in cases 2, 3 and 6. In the direct ownership model, production is both for internal market and for regional and foreign markets. In the commercial partnership, the focus is on internal or at most regional market, as in cases 4 and 5.

The availability of a quality certification such as ISO 9000 and Vision 2000, seems to be a prerequisite for the creation of a partnership with a foreign company; furthermore, the implementation of quality certification helps companies progress from a fairly informal organizational structure to a more structured one. In fact, in almost all the case studies, companies have a fairly formal organizational structure, despite the fact that some of them are relatively small. Even in very small companies, such as case 6 and 7, there is a clear distinction between operational and managerial tasks. Almost all the companies have a marketing department and, in some cases, rely on human resources specialists (cases 1 and 3).

The target countries for partnership are mostly European ones, especially France, because of historic, cultural and linguistic reasons. Only in case 6, the firm is involved in a partnership with an Indian company. The most widespread attitude of local entrepreneurs toward India is to consider this country a threat rather than an opportunity. However, some operators are starting to consider India as a potential partner for two main reasons: a) India is becoming an outsourcer country for other developing countries (China, Vietnam) and b) partnerships with companies coming from developing countries such as India, Egypt and the United Arab Emirates are preferred to partnerships with European companies because of greater cultural affinity and the possibility of dealing on an equal footing.

The partnership model adopted by each company was described earlier. Furthermore, what emerges from the case analysis is the common aspiration of entrepreneurs towards the on-site/off-shore model and high added value offshore activities (except in cases 1 and 4). Nevertheless, opening a branch office in developed countries can be too expensive for the majority of local companies. Entrepreneurs are thus calling for government policies aimed at promoting the national ICT industry in foreign markets. In their opinion, such activity could be implemented successfully by local associations of ICT companies with the support of the government; for example, some entrepreneurs affirmed that associations of ICT companies could set up their own branches in target countries, supporting local firms trying to exploit business opportunities in developed markets as well as foreign companies interested in offshore investments. At a managerial level, entrepreneurs and managers are usually aware that the adoption of the on-site/off-shore model requires strong networking capabilities, the availability of bi-cultural managers, great attention to customer needs and flexibility in human resources management. They are also aware that these factors are not always available or possible.
The main advantages deriving from partnership, as perceived by local entrepreneurs are: a) increased revenues; b) the possibility of access to important markets; c) know-how and technology transfer, and d) an increase in the retention of human resources, by offering interesting career plans for employees (i.e., international experiences).

The main barriers hindering partnership as perceived by local entrepreneurs are: a) the difficulty of reaching the minimum critical size due to the unavailability of a sufficiently qualified workforce; b) the difficulty of overcoming the multinationals’ concerns about quality and know-how protection; c) lack of adequate technological skill; d) lack of adequate managerial competence; e) inadequate promotion of the national industry by local governments; e) culturally-based barriers; and f) low incentives for foreign investments.

CONCLUSIONS

The ICT service sector can play a key role in the economic and social development of less industrialized countries. As regards to North Africa, such sector is characterized by a huge variety of strengths and weaknesses. Moreover, each North-Africa-country offers different opportunities for the growth of the ICT service sector.

The creation of partnerships may be a driving force for the development of such sector. Setting up partnerships with multinational firms supports the growth of indigenous firms, attracts foreign investments, fosters mutual trust, encourages technology transfer and knowledge exchange.

An in-depth research implemented in Morocco seems to confirm the key role played by partnerships in the development of the ICT service sector. Nevertheless, according to local entrepreneurs the establishment of such partnerships is still hindered by various barriers.

With respect to the results emerging from this study, suitable policies should be undertaken in order to remove such barriers and transform potential development opportunities into actual ones. In this respect, implementing effective growth patterns implies reinforcing existing partnerships and laying the foundation for the emergence of new ones.

More specifically, it is necessary to carry out long-term development policies (i.e., to invest in the education sector, in infrastructure, in e-government projects, etc.) together with short-term-internal-demand support initiatives (i.e., incentives to small and medium firms for ICT adoption, promotion of country image abroad, support to local ICT medium sized companies, etc.). While larger empirical analysis may be needed to draw more prescriptive conclusions, our analysis suggests that partnerships represent a feasible middle-term strategy for a sustainable development of the local ICT industry.
Acknowledgments

The authors wish to thank the Moroccan association of IT professionals APEBI (associations des professionnels de le technologie de l’information) for the valuable support offered during the field analysis. Thanks also to the anonymous reviewers for their suggestions that were very helpful in improving the overall quality of the paper.

REFERENCES


Giuseppe Bruno, PhD, researcher of Operations Research and Management Science at the Department of Business and Managerial Engineering, University of Naples Federico II, he received his Ph.D. in Computer Systems and Electronics in 1993. He teaches Operations Management at the Faculty of Engineering at the U. of Naples Federico II, His current research interests include location analysis, TLC network design and management, operations management.

Gianluca Esposito, PhD student in Business and Managerial Engineering, he received his master degree in International Economics at the Johns Hopkins University (School of Advanced International Studies). His current research interests include: entrepreneurship, ICT development in less industrialized countries, ICT implementation processes.

Luca Iandoli, PhD, researcher at the dept. of Business and Managerial engineering, University of Naples Federico II (Italy). He received his Master Degree in Electronics Engineering in 1998 and his Ph.D. in Business and Management Engineering in 2002. His current research interests include decision-making support systems and IT tools for human resource management, small ICT firms in developing countries. He is member of the editorial board of the Fuzzy Economic Review.

Mario Raffa, full Professor of Business Economics and Organization, his research interests are small innovative firms, supply relationships, industrial organization. He is author of more than 150 national and international publications (Books, Journals, Book chapters, Conferences). He is member and he collaborates with several national and international associations: AICA, ANIPLA, AICQ, ICSB, ECSB, IPSERA, EUROMA. He is member of the editorial board of European J. of Purchasing and Supply Chain Management, and Piccola Impresa/Small Business. He is the chair of the Italian Association of Business and Management Engineering (AIIG).