SOLUTIONS FOR DEVELOPMENT CONSULTING CO.

Palestinian ICT Sector 2.0: Technology Sector Development Report and Recommendations Relevant to Regional and Global Market Opportunities

For

Palestinian Information Technology Association of Companies

Mercy Corps

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www.solutions.ps
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1. Executive Summary

The Palestinian ICT sector holds great potential for growth and is considered a potentially large employer and contributor to Palestinian economic development. At present the ICT sector’s contribution to the overall output of the Palestinian economy is disproportional to the number of people it employs with 3% of the workforce (about 5,000 individuals) producing 8% of output. The ICT sector stakeholder ambition is to increase Palestinian ICT companies’ international market access (i.e. enhance export activity) to encourage sector growth. To do so, Palestinian capabilities (i.e. the supply-side) have been studied and show that software development is the leading subsector that Palestinian export-ready companies are able to supply competitively and at high quality standards. Another service that export-ready companies are capable of providing competitively is staff augmentation and business process outsourcing. Additionally, the human capital that exists in Palestinian ICT companies is capable of providing the above services with high quality soft skills, including functional management skills, language skills, and other communication skills.

On the other hand, the study also shows that there is some demand for technical skills that are lacking among Palestinian ICT firms and that are related to innovation, research and development opportunities, and exposure to international experiences. These are often unaffordable or inaccessible to the majority of ICT SMEs in Palestine, but all the more necessary to be provided by supportive and representative bodies such as PITA.

The report suggests recommendations to improve the legal, regulatory policy framework for the ICT sector focusing on the few key areas including; accessing the 3G and 4G telecommunications’ networks, provision of ICT product testing within Palestine, Promotion of ICT application in the basic education system and promoting innovation and R&D through cooperation between private investments and academic higher education institutions.
2. Overview of Palestinian ICT Capabilities

Sector Development

Over the last four years the export element of the Palestinian ICT sector has shown considerable development. Cisco started activities with three Palestinian companies in 2009; this has led to relationships and business which continue to develop into 2013. The international relationship base has grown with multinationals and now there is business in place with Hewlett Packard, Intel and Microsoft, among others. These relationships are mainly managed through the Israeli subsidiaries and involve research & development work, programming and testing services for micro processors and software.

Additionally Palestinian ICT companies have business contracts with European, USA and other Middle East and North Africa (MENA) based companies, all areas where the Palestinian ICT industry is looking to further develop.

Specific Capabilities

In 2009 the first ICT Development Report was published. This was based upon detailed research into the industry capabilities with a view to helping potential customers understand the opportunities for working with the Palestinians. Whilst the largest sector of the industry is telecommunications, the vast majority of which is domestically based, more recently a number of companies have been exporting services around broadband, WiFi and microwave link technology. However software and services provide the vast majority of the export value.

Whilst the internet requires upgrading to get to speeds enjoyed in other countries, the telecoms back bone is provided through Jordan, Egypt and the UK, via Israel. This provides a sound level of redundancy for international operations.

Many of the exporting organizations are owned and managed by Palestinians who have had international experience and lived outside of the territory at some stage, providing them with a sound understanding of the requirements of international business.

In terms of the number of companies providing export services or solutions, the focus is on IT services and software, areas where export is possible and not affected by border controls. Indeed several companies are selling their Arabic applications and software solutions into the rest of MENA.

Software technology capabilities identified in the 2009 study included most of the major software platforms, including .NET, Linux, Java, Windows NT and Unix. Language capabilities again covered the main international requirements: HTML;
Java; Ajax; C++; VB; Ruby and many others. Over the last 3 years it seems these skills have been developed in line with international trends.

The 2009 findings included a concern over the lack of Mobile Applications skills, these were present, but not in the abundance that was required to really address the needs of the mobile applications sector. Over the last period these skills have been developed and mobile application development skills are in existence and are being increased, and this area is seeing start-ups particularly aimed at Arabic mobile Apps and content.

Whilst Gaza was not included in the 2009 report subsequent analysis was carried out on the ICT sector in 2010. Despite the political and security problems in the territory there is an active ICT sector with several companies continuing to provide software services and applications for export, often through subsidiaries located outside of Palestine, but owned in Gaza.

More recently there is also a growing focus on innovation and business start-ups across Palestine and whilst this has a long way to go it will start to increase the pace that the local market will grow. Specific technology areas and investment funds are either in place or in plan to support these developments.

**Conclusions**

The Palestinain ICT sector has proven through a number of local companies that it can reliably supply international software and services and the skills base is developing as more of these relationships and contracts are developed. The reliability is high, with most companies exporting retaining and developing international relationships, though as the main report points out there are inherent weaknesses which need addressing.

The range of technology capabilities are sound, though more capacity in some of the more popular software skills, such a mobile would be beneficial. As important, the culture and English language skills make Palestine a promising location for both international projects and as a localization centre. The MENA region is seen as a growth area and should be of interest to many international organizations across all sectors, though the current instability in some areas is causing economic slowdown.

Innovations and research and development are seen as important to the Palestinian industry’s development and success in this area will build capacity and result in new companies forming.

The challenges of the political situation have to be recognised, but the West Bank has been stable for some time and considerable investment is going into the development of Ramallah in particular. Access for international visitors is
reasonable either through Israel or Jordan; all of course are subject to Israeli border controls.
3. Introduction

The Palestine Information Technology Association of Companies (PITA) in partnership with Mercy Corps has commissioned Solutions for Development Consulting Company to conduct a Technology Sector Development Report on the Palestinian Information and Communication Technology (ICT) Sector. The purpose of this report is to identify the capabilities and comparative advantages of the Palestinian ICT Sector. Toward that end, this report includes:

- The Palestinian ICT Sector Supply Side Report
- Report on Israel Market Engagement Plan, Constraints and Opportunities Analysis
- Report on Jordan Market Engagement Plan, Constraints and Opportunities Analysis
- Report of Third Market (Saudi Arabia) Engagement Plan, Constraints and Opportunities Analysis
- A summary of the findings on Public Policy that limits cross border partnerships and recommendations for policy change.

PITA represents more than 143 ICT firms and is the main advocate of the interests of the Palestinian ICT sector. In addition, PITA is the primary reference on the ICT sector. PITA membership represents various ICT sub sectors including hardware distributors, software development firms, office automation vendors, internet service providers, telecommunication companies, and IT consultants. PITA’s mission is to “lead the Palestinian ICT sector towards a knowledge and innovation based economy through enhancing the ICT business environment, developing a qualified and capable pool of ICT professionals, and improving the positioning of the Palestinian ICT sector internationally” by increasing the sector’s competitiveness in international markets.

Mercy Corps is an international aid organization focused on effective response to disaster, providing relief services to areas hit by emergency or natural disaster, as well as sustainable economic development, and the provision of health services. Since 1979, and with the mission to “to alleviate suffering, poverty and oppression by helping people build secure, productive and just communities,” Mercy Corps has provided $1.3 billion in assistance to people in 100 nations. Mercy Corps programs currently employ 3,400 staff worldwide and reach more than 14 million people in more than 35 countries. Mercy Corps was awarded a grant by the European Union in 2008 and then again in 2011 to implement an Information and Communications Technology Business Development Project (ICT BDP) through the Partnership for Peace funding instrument. The aim of the Mercy Corps ICT BDP is to instigate the expansion of the Palestinian knowledge economy through strategic investment in the ICT sector.
Solutions for Development Consulting Co. is a consulting firm located in Ramallah that specializes in management and strategic planning, market research and marketing, as well as providing advisory services to development efforts in Palestine. Solutions have many years of experience working in Palestine on private sector development. Solutions’ team of researchers and consultants has particular experience in ICT research and planning. As it continues to build its specialized knowledge of local private sub-sectors, Solutions continues to aspire to contribute to the development of Palestine by supporting the development of its private sector.

This report will first give an overview of the efforts that have already been exerted to develop the Palestinian ICT sector over the last few years. The report then identifies and discusses the existing capabilities of the Palestinian ICT sector with the overall goal of increasing the quantity of business relations between Palestinian ICT firms and the international community.

The report will conclude with a set of policy recommendations that would facilitate international partnerships that ultimately benefit PITA’s constituents – Palestinian ICT firms.

4. Background

The Palestinian ICT sector is recognized as a significant sector for economic viability and growth by both the Palestinian private sector and the Palestinian Authority. The ICT sector currently employs 3% of the Palestinian workforce. Employees in the ICT sector are highly productive in that they contribute more than 8% to the overall Palestinian GDP. The ICT sector is also a strong contributor to the overall economy in that for each new worker employed in the ICT sector, three employment opportunities are created in other sectors that support the ICT sector. Moreover, in the current climate, the enhanced use of ICT in Palestine, particularly when used to facilitate public service, is considered a crucial component to national infrastructure for improved living standards.

According to the recently finalized ICT 3-year sector strategy and development plan commissioned by PITA, the Palestinian ICT sector strengths include:

+ The demonstrated capabilities among software development and ICT companies. This includes banking, telecommunications, data warehousing, municipal services, university registration, school management, courts’ automation, human resource management, financial management, enterprise

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resource management, customer relations management, Internet solutions and portals, archiving, and many other applications.

+ The established and mutually beneficial relationships with Israeli ICT companies. During the last few years more than 500 Palestinian engineers and analysts have been employed in Palestinian companies working with Israeli IT companies.

+ The existence of PITA as a representative body able to serve and protect ICT company interests.

+ The support that both the Ministry of National Economy (MNE) and Ministry of Telecommunications and Information Technology (MTIT) provide to the sector has been encouraging and is expected to improve.

+ The high level to which Palestinian expatriates are exposed to international markets and experiences.

+ The large number of formal and informal sector leaders who champion progressive ideas toward the sector’s development.

+ The large number of university students specializing in ICT fields, with approximately 1500-1600 ICT graduates every year.

+ The active role that fill-gap training entities play such as the Najjad Zeini IT Centre of Excellence (Bir Zeit University) among many other establishments.

+ The significant interest and commitment that donors and donor agencies show for the ICT sector.

+ The availability of a willing and able workforce when trained.

+ The availability and access to venture capital and equity funds including SADARA, Abraj, Siraj and Sharakat fund.

On the other hand, the same study showed the following weaknesses that present obstacles to sector growth but also have been identified by the industry leadership and line ministries to be addressed:

- The significant gap between the skill and knowledge level of fresh graduates and job market demand.

- The minimal readiness and slow evolution that companies show post-start-up phase.

- The limited telecommunications infrastructure.

- The weak ecosystem for entrepreneurs and innovation.

- The small domestic market.

- Limited access to finance, particularly to SMEs.

- Gaps in the legal regulatory framework including absence of intellectual property law.

- Minimal government spending on the sector.

- Brain drain phenomenon.

- Potential integration problems between IT professionals in Gaza and the West Bank.
Finally, and most relevant for the purposes of this document, there is a perceived weakness among sector stakeholders in the lack of end-to-end regional and international market penetration programs (exports).

Given the above, and especially the limited government and public sector spending, ICT sector stakeholders agree that the sector’s growth lies in the effective engagement with international markets. A growing number of developing countries have been inspired by the success stories of fast growing exports of ICT services from a diverse group of countries such as Singapore, India, Taiwan, China, Malaysia, and Finland. According to a staff working paper published by Information Solutions Group\(^1\) within a decade or two, countries such as Korea, Taiwan, Singapore, and Malaysia have increased ICT exports to constitute over 50% of their total export. China’s ICT exports have reached over $40 billion annually, with evident impact on markets (transparency), productivity (efficiency), organizations, innovation, education, employment, etc.

Additionally, due to the restrictions imposed by Israel, particularly on the movement of Palestinian people and goods, the reduced transaction costs compared to other industries in Palestine and the increased reach of the ICT industry provide Palestine the opportunity for continued economic development and resilience against restrictive policies. As for export activity, the characteristics of ICT service oriented exports could allow Palestine to engage internationally. Both public and private ICT stakeholders understand the impact that increased ICT export activity can have on Palestine, and seek to take full advantage of it as an economic opportunity.

That being said, several challenges mentioned above as sector weaknesses must be reconsidered and recognized as areas in which there is public (and private) responsibility to address for enhanced ICT export activity. One of the main challenges is the limitations of the weak infrastructure. In recent years there have been many efforts by the Ministry of Telecommunications and Information Technology (MTIT) to increase competition in the telecom market including liberalization efforts, building the government network, and the Academic Network. This resulted in improved competition including the introduction of more Internet service providers to the local market. To this end, it is important to note that the information technology infrastructure requires further development and investments. This problem affects the ICT sector in several ways, primarily through keeping the ICT sector and the local ICT market behind in the latest technological developments and ICT trends, which rely on more advanced infrastructure.

Another challenge is the limited ability of the government to support education, research and development (R&D) in ICT. On the education front, given the gap between the skills and competencies of fresh ICT graduates and the needs of the

\(^1\) ISG Staff Working Paper, “Why National Strategies are needed for ICT-enabled Development” June 2003
marketplace, the Palestinian ICT worker is less prepared in terms of skills and competencies than ICT workers in neighboring markets. Government efforts are needed to support improved curricula, student training opportunities, etc. Additionally, the financial and human resources dedicated to R&D by the government and the private sector in Palestine is minimal. As a result, there are very few ICT innovations, and even fewer cases of R&D innovations being brought to market as products or services. Public-private dialogue and future partnerships must address the problematic negligence of R&D. Finally, the limited access to financial resources available to firms, especially start-ups and small and medium sized enterprises (SMEs) in ICT must be addressed. This challenge significantly restricts innovation and the entrepreneurial potential that is much needed for a healthy and productive ICT ecosystem.
5. Palestinian ICT capacity

The Information and Communication Technology sector is a critical part of the Palestinian economy. The ICT sector employs over 5,000 people (see table below), some of the most productive workers in the economy. The ICT sector’s contribution to the overall output of the Palestinian economy is disproportional to the number of people it employs with 1.5% of the workforce producing 8% of output. The ICT sector is also a critical component of the Palestinian infrastructure which is needed to sustain and develop the local economy.

The table below shows some critical indicators of ICT contribution to the Palestinian economy:

<table>
<thead>
<tr>
<th>Year</th>
<th>2010&lt;sup&gt;3&lt;/sup&gt;</th>
<th>2011&lt;sup&gt;4&lt;/sup&gt;</th>
<th>Change%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Establishments</td>
<td>446</td>
<td>500</td>
<td>12.10%</td>
</tr>
<tr>
<td>Number of Workers</td>
<td>4,377</td>
<td>5,418</td>
<td>23.80%</td>
</tr>
<tr>
<td>ICT Production in US Dollar</td>
<td>588,918,700</td>
<td>681,698,700</td>
<td>15.80%</td>
</tr>
<tr>
<td>Total Output</td>
<td>7,365,581,000</td>
<td>7,925,022,000</td>
<td>7.60%</td>
</tr>
<tr>
<td>ICT Contribution to Total Output</td>
<td>8.00%</td>
<td>8.60%</td>
<td></td>
</tr>
<tr>
<td>Value Added to GDP</td>
<td>89.50%</td>
<td>87.00%</td>
<td></td>
</tr>
</tbody>
</table>

Remarkably, Palestinian ICT creates the highest added-value as compared to total production with 89.6%. The ICT sector is the fastest growing sector among Palestinian economic sectors with annual growth rate of more than 10% contributing 8% to the Palestinian GDP.

In order to strategize toward growth, and particularly in the direction of international market access (export), the starting point is to assess the existing capabilities among ICT firms in Palestine. ICT firms in Palestine are grouped in the following subsectors:

**Large size enterprises: Telecommunications**

Telecommunications firms provide fixed and mobile phone lines, Internet and broadband services. As a proportion of the overall ICT output, the telecommunications subsector represents the largest share of the ICT sector. There

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are mainly two large sized enterprises: Wataniya Mobile and PalTel Group. The Ministry of Telecommunications and Information Technology has assumed the regulator role until the telecom law of 2009 is approved and the regulator is established. It is worth noting that the Palestinian Authority does not own any shares in the private telecom companies.

Market liberalization is important given its impact on increased competition. According to the recently finalized ICT 3-year sector strategy and development plan commissioned by PITA, there have been many efforts by the Ministry of Telecommunications and Information Technology (MTIT) to increase competition in the telecommunications market including liberalization efforts, the government network, and the academic network. This resulted in improved competition including the introduction of more service providers to the local market. However, the incumbent operator's (PalTel) de facto monopoly is still impeding more effective competition. This is resulting in high connectivity costs and issues with the network quality of service, low speeds, and connectivity reliability.

Companies providing telecommunication services have identified the following challenges or priority areas to be addressed by stakeholders: access to equipment and materials that would facilitate the development of the telecomm sub-sector; the high cost of equipment of Israeli products; the small domestic market; too many Internet Service Providers (ISPs); unclear vision for the Ministry of Telecom and IT with regard to BSA licensing (unclear business model); and the need to open new markets.

Small and medium size enterprises (SMEs)

There are about 250 firms linked to other non-telecommunications and IT-related subsectors, of which approximately 143 are represented by PITA.

These are software development, hardware development, web-related production and services, including mobile application development, internet applications, program development, and Arabization of content and software services. The majority of these firms are small or medium in size with an average of 11-25 employees. These SMEs provide IT-related solutions in human resources management, projects and sales management, finance and accounting, education-related solutions, management information and systems, children’s education, entertainment services, products in web development, e-businesses, web portal development, ICT consultancy, and office automations.

5 There are other smaller companies working in providing alternative telecommunication services i.e. voice over IP.
6 Sub-sector workshops’ findings, January, 2012, the Private Sector ICT Strategy, PITA.
Generally, SMEs in Palestine tend to be of sole proprietorship, established for self-employment or family employment purposes, and driven to serve the local market, thereby limited to local market opportunities that are too few to begin with, and overcrowded with competition. In a survey conducted by PITA among 66 IT companies (members and non-members), 33% of respondents considered increasing local market share as their main strategy to grow their own business, while 31% chose developing new products or services and 25% indicated exports as their number one priority. The survey also revealed that 82.6% of respondents’ sales go to the West Bank and Gaza, while the remaining go to exports.

The SME experience in Palestine often lacks exposure or experience, the financial resources, or qualified human capital needed to access international opportunities which ultimately present an obstacle to growth or development.

SMEs and start-ups particularly face challenges in accessing early stage funding. This is a major obstacle to doing business. Potential sources of finance include: government programs, the banking sector (currently the largest and most important source of formal finance, though least accessible by SMEs in the IT sector), capital markets, venture capital, trade financing, informal sector financing (loans from family and friends).

That being said, there is a group of key firms in Palestine that have the capacity in terms of skills, experience, and human capital to engage external markets. It is estimated that 30 Palestinian IT related companies are contributing to around $30 million of Palestinian exports.

There has been some effort by PITA to build firms’ capacities and business skills using donor funding, and with the absence of government support. Solutions research indicates that the main sub sector that Palestinian firms have capacity in is software development. A workshop to study main challenges facing the software industry in Palestine was organized by PITA on January 12, 2012 and came to conclude the following challenges: skill development to keep up with international trends, transfer new knowledge to the developers (software and web designers), new tools for web and software development that we are not aware of, international Quality Certification for software development, need for a reference code or organization that sets a minimum required quality in the software and web development business, University curricula are not compatible with market needs and need to be upgraded.

Another service provided by export-ready Palestinian ICT firms is staff augmentation and business process outsourcing. These services have recently

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7 Mapping and Needs Assessment of Business Associations and SMEs in the Agricultural and Tourism Sectors, November 2011, Al-Markaz
8 Estimates by Ms. Hanan Taha; CEO of Palestine Trade Center-Paltrade.
showed a promising trend as some companies have managed to implement projects outsourced from European, American and Israeli IT providers and employing hundreds of Palestinian engineers and business schools’ graduates.

Both these services are limited in scale due to the limited size of the Palestinian ICT sector, and the limited number of firms offering these services, and some lacking infrastructural elements in Palestine. For example, high-speed nationwide broadband network is essential for the development of the IT sector in next generation information society applications: e-health, e-commerce, e-education, e-government, digital media, R&D, cloud computing, etc.

Over the years, there have been several efforts to promote exports by PITA. This included supporting different business missions and funding companies’ participation through donors such as the European Union and USAID. Another consistent effort is holding the Expotech in Palestine which is aimed at branding the sector and attracting new investments.

According to the Palestinian Central Bureau of Statistics in its specialized ICT business survey 2011, the entire ICT sector employs a little more than 5,000 individuals, while there is an average of 1,650 additional ICT graduates per year from Palestinian universities. However, there is an evident gap expressed by ICT firms between the formal education of these graduates and the firms’ demand for skill and expertise. According to the Palestinian ICT factsheet published by Mercy Corps on “Outsource2Pal.com”, soft skills available in Palestine include good language skills in Arabic, English and Hebrew that facilitate communication with customers. On numerous occasions, PITA underscores the need to further develop the other soft skills of Palestinian graduates such as those related to professional communication and functional management including human resource management, marketing management, financial management, etc.

The needed technical skills that are lacking among Palestinian ICT firms are related to innovation, research and development opportunities, and exposure to international experiences, which are often unaffordable or inaccessible to the majority of ICT SMEs in Palestine.
6. Public Policy and Recommendations

Due to the current political situation in the Palestinian Territory, and under the Paris Protocol which is the framework agreement under which all of Palestinian international trade is conducted, Palestinian policy makers have very little control over policies that govern cross border trade. As a result, there is very little that Palestinian policy makers can do to increase cross-border partnerships in a direct way without reevaluating the Paris Protocol, which has proven extremely difficult, even for dealing with issues that are critical to the Palestinian economy.

On the other hand, Palestinian policy makers can make changes that will strengthen the Palestinian ICT sector, and indirectly increase its capacity and competitiveness and therefore affect an increase in cross border partnerships and trade. Although the recommendations do not have a direct effect on cross border trade, and are still very difficult to implement in the current political and economic situation, Solutions believes that these recommendations will be the most effective.

The main change that policy makers should try to effect is to push on the political level to give Palestinians access to 3G and 4G networks and larger high speed internet bandwidth. These capabilities are critical for the development of a competitive Palestinian ICT sector. This upgrade in ICT infrastructure will allow individuals, businesses, governments, and other entities to take full advantage of the latest ICT technology to improve their businesses, education, connectivity, and quality of life.

The general trend in information technology usage is indicating that mobile applications and cloud computing are the future of information technology. 3G and 4G networks and high speed internet access are essential for the growth of the ICT ecosystem that will allow Palestinian ICT firms to excel in these subsectors.

The ability to test products in the local market is critical to developing the skills and experience needed to compete on the international level. In a local setting, there is proximity between the developer, marketer, and end user of this product or service. This proximity allows the development process to be streamlined with information between the different parties moving quickly and smoothly. As long as this necessary infrastructure is not available, the Palestinian ICT sector will continue to be at a disadvantage in terms of international and regional competitiveness.

Another way for policy makers to effect positive change in the Palestinian ICT sector and indirectly increase cross-border trade and partnerships is through an increase in government ICT spending. There are many avenues that the government spending on ICT can be politically justified including building the e-government infrastructure and increasing ICT spending in key ministries such as the Ministries of Education and Health. Having said this, it is important to note that government efforts to lead e-government initiatives have been fragmented.
Increased government spending is an excellent way to support the local ICT sector and overall economic development for several reasons. The most direct benefit is that by purchasing ICT services and products from the local ICT sector, the government will be strengthening the sector financially and in terms of knowledge and experience. As the ICT sector is an important driver in overall economic growth, the direct benefits of government ICT spending to the overall economy are obvious. Beyond the immediate financial impact, this increase in demand for ICT products and services will be met by an increase in supply. This increase in supply means more firms competing for government business, and thereby becoming more knowledgeable, experienced, and efficient. This allows Palestinian ICT firms to hone their service delivery skills in the domestic environment which will make them more prepared for competing on international markets.

Another recommendation for policy change that will indirectly affect the competitiveness of the Palestinian ICT sector and its ability to engage in cross border partnerships is an increase in government investment in education. Government should put more computers in schools and build networks to connect those schools. Aside from the direct benefits to the ICT sector mentioned above, this type of government spending is in essence an investment in skills and capabilities of the workforce of the future. The more students have access to information technology in school, the better prepared they will be to be productive members of the workforce. In addition to creating a more productive overall workforce, this investment will make those entering the ICT field better prepared and ultimately more productive ICT workers.

Another investment in education that is critical to nurturing a thriving ICT ecosystem is to subsidize or incentivize higher education in ICT related fields and in research and development (R&D). It can be argued that this type of investment is essential to creating an internationally competitive ICT sector that is distinguished by innovation.

Most stakeholders in the Palestinian context are fully aware of the limitations of Palestinian policy makers and government, both politically and financially. However, there are opportunities that do not require political influence or financial capabilities. The Palestinian government and policy makers have excellent contacts with regional public and private sector leaders. There should be better coordination between PITA and Palestinian policy makers to harness these contacts for the purpose of developing the Palestinian ICT sector. There are many ways that these kinds of relationships can result in successful business transactions including securing contracts for providing services and products, making promising connections with key market players, and even creating a presence and a hospitable business environment for Palestinian businesses in regional markets.
This strategy of taking advantage of the contacts and networks of policy makers for the benefit of the Palestinian ICT sector requires close coordination between PITA and these policy makers, and clear communication of the capabilities and needs of the Palestinian ICT sector.

The table below summarizes recommendations on required changes at the policy levels to further the development of the Palestinian ICT sector.

*It is important to note, however, that these recommendations and strategies are neither exhaustive nor comprehensive. Rather, they are meant to advise on the direction to be taken in addressing critical policy and regulatory issues.*

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Strategies</th>
<th>Who?</th>
</tr>
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<tbody>
<tr>
<td>Access to 3G and 4G networks has been ensured</td>
<td>- Preparing necessary technical documentations and studies to support political and media campaigns efforts. &lt;br&gt; - Prepare necessary policy and procedures required to be implemented once access will be granted. &lt;br&gt; - Developing a media and PR campaign to present this issue at regional and international levels.</td>
<td>- Ministry of Telecommunication and IT &lt;br&gt; - Ministry of Foreign Affairs &lt;br&gt; - Negotiation Support Unit &lt;br&gt; - PITA &lt;br&gt; - Telecommunication and IT private sector companies.</td>
</tr>
<tr>
<td>Ability to test Palestinian ICT products has been enhanced</td>
<td>- Preparing necessary studies and documentations on required testing labs, technical training and certifications. &lt;br&gt; - Preparing specialized study on policy adjustments required to support.</td>
<td>- Ministry of Telecommunication and IT &lt;br&gt; - Palestinian Standard Institute &lt;br&gt; - Universities &lt;br&gt; - PITA</td>
</tr>
<tr>
<td>Palestinian Authority's (as an administration) e-government initiatives are formally adopt and</td>
<td>- Integrating the e-government initiative with many public sector reform programs.</td>
<td>- Prime Minister's Office &lt;br&gt; - Ministry of Finance &lt;br&gt; - General Personnel Council</td>
</tr>
</tbody>
</table>
| implemented | - Ministry of Telecommunication and IT  
| - PITA  |
|---------------------------------|-----------------------------------------------------------------------------------|
| ICT has been integrated within the formal education system | - Introduce a national initiative to train and certify thousands of educators on ICT integration within education at the curricula and education methods.  
- Provide all schools with access to internet, computer labs with adequate technologies. |
| - Ministry of Telecommunication and IT  
- Ministry of Finance  
- Ministry of Education  
- PITA  |
| Innovation and R&D programs within higher education institutions have been improved | - Prepare white papers on required policy adjustments to promote private investment in universities’ activities in the R&D fields i.e. tax breaks, etc.  
- Develop special programs to encourage ICT managers’ involvement in education programs especially in IT related schools. |
| - PITA  
- Ministry of Higher Education  
- Ministry of Finance  
- Members at the Palestinian Legislative Council |
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Annex 1: Literature Review in preparation for

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Palestine

- National Strategy For Telecommunications, Information Technology and Post in Palestine

Ministry of Telecom and Information Technology “National Strategy for Telecommunications, Information Technology and Post in Palestine” 2011-2013


The Palestinian Authority's National Strategy for the Telecommunications, Information Technology and Post in Palestine for the years 2011-2013 is the main public policy document defining the ICT sector strategy on the national level. As the guiding strategy for the public institutions working with the ICT sector, this document identifies the Palestinian Authority's vision for this sector and gives an overview of the current state and the challenges facing this sector. This document also identifies strategic objectives as well as sector policies for the telecommunications, information technology, and post sectors. The primary focus of the information technology sector policy is building the e-government capability of the PA as well as developing laws and regulations that will create a hospitable ICT environment.

- Palestinian ICT Private Sector 3 Year Strategy


The Palestinian ICT Private Sector Strategy is the basis of most of the activities and programs being implemented by the Palestinian private sector ICT stakeholders. This document provides an analysis of the Palestinian ICT sector, identifies strategic issues that need to be addressed, and presents a three year strategy based on a Results Based Management approach. The Palestinian ICT Private Sector strategy was commissioned by PITA through GIZ.

The Palestinian ICT Private Sector Strategy focuses on capitalizing on the availability of young human capital and its potential to promote innovations as a basis for the overall development of the Palestinian ICT industry. The strategy defines external markets for exports of services and products as main targets as opposed to the local Palestinian domestic market. In light of the Palestinian
Authority's present financial crisis and the absence of major government initiatives and reform plans in the foreseeable future, the strategy does not consider government spending to encourage growth in the ICT sector or the capabilities of ICT firms as a viable strategic direction. This approach is contrary to the proven model of government spending led ICT sector development that has been very successful in countries like Singapore and Israel.

Having said this, the political and economic hardships that are endured by the Palestinian private and public sectors are a primary factor in strategic decision making. In the context of the development of the ICT sector, there is a tradeoff between policies that are proven to be effective and policies that are achievable given the limited resources. The PITA strategy sets goals which are achievable given the resources.

- **ICT Business Development: Market Mapping of the Palestinian ICT Sector and the Opportunities for Partnership in the Region**


[www.outsource2pal.com/userfiles/2009110971027.pdf](http://www.outsource2pal.com/userfiles/2009110971027.pdf)

Mercy Corps’ Market Mapping of the Palestinian ICT Sector and the Opportunities for Partnerships in the Region provides a thorough analysis of the ICT sector in Palestine in general and in the West Bank in particular. This document includes a multilayered overview of the ICT Market including a global, regional, and local overview of ICT markets. The document also provides a very informative perspective on outsourcing in general, including a SWOT analysis of Palestinian outsourcing and analysis of which type of outsourcing is most compatible with Palestinian ICT sector capabilities. The document also provides an overview of the Israeli ICT market and policy recommendations to help develop the competitiveness of the Palestinian ICT sector.

- **ICT Business Development: Market Opportunities in Gaza and the Region**


[http://www.cims.uk.com/media/591/Market%20Opportunities%20in%20Gaza%20and%20the%20Region.pdf](http://www.cims.uk.com/media/591/Market%20Opportunities%20in%20Gaza%20and%20the%20Region.pdf)

Mercy Corps’ “ICT Business Development: Market Opportunities in Gaza and the Region” provides an examination of the ICT Sector in Gaza and identifies potential strategies based on local and regional opportunities. This document is very useful in that it supplements Mercy Corps’ previous document, “ICT Business Development: Market Mapping of the Palestinian ICT Sector and the Opportunities for Partnerships in the Region. 2nd Edition” Mercy Corps, 2010, which focuses
primarily on the West Bank ICT market. Together, the two documents provide a thorough profile of the Palestinian ICT sector as a whole. The document also provides profiles of key ICT firms operating in the Gaza Strip.

In its recommendations and proposed strategies for increasing cross border trade in ICT goods and services, this document treats the West Bank and Gaza Strip as separate entities, which currently is a political, economic, and geographic reality.

**Palestinian Central Bureau of Statistics (PCBS): ICT Survey 2011**


The ICT Survey 2011 published by the Palestinian Central Bureau of Statistics is the most recent set of official data on the ICT Sector. PCBS is the main source of data on the Palestinian ICT Sector and most recent research and analysis on the Palestinian ICT sector relies primarily on the data and information provided in this report.

Although the PCBS is the main source of data on the ICT sector in Palestine, it must be noted that telecommunications data are included in the survey and the telecommunications segment is disproportionately large relative to the other segments that make up the ICT Sector. The reader should keep this in mind when dealing with official Palestinian ICT sector data.

**Challenges Facing IT in Palestine**

PalTrade “Challenges Facing ICT in Palestine” 2010


This document provides an overview of the Palestinian ICT sector as well as a summary of the major challenges facing the growth of the ICT sector. This document does a good job of articulating that one set of barriers to Palestinian ICT development and growth are the limitations placed by Israel on Palestinian telecommunications companies. As a result of limited access to bandwidth for high speed internet access, and no access to 3G and 4G cellular networks, the Palestinian ICT sector lacks the necessary resources and infrastructure for continued ICT development, especially in growing sub sectors such as cloud computing and mobile applications.
### Annexe 2: List of Interviewed ICT Companies

<table>
<thead>
<tr>
<th>Firm Name</th>
<th>Description</th>
<th># Employees</th>
<th>Services Provided</th>
<th>Specialty</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bisan Systems Ltd.</td>
<td>Established in 1988, Bisan Systems Ltd. has been the leader in fulfilling the ever changing information needs of companies and institutions in Palestine through its Business Management and Financial Applications. With well over two decades worth of technical experience Bisan Systems has come to the realization that the creation of the ultimate business management system could only be a product of precise customization to our client's exclusive desires and our united vision of their future needs. Many enterprises including multinational companies in diverse industries are using Bisan Systems to assist them in their quest for efficiency, productivity and profitability.</td>
<td>25</td>
<td>Business Management and Financial Applications</td>
<td>Software Solutions</td>
<td>Tel: 970 2 298 5941 Fax: 970 2 298 5942 <a href="mailto:info@bisan.com">info@bisan.com</a></td>
</tr>
<tr>
<td>ASAL Technologies</td>
<td>ASAL Technologies is a software and IT services outsourcing company in Ramallah, Palestine that was founded in 2000. Today, ASAL is the largest ICT company in Palestine and a premiere software solutions provider. From the beginning, ASAL has worked towards providing excellence in ICT solutions for a large number of local, regional and international organizations such as Cisco Systems,</td>
<td>120</td>
<td>1) Custom Software Development 2) Staff Augmentation: Creating IT teams that including members with specialized</td>
<td>Software Development</td>
<td>Tel: 970 2 2966640 Fax: 970 2 2966 641 <a href="mailto:info@asaltech.com">info@asaltech.com</a></td>
</tr>
<tr>
<td>Company</td>
<td>Services &amp; Capabilities</td>
<td>Tel &amp; Email</td>
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</tbody>
</table>
| EXALT Technologies Ltd. | 1) IT Outsourcing Services  
2) Software Development Outsourcing  
3) Software development (Mobile application development) | Tel: 970 2 2965740  
Fax: 97022965742  
tareq@exalt.ps |
| iConnect         | 1) Mobile Application Development  
2) Enterprise Solutions  
3) E-Health Care  
Main focus is on Building customized software applications for SMEs | Tel: 970 2 2424014  
Tel: 970 595013399  
Fax: 970 2 2424014  
feras.nasr@iconnecths.com |
<table>
<thead>
<tr>
<th>Company</th>
<th>Description</th>
<th>Systems</th>
<th>Working with clients in the healthcare industry. Services include web, desktop and mobile application development</th>
</tr>
</thead>
<tbody>
<tr>
<td>iConnect</td>
<td>well as service providers. iConnect is responsive to its customers and aligns with their goals, taking pride and ownership in the success of their projects. iConnect are technical experts, and use state-of-the-art tools and methods. iConnect’s team shares in several US and foreign patents, with others pending. iConnect offers relevant experience completing outsourced projects and integrating the offshore team with clients’ home-based teams.</td>
<td>4) Web portals 5) Application Service Provider 6) Custom Software Development</td>
<td></td>
</tr>
<tr>
<td>Infinite Tiers Group</td>
<td>Infinite Tiers Group, Inc. focuses on building strategic relationships with clients. Infinite Tiers provide clients with services and products that make their business better. With numerous success stories and outstanding references, Infinite Tiers Group, Inc. has set very high standards for</td>
<td>52 Software Development</td>
<td>Tel: 970 9 2372498 Fax: 970 9 2381211 <a href="mailto:mbarkawi@infinitetiers.com">mbarkawi@infinitetiers.com</a></td>
</tr>
<tr>
<td>Company</td>
<td>Description</td>
<td>Employees</td>
<td>Services</td>
</tr>
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<tr>
<td>Art Technologies/ Pal Earth</td>
<td>Art Technologies is a professional corporate that, among other its areas of expertise, addresses geographic Information Systems (GIS) as well as Business Intelligence Systems (BI). It provides its clients with total integrated technical solutions, which eventually help them pave the way towards fulfilling greater profits and objectives.</td>
<td>18</td>
<td>1) Software Development 2) Mobile Technologies 3) Business intelligence (BI) 4) GIS Services</td>
</tr>
<tr>
<td>Idevator</td>
<td>Idevator is a social game development company with a focus on producing content that is relevant to MENA region users</td>
<td>5</td>
<td>Gaming</td>
</tr>
<tr>
<td>Company Name</td>
<td>Description</td>
<td>Services</td>
<td>Tel:</td>
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<td>--------------------------------------</td>
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<tr>
<td>Al Andalus Software Development</td>
<td>Al Andalus Software Development (ASD) is an IT firm specializing in management, finance, and business information systems design and customization. ASD serves both local and international customers through offices in Jordan and the United Arab Emirates.</td>
<td>Software Development 1) Software Development 2) E-Business Solutions 3) Work flow Automation Solutions 4) Staff Augmentation Services 5) Arabization and Localization Services 6) Consulting</td>
<td>970 2 2422406</td>
</tr>
<tr>
<td>Hulul Business Solutions</td>
<td>Hulul Business Solutions is a PalTel Group company which is operating, managing, and supporting the IT services of all the Group’s companies BSS/OSS, Datacenters, Network and Security Infrastructure of the fixed, mobile, and ISP operators owned by the group. It is also responsible for managing all IPCC solutions used by call center operations.</td>
<td>Business Solutions for PalTel Group</td>
<td>970 2 2410000</td>
</tr>
<tr>
<td>Isra Software &amp; Computer (ISCO)</td>
<td>ISCO is a private company established by a group of professionals in the field of software development, with a vision of building leading professional</td>
<td>ERP Systems 1) ERP Systems 2) E-Trading Solutions</td>
<td>970 9 2373001</td>
</tr>
<tr>
<td>Software Solutions in Palestine and the region. Throughout the past 12 years, ISCO has achieved a great reputation status as one of the leading software development companies in Palestine. ISCO's primary focus is custom software development and Information Systems Integration.</td>
<td>3) Outsourcing Services</td>
<td><a href="mailto:info@iscosoft.com">info@iscosoft.com</a></td>
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<tr>
<td>eGate for Self-service Solutions</td>
<td>Easy Way to Pay e-Payment Gateway is a growing Palestinian start-up company backed by efficient and elegant professionals. The company has various aspects and goals to lead the market and provide 100% satisfaction to its clients.</td>
<td>1) Mobile Application Development 2) Enterprise Solutions 3) E-Health Care Systems 4) E-Education 5) E-Government 6) Application Service Provider 7) Custom Software Development 8) Software publishing 9) Wired telecommunication activities 10) Other telecommunications activities 11) Data processing, hosting and related activities 12) Wholesale of</td>
<td>Tel: 970 2 2414717 Fax: 970 2 2414718 <a href="mailto:lizzedin@e-pgs.com">lizzedin@e-pgs.com</a></td>
</tr>
<tr>
<td>Tel</td>
<td>Fax</td>
<td>Email</td>
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<tr>
<td>970 2 2989189</td>
<td>970 2 2989189</td>
<td><a href="mailto:rabi.barakat@cystack.ps">rabi.barakat@cystack.ps</a></td>
<td></td>
</tr>
<tr>
<td>970 2 2957622</td>
<td>970 2 2957622</td>
<td><a href="mailto:anas@technopal.ps">anas@technopal.ps</a></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cystack</th>
<th>Technopal for Engineering &amp; Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYSTACK is the leading information security consultancy firm in Palestine. CYSTACK understand the need to protect the CONFIDENTIALITY, INTEGRITY and AVAILABILITY of organizational assets. CYSTACK brings top information security professionals to the market</td>
<td>Technopal for Engineering, Communication &amp; Building Technologies limited was founded in Ramallah as a security, safety, control and IT solution provider. Technopal employs highly</td>
</tr>
<tr>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>1) Enterprise Solutions 2) Wireless telecommunications activities 3) information security consultancy</td>
<td>1) Enterprise Solutions 2) SaaS 3) Wired</td>
</tr>
<tr>
<td>Information Security Consultancy</td>
<td>Technopal has a large market share in the Palestinian</td>
</tr>
<tr>
<td>Tel: 970 2 2989189 Fax: 970 2 2989189 <a href="mailto:rabi.barakat@cystack.ps">rabi.barakat@cystack.ps</a></td>
<td>Tel: 970 2 2957622 Fax: 970 2 2957622 <a href="mailto:anas@technopal.ps">anas@technopal.ps</a></td>
</tr>
</tbody>
</table>

- Wholesale of telephone and communications equipment
- Wholesale of computer, peripheral equipment and software
- Repair of carrier equipment modems
- Repair of communication transmission equipment
- Repair of computer and peripheral equipment
dedicated and qualified personnel with many Years of experience in the fields of security and IT. As a distinguished Security Solution provider, Technopals' products and services focus on meeting not only today's business needs, but also the needs of the future.

ALTARIQ Systems
ALTARIQ Systems is a software development house providing complex and complete HI-Tech solutions, software development, outsourcing, PLC - factory automation business as well as innovative IT consultancy services.

1) Software development
   (Online Payment Software, Online Billing Software, Human Resources Software)

2) Market in S&S (Security and Safety)

3) Contact:
   Tel: 970 8 2847736
   Tel: 970 8 2860280
   Fax: 970 8 2860280
   tarek@altariq.ps
   info@altariq.ps
| Castle Establishment Company | Development) 2) Outsourcing 3) Factory automation 4) IT consulting | 14 | 1) Software development 2) Application Service Provider 3) Custom Software Development | Software development | Tel: 970 8 284885 Fax: 970 8 2833211 info@castlesoft.net |