Most of the foreign invested IT hardware assembling units such as Nidec and Canon already operate out of industrial parks with the park management ensuring provision of basic facilities including quality uninterrupted power supply, water & sewerage treatment, telecommunication facilities, and single window clearance facilities covering import & export processing formalities. Intel has announced plans to set up its proposed unit in the Saigon Hi Tech Park. However, domestic IT companies generally operate out of offices located in the cities of HCMC and Hanoi due to its proximity to their clients as well as employees. With these cities offering the same telecommunication infrastructure as the IT Parks, these companies do not have much motivation to relocate to IT parks excepting for those having expansion plans. It is expected that in the long term IT Parks will be required in Vietnam for accommodating global IT services players/large domestic players like FPT for setting up their software development centers and BPO facilities.

The IT Park case studies and primary interactions with various stakeholders clearly demonstrate a case for management of the IT Parks to be vested with private sector players for ensuring adequate accountability and efficient service. Possibly, as has been the case in many other countries, existing facility management companies such as C B Richard Ellis and Trammell Crow with the requisite financial wherewithal for developing such projects. Consequently, a facilitation role is recommended for the government other than in situations where the land is owned by it. In such situations, the government can possibly pick up an equity stake in the development company, given that financial returns on IT parks have been fairly attractive.

5.1.10 Policy Good Practice which can be Leveraged

In almost all the countries assessed under this study, it has been observed that government policies have played a pivotal role in the development of the IT sector. The role of government in most countries has also been observed to evolve over time, with a more direct role during the initial stages of sector development gradually moving to a facilitative role with the picking up of private sector led growth.

The current section of the report highlights policy good practice that can be leveraged given the existing scenario in Vietnam, based on the countries analyzed as part of the study. For purposes of analysis, the good practice have been categorized into: i) policies for developing the IT sector in the country and ii) policy good practice for development of IT Parks. Figures 29 and 30 below outline relevant policy good practice for facilitating development of the IT Sector and IT Parks respectively. As has been assessed during the study, IT Park occupants are offered a set of additional benefits over and above those available to IT companies not operating out of IT Parks. Consequently, the policy good practice highlighted for IT sector development would also be applicable to IT Park occupants, other than in cases where additional concessions have been envisaged in a specific area.

The measures outlined below only represent good practice adopted by other countries covered as part of the study. Consequently, these can at best be treated as starting points and additional analysis would be required for assessing their budgetary & other impact for customizing these to meet the requirements of Vietnam, should the government decide to consider any of these for implementation.

5.2 Country Case Study: Russia

5.2.1 IT Sector: Contribution to GDP

The Russian economy is estimated to have grown at an average rate of 6.1% during the period from 2001 to 2005 (Source: Goskomstat), with the growth rate marginally slowing down to around 5.6% during 2006. The 2005 GDP was USD$768 billion (RUR before 1998). The economy is expected to continue to grow at around 5% during the period from 2006 to 2010 (Source: Datamonitor).

The growth in the economy has been fuelled primarily by sectors like oil and gas (around 14% of GDP in 2005) and trading (28%). In 2003, around 11% of the global crude oil supply was contributed by Russia. Consequently, consistent increases in crude oil prices during the last 5–6 years has positively impacted GDP and foreign exchange earnings growth. The country had a positive trade balance of USD$143 billion during 2005, with
GDP in 2005, with the IT sector contributing 39% of 2005 imports. Crude oil and petroleum products accounted for around 48% of total exports being contributed by machinery, equipment and automobiles accounted for around 39% of 2005 imports.

The services sectors accounted for around 57% of GDP in 2005, with the IT sector contributing USD$11.35 billion, or 1.5% of GDP. While this is significantly lower than countries like China and India where the sector contributes 4%–5% of GDP, the Russian IT sector has shown significant growth during the period from 2001 to 2005, with a CAGR of 29% during this period (please refer Figure 31 below).
5.2.2 IT Sector: Growth, Composition and Trends

The Russian IT industry dates back to 1940s & 50s, when the sector was dominated by the government with little or no private sector involvement and the focus was primarily on military and industrial applications. During the 1960s and 70s, computer hardware compatible with global technology trends were developed but penetration of IT continued to be limited. Even in the eighties, usage of computers was limited to premier research & development institutes and academic institutes.

It was only during the nineties that the extent of IT penetration started increasing rapidly. This decade also saw the emergence of private sector companies, including investment by global players like Sun Microsystems and Motorola. Most of these global players established their offshore R&D centers in Russia in an attempt to leverage the expertise and skill base of Russian professionals from premier Universities and centers of excellence.

The growth of the IT sector has continued in the current decade, with the turnover of the sector estimated at USD$11.35 billion during 2005. According to the Ministry of Information Technology and Communication, the sector is estimated to grow to USD$40 billion by 2010, translating to an expected CAGR of 31%. Key constituents of the sector have been discussed below (please refer to Figure 32 below for details).

- IT hardware, which contributed USD$7.72 billion to overall sector revenues, accounted for
around 67% of annual IT sector revenues. Global majors like HP, Dell, Lenovo (IBM) dominate the market, with most of them operating through local partners like IBS, R-Style, Croc, Optima, TOPS and Merilon. We understand that other than a few players like Sun Microsystems which undertake direct imports for onward selling within Russia, Most other global players use their local partners for imports. Russia currently has limited chip fabrication activities in the Zelenograd region near Moscow, led by companies like Mikron and Angstrom.

- **IT services**, with a turnover of USD$2.36 bn during 2005, accounted for 21% of sector turnover. Many of the hardware resellers like IBS, R-Style, Optima and Croc have made a foray into this segment by offering system integration (including package implementation) services. However, there are other companies like EPAM, Telma, Galaxy and Opente@ch which focus exclusively on IT services. There is yet a third category of companies comprising global players like Intel, Sun Microsystems, Motorola, Samsung, Intel, and Cadence which have their development center in Russia and contribute to IT services exports.

- **Packaged software** (2005 turnover: USD$1.27 billion) contributed 12% to sector turnover. A large part of this segment is accounted for by global majors like SAP, Oracle and Microsoft. However, there are also a number of niche local products in areas such as finance & accounting and IT security developed by companies such as Kaspersky Labs, 1C, and Diasoft.

A listing of the top 10 IT companies has been presented in Figure 33 alongside. Most of these companies are located in the three top cities, namely, Moscow, St. Petersburg and Novosibirsk (please refer Figure 34 for details). These three cities housed around 75% of all IT companies in Russia.

As on 2005, 74% of the IT companies present in Russia in 2005 were headquartered in Russia, 10% in other CIS countries, 10% in USA and another 5% in Europe (Source: Outsourcing Russia & Russoft).

### 5.2.3 IT services exports

Aggregate IT services exports from Russia were estimated at around USD$1 billion in 2005, translating to a CAGR of over 50% during the period from 2000 to 2005 (please refer Figure 35 for details). Some key trends in the exports market have been highlighted below.

- Key export destinations include U.S. and Canada (38%), Germany (11%), Australia & Switzerland (15%) and Scandinavian countries (6%). IT Services exports to Finland, Sweden, Norway

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**Figure 32. Composition of the Russian IT Sector**

**Figure 33. Top 10 Russian IT Companies (2005)**

<table>
<thead>
<tr>
<th>Company</th>
<th>Revenue, 2005 (mn)</th>
<th>No. of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merilon</td>
<td>1026.7</td>
<td>970</td>
</tr>
<tr>
<td>NCC</td>
<td>838.9</td>
<td>1836</td>
</tr>
<tr>
<td>IBS</td>
<td>751.1</td>
<td>4468</td>
</tr>
<tr>
<td>Laboratory of New IT</td>
<td>635.6</td>
<td>2300</td>
</tr>
<tr>
<td>R-Style</td>
<td>572.6</td>
<td>2270</td>
</tr>
<tr>
<td>TechnoServe</td>
<td>562.9</td>
<td>909</td>
</tr>
<tr>
<td>Ultra Electronics</td>
<td>535.9</td>
<td>800</td>
</tr>
<tr>
<td>Kvazar-Micro</td>
<td>514.4</td>
<td>1300</td>
</tr>
<tr>
<td>Verysell</td>
<td>435.9</td>
<td>650</td>
</tr>
<tr>
<td>Croc</td>
<td>391.5</td>
<td>851</td>
</tr>
</tbody>
</table>

* * 1 USD = 27 Rubles
Source: CNews Analytics, 2006
were primarily from companies based in St. Petersburg (Source: Outsourcing Russia, Russoft).

- In terms of industry verticals, Telecommunications (30% of total export revenues), Banking & Financial Services (27%) and public sector/government (21%) accounted for around 80% of total exports in 2005.
- Large Russian IT companies like EPAM, Luxoft and Opente@ch Group. accounted for around 50% of total exports in 2005 (please refer Figure 36 for details). The different types of IT Services offered by these players include application development & maintenance and system integration.
- On the other hand, the captive R&D/development centers of global players like Intel, Sun Microsystems and Motorola accounted for around 21% of the exports. From our interactions with some of these companies, we understand that a large number of these centers are involved in high end areas including system software development, wireless technologies, and software quality assurance. Box 17 on the next page details the activities of the captive offshore centers of Intel and Sun Microsystems. The total deployment at these centers is estimated at over 5,000 currently, comprising primarily PhDs and engineers from reputed institutes (please refer Figure 37 for details).

- There are also some midsize and small companies like PROject MT and Reksoft,. which provide IT and BPO services, such as custom application development, package implementation, system integration, payroll processing, translation services to international clients in an off-shore mode.

The total employment in the IT services sector was estimated at around 60,000 at the end of 2005, with around 20,000 people involved in IT services exports. Consequently, the average annual revenue per employee is estimated at USD$50,000 for IT services exports, which is similar to realizations in the domestic market.

5.2.4 Past government initiatives for development of the IT sector

As has been indicated, the IT sector only started gaining momentum during the nineties with a number of global players like Intel and Sun Microsystems setting up operations, and the emergence of local companies which initially started with hardware selling/reselling and gradually expanded into IT services. Consequently, Russia’s
key ICT indicators are comparable with countries like China and India (please refer Figure 38 below for details). With physical and virtual infrastructure not being available in a uniform manner throughout the country, given the vast geographical area, the government had, in the past, set up a number of Techno Parks to provide a fillip to research & development with a focus on sectors including nuclear technologies, security systems, electronics, telecommunications, and new materials. Examples include the Science Cities in Obninsk, Puschino and Dubna near Moscow, and in other regions and cities such as Tomsk and Novosibirsk.

However, as was the practice in most other countries, these Techno Parks were not focused on the IT sector in particular. Instead, the focus was applied research with IT being used more as a tool than as an end product or service. Most of these parks developed around prominent academic institutions or centers of excellence to facilitate cluster effects, as they inevitably required close linkages with such institutions. Thus, for example, the Moscow State University Science Park developed around the Moscow State University and Dunba Science Park was developed near the Joint Institute of Nuclear Research, Dubna.

### BOX 17. Captive Development Centers in Russia

**Intel**

Intel commenced operations in Russia in 1993 by contracting 10 programmers. In 2000, it opened a Development Lab near Nizhny Novgorod to capitalize on the proven talent of mathematicians deployed earlier at the Sarov nuclear weapons research facility. Since then, the company has been expanding its R&D activities in Russia. In 2004, it bought out two technology firms it had been working with earlier, Elbrus and UniPro, bringing its total number of employees in Russia to around 1100. Intel currently has operations in St. Petersburg, Novosibirsk, Moscow, Sarov and Nizhny Novgorod. The Development centers in Russia are used for addressing important research challenges, such as development of software for wireless technologies, optimizers, and compilers closely integrated with the new generation processors being developed by the company.

*As discussed with Mr. Steven Chase, President – Intel Russia*

**Sun Microsystems**

Sun Microsystems has been present in Russia since 1994. It currently has two main centers, one in Moscow and the other in St. Petersburg. The Moscow center mainly concentrates on the sales & distribution activities of Sun’s products in the CIS region (other than Baltic region). Sun Microsystems Russia sells the entire range of products that the company manufactures including servers, desktop systems, storage devices, and associated software. The products are sold through Russian partners such as Croc, Open Technologies, and Techno Serve and through distributors like Versell and OCS.

In June 2004, Sun Microsystems established its Development Center in St. Petersburg, Russia, with a focus on software engineering efforts in Java™ technologies, developer tools, as well as networking and operating systems. The other global development centers of the company are located in Prague (Czechoslovakia), Bangalore (India), Tel Aviv (Israel) and Beijing (China). The company has invested around USD$ 10 mn in the center in St. Petersburg, which houses more than 300 employees. Its research focus includes Java API development, SPARC™ and AMD Opteron™ compiler enhancement, IDE development, Java and XSL compatibility testing & development, and software quality assurance.

*As discussed with Mr. Chris Morris, CFO, Sun Microsystems*
While the government initiated a number of measures for overall economic development during the eighties and nineties, like allowing foreign direct investment and privatization of state owned enterprises, these were not focused on any sector in particular. Consequently, unlike many other countries, the IT sector in Russia does not enjoy any additional benefits in terms of favorable fiscal, innovation or human capital policies.

However, in 1997, the government, in its bid to improve transparency and accountability, and augment citizen service delivery, launched e-Governance initiatives across various ministries and functions. Representative programmes include E-Petersburg, E-Altai, and E-Chuvashia initiated by different city governments. Aggregate government spending on IT was estimated at USD$2 billion during 2005, with IT initiatives encompassing key ministries like the Ministry of Finance/State Treasury, Ministry of Education, Ministry of Property/State Land Survey, Ministry of Health. A conscious policy of awarding preference to domestic IT companies has been followed during implementation of the e-Governance initiative. Consequently, many of the large Russian IT companies like IBS, NCC, Kraftway and Optima derive a significant portion of their revenues from government projects/initiatives.

We also understand that the government has recently started to focus specifically on the development of sectors like IT and bio-technology. To this effect, it is in the process of setting up parks focused on these sectors with state of art physical and virtual infrastructure. Some of the existing techno parks like the Moscow State University Science Park (MSU) have also started reorienting themselves to meet the requirements of the IT sector, with many of their recent occupants being new companies focusing on the IT sector. Details on MSU is provided in sub-section 5.2.4.1.

The government is also undertaking a program for setting up Techno Parks in seven locations, namely, Moscow, Novosibirsk, Nizhny Novgorod, Kaluga, Tumen, Republic of Tatarstan and St. Petersburg. In addition to core business facilities, some of these parks are also expected to include ancillary facilities like residential and commercial complexes. These parks are proposed to be constructed during the

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**Figure 38. Key ICT Indicators for Russia**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>China</th>
<th>India</th>
<th>Czech Rep.</th>
<th>Poland</th>
<th>Romania</th>
<th>Ukraine</th>
<th>Russia</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Indicators</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Population (millions)</td>
<td>1296</td>
<td>1080</td>
<td>10</td>
<td>38</td>
<td>22</td>
<td>48</td>
<td>143</td>
<td>294</td>
</tr>
<tr>
<td>Urban Population (%of total population)</td>
<td>40</td>
<td>29</td>
<td>74</td>
<td>62</td>
<td>55</td>
<td>67</td>
<td>73</td>
<td>80</td>
</tr>
<tr>
<td>ICT Sector Indicators Access:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone lines (per 1000)</td>
<td>241</td>
<td>43</td>
<td>331</td>
<td>291</td>
<td>198</td>
<td>230</td>
<td>261</td>
<td>606</td>
</tr>
<tr>
<td>Internet users (per 1000)</td>
<td>73</td>
<td>23</td>
<td>265</td>
<td>235</td>
<td>184</td>
<td>62</td>
<td>91</td>
<td>560</td>
</tr>
<tr>
<td>Personal computers (per 1000)</td>
<td>40</td>
<td>11</td>
<td>196</td>
<td>127</td>
<td>83</td>
<td>20</td>
<td>113</td>
<td>760</td>
</tr>
<tr>
<td>Mobile Subscriber (per 1000)</td>
<td>258</td>
<td>48</td>
<td>1059</td>
<td>603</td>
<td>464</td>
<td>285</td>
<td>517</td>
<td>615</td>
</tr>
<tr>
<td>Population covered by mobile Telephony (%)</td>
<td>73</td>
<td>41</td>
<td>99</td>
<td>98</td>
<td>97</td>
<td>75</td>
<td>78</td>
<td>95</td>
</tr>
<tr>
<td>Quality:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broadband subscribers (per 1000)</td>
<td>16.5</td>
<td>0.6</td>
<td>16.5</td>
<td>32.7</td>
<td>0.7</td>
<td>0.0</td>
<td>0.9</td>
<td>129.1</td>
</tr>
<tr>
<td>International Internet Bandwidth (bits/person)</td>
<td>57</td>
<td>4</td>
<td>2450</td>
<td>340</td>
<td>107</td>
<td>17</td>
<td>101</td>
<td>3308</td>
</tr>
<tr>
<td>Affordability:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price basket for fixed line (US$/month)</td>
<td>3.6</td>
<td>3.2</td>
<td>16.7</td>
<td>17.3</td>
<td>9.6</td>
<td>2.5</td>
<td>7.8</td>
<td>25</td>
</tr>
<tr>
<td>Price basket for mobile (US$/month)</td>
<td>3.7</td>
<td>3.2</td>
<td>15.1</td>
<td>7.7</td>
<td>8.8</td>
<td>10.3</td>
<td>6.3</td>
<td>10.8</td>
</tr>
<tr>
<td>Price basket for internet (US$/month)</td>
<td>10.1</td>
<td>8.7</td>
<td>20.8</td>
<td>15.7</td>
<td>25.3</td>
<td>16.7</td>
<td>10.0</td>
<td>15</td>
</tr>
<tr>
<td>ICT Expenditure (% of GDP)</td>
<td>5.3</td>
<td>3.7</td>
<td>6.5</td>
<td>4.5</td>
<td>2.8</td>
<td>7.0</td>
<td>3.7</td>
<td>8.8</td>
</tr>
</tbody>
</table>

Source: World Bank, UNDP, ITU and others.
period from 2006–2010, with an estimated investment of 100 billion roubles or USD$4 billion. It is understood that these parks would also focus on other high technology sectors such as nanotechnology and biotechnology with the primary focus of the government being on creation of infrastructure to support the development of these sectors.

5.2.4.1 Techno Park case study – Moscow State University Science Park

The Moscow State University (MSU) Science Park was set up in 1992 by the Moscow State University, with sponsorship from the Russian Federation Ministry of Science and Foundation. The mission of MSU is “stimulation of innovation activities in the university and in the region”. The main objectives of the MSU science park are to:

- Create favorable conditions for scientists, students and graduates to start business.
- Build a framework for business in cooperation with the University.
- Help start-ups and small and medium businesses in development through providing consulting services.

**Capital:** The estimated total investment in MSU was around USD$14–15 million. It is managed by a 15 member dedicated management team comprising financial directors, marketing managers, students and other MSU representatives. There are around 45 companies located in the park. Garant, an IT company which translates Russian legislation and markets it online, is one of the main tenants. Other relatively larger players include ISS, which develops security software, Rambler & Aport, which are search engines and Redlab, an IT services company. However, the majority of the occupants are small companies and start-ups. Around 40% of these companies were formed during the last 3 years, with around 60% of occupants focusing on IT services and software development. The remaining occupants are focused on telecommunication, biotechnology, electronics, ecology and new materials. The aggregate turnover of occupants was around USD$130 million in 2005. In addition to the companies present in the MSU Science park, the park management supports around 60 start-ups operating from MSU itself.

**Linkage:** Being located adjacent to MSU, the companies have strong linkages with the university. Many of these companies operate as sub-contractors/outsourcers to larger IT services companies such as Alpana, Arsenal, Park, and RSCI. The park management provides a number of value added services to the occupant companies, depending on their level of maturity. MSU organizes workshops & seminars, conducts business plan competitions and provides general consulting services to encourage entrepreneurship in the field of innovation and technology. MSU provides the following services to start-up companies:

- Advice on business & financial planning.
- Guidance on issues relating to technology transfer.
- Assistance in attracting preferential financing (including government allocations), as well as venture (seed) Investment.
- Accounting and auditing services.
- Assistance with searching for strategic partners.
- Assistance in arrangement of exhibitions.
- Training in areas like marketing, accounting and intellectual property requirements.

The park also provides the following value added services to other occupants:

- Assistance in raising funds.
- Advice with respect to business-planning, business evaluation and financial planning.
- Foster cooperation between companies and Moscow State University.

The Park is a member of various associations like Union of Russian Innovation Technology Centers (ITC), Russian Association of Venture Investment and Technopark Association.

**Infrastructure:** The MSU Science Park is built over an area of around 1 hectare that houses eight 2 storied buildings of 5400 sq. ft. each and one 4 storied building of 80,000 sq. ft. The individual office spaces vary from 100 sq. ft. to 5,400 sq. ft. 70% of the space is categorized as “Class B” office space and the balance as “Class C” office space. The rentals for Class B and C office space is USD$33 and USD$23 per square ft. per year respectively, which is lower than average space rentals of similar space in Moscow. In Moscow, the average rentals for Class A and Class B office space is around USD$66 and USD$42 per square ft. per year respectively. (Source: Russian real Estate: Market Overview,)
MSU also has a large parking space which can accommodate around 90 cars, plus smaller parking areas near every building.

The communication system in the park is of high quality. The occupants use high-speed Internet facilities with a bandwidth of 1 Gbps.

The park also has a conference-hall for 150 persons and 2 negotiation rooms. The park management provides telecommunication services, round the clock security services, parking facilities, park maintenance services and secretarial services.

The park is situated in a prime location of Moscow and is able to leverage the existing urban & social infrastructure of the city. The location map of the park is presented in Figure 39.

People: Around 2,500 people are deployed in the park, with most of them being graduates, undergraduates, graduate students and professors of Moscow State University. While the average salary in Russia for mid-level IT professionals ranges between USD$16,000 to $20,000, many graduate or post graduate students in MSU are paid around USD$6000–$7000 per annum.

5.2.5 Assessment of Critical Business and Policy Enablers

It has been observed that most of the countries that have emerged as global leaders in the IT sector have been able to leverage some key business enablers that have enabled their IT companies to thrive in the global marketplace. Additionally, the governments of many of these countries have consistently supported the development of the sector through a set of fiscal, innovation, people and investment climate policies. The current section details our assessment of some of the critical business and policy enablers which are impacting/are likely to impact the development of the IT sector in Russia.

5.2.5.1 Sources of capital

With most IT companies not having asset intensive operations thereby limiting their ability to raise debt, angel investment, venture capital/private equity funding has played a key role in meeting the investment and growth requirements of these companies. The models have however been different for individual countries. For example, in India, a significant part of the resource requirements have been met through global venture capital/private equity funds whereas China has tended to fall back on dedicated local government-administered funds. The scenario for IT Parks has been a bit different, with the developers for these parks depending on loans from banks & financial institutions for funding a significant part of their investment, with the assets(buildings, infrastructure, etc.) being created serving as collateral. For both categories of companies i.e. IT companies as well as IT Park developers, the stock market has served as an important source of finance once they have been able to achieve critical mass.

In Russia, the venture capital/private equity sector is dominated by local investors, despite some global investors like the Carlyle Group having attempted to set up operations. Consequently, Russian IT companies are not able to leverage the international relationship networks of these global funds for further development. The Russian Private Equity & Venture Capital Association (RVCA) estimates that there are currently over 60 private equity funds in the country, with an average fund size of USD$100 mn. The leading institutional fund managers include Alfa...
Capital Partners, Baring Vostok Capital Partners, Delta Private Equity Partners and Siguler Guff’s Russia Partners. It is estimated that a total of USD$221 million of venture capital/private equity investments were made in Russia during 2004, with the key sectors being IT (27%), retail (26%), telecommunication (11%), financial services (11%) and energy (5%). However, the focus on the IT sector is somewhat recent, with only 8% of the total venture capital/private equity investment of USD$2.6 billion over the last 10 years having gone into the sector. In 2004, only 4% of venture capital/private equity deals represented seed level investments, with another 13% being early stage investments, 73% expansion stage and another 5% being later stage investments.

With the Russian capital markets being at a nascent stage (there are only three listings on the Russian Trading System in 2005 with no additional resources having been raised), there is a dearth of exit opportunities, with 40 exits taking place during 2004, which represents 60% of the total number of exits during the last 10 years. With illiquid stock markets, trade sales and management buy-outs accounted for 90% of the exits. Recently, the Ministry of Economic Development and Trade has initiated the setting up of the Russian Venture Capital Company, with a corpus of USD$0.5 billion. The company will in turn set up smaller venture capital funds with corpuses ranging from USD$22 million–$55 million, with 51% of the corpus of each fund expected to be contributed by private investors.

There are well-organized banking sectors dominated by state-owned banks like Sberbank, which provide long-term (till 20 years maturity) loans for property development at interest rates of 10%–12% per annum. In the recent past, a number of foreign banks like Citibank and ICICI Bank have commenced operations in the country thereby increasing the level of competition.

5.2.5.2 Anchor investors
In most countries that have performed well in the IT sector, the growth has been contributed partly by domestic companies that have started small and large established anchor investors seeking to expand to newer geographies to increase their competitiveness. Thus, in India, the growth has been led by both Indian multinationals like Infosys, Wipro, TCS as well as global leaders like IBM, GE, SAP and Oracle. In China too, prominent players in the sector include local companies like the Stone Group, Legend Group, BD Founder Group, together with global companies like IBM and Microsoft.

While Russia too has been able to attract a number of global IT players like Intel, Sun Microsystems and Cadence, their focus has primarily been on high end work. Their impact on other segments of the IT sector such as IT services and system integration which offer much larger opportunities for employment generation and scaling up, has been limited. These segments have been dominated by Russian companies like IBS and TechnoServe. Large global players in areas such as application development and maintenance and packaged software implementation including IBM, Microsoft, and Accenture, currently do not have large development centers in the country. With offshore revenues also being limited, the average deployment level even in the larger Russian IT companies is therefore much lower at around 2,000 people, as against 50,000 in countries like India. One of the possible reasons for these multinational IT companies not setting up development operations in the country is the limited integration between global and Russian practices in the areas of finance and accounting, legal and taxation, human resources, etc., which has led to the dominance by local application developers like Parus, Galactica and Diasoft. However, the market trends seem to be changing, with global application vendors such as SAP and Oracle gradually making headway in sectors including oil & gas, retail, and metals & mining. The growth in the IT services sector in a number of other countries like India and China were driven by the entry of such players, which also led to their global system integration partners like Accenture and IBM setting up operations in the country.

5.2.5.3 Infrastructure
As has been indicated, much of the development in the IT sector has been in and around the three cities of Moscow, St. Petersburg and Novosibirsk. Consequently, IT companies have been able to leverage the existing connectivity, urban and social infrastructure in these cities. We understand that although around 5.4 mn sq. ft. of office space is getting constructed annually in Moscow, annual rent ranges between USD$43 to USD$62 per sq. ft. and there is also a shortage in availability of office space. The situation in St. Petersburg and Novosibirsk is somewhat better. The government is also planning to augment the existing road network.
across major cities through public private partnerships. There are a number of prominent private groups like Sistema Hals, Leeds Property and ALM Development involved in developing real estate infrastructure, including commercial and residential real estate. A number of private companies are in the process of setting up IT parks, including local companies like Value Tech, RosEvro Development and foreign companies like Technopolis.

The telecommunication sector in Russia is one of the most dynamic, with significant foreign direct investments having come in. Key service providers include Svyazinvest, Transtelecom, Rostelecom in basic telephony and MTS, Vymtelcom and Megaphone in mobile services. Value added services in data transmission are provided by firms like RTKomm.RU, Transtelecom, Golden Telecom and MTU-Intel. As can be seen from Figure 38, internet bandwidth costs in Russia are higher than India but almost equal to China. The extent of Internet usage also appears to be quite limited.

5.2.5.4 Human resources

With the top 100 IT companies employing around 50,000 people in 2005 (source: cNews Analytics, 2006), the total manpower deployment in Russia's IT sector is estimated at less than 100,000. With an estimated annual throughput of over 200,000 employable people (please refer Figure 40 for details), there appears to be significant scope for expanding the employment in this sector. However, we understand that there is stiff competition for graduates in Mathematics, Physics and Engineering from sectors/activities like research & development, oil & gas, petroleum, electricity, transport, telecommunications, most of which are witnessing significant growth and offer relatively higher remuneration (source: Rosstat, 2005).

With both the captive development centers of large global companies as well as large domestic companies focusing on candidates with higher qualifications, an increase in off-take of other graduates (other than in Mathematics, Physics and Engineering) is expected to have a positive socio-economic impact. Interactions with various stakeholders in the IT sector also reveals the following key human resources characteristics which have important implications for the current study:

- Preference of most employable resources to locate themselves in the larger cities, namely, Moscow, St. Petersburg and Novosibirsk or their hometowns.
- Relatively low attrition rate ranging between 10% to 15%.
- Need to augment academic knowledge with business related knowledge, e.g., sector trends.

While average salaries in the Russian IT sector for mid-level professionals (please refer Figure 41 for details) are almost double that of countries like India and China, they are significantly lower than other near-shore destinations like Canada and Ireland.

### Figure 40: Throughput

<table>
<thead>
<tr>
<th>Yearly throughput</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT engineering graduates</td>
<td>42,138</td>
<td>45,994</td>
</tr>
<tr>
<td>Mathematics and Physics graduates</td>
<td>21,577</td>
<td>22,132</td>
</tr>
<tr>
<td>Non-IT engineering graduates</td>
<td>69,072</td>
<td>76,435</td>
</tr>
<tr>
<td>(capable of entering IT sector)</td>
<td>70,631</td>
<td>81,270</td>
</tr>
<tr>
<td>Number of other graduates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(capable of entering IT sector)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>203,418</td>
<td>225,831</td>
</tr>
</tbody>
</table>

Source: Auriga Research

### Figure 41: Comparative IT Salaries

<table>
<thead>
<tr>
<th>Country</th>
<th>Average Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Africa</td>
<td>25174</td>
</tr>
<tr>
<td>Hungary</td>
<td>11695</td>
</tr>
<tr>
<td>Brazil</td>
<td>24108</td>
</tr>
<tr>
<td>Canada</td>
<td>31491</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>12200</td>
</tr>
<tr>
<td>Russia</td>
<td>5000</td>
</tr>
<tr>
<td>Singapore</td>
<td>4412</td>
</tr>
<tr>
<td>Malaysia</td>
<td>21833</td>
</tr>
<tr>
<td>China</td>
<td>22500</td>
</tr>
<tr>
<td>India</td>
<td>10095</td>
</tr>
<tr>
<td>Thailand</td>
<td>11340</td>
</tr>
<tr>
<td>Philippines</td>
<td>12522</td>
</tr>
<tr>
<td>Vietnam</td>
<td>6131</td>
</tr>
</tbody>
</table>

5.2.6 Corporate Governance and Management Issues

In most of the countries assessed as part of the study, effective corporate governance has been observed to be one of the consistent hallmarks of well-performing economies, including the IT sector. Consequently, almost all the large global IT companies, including those in developing economies like China and India, follow global accounting and reporting principles, are listed on both local and global stock exchanges thereby having to comply with mandatory corporate governance principles, have financing partners in the form of global investment banks, venture capital/private equity funds who are usually represented on the company’s Board of Directors and are run by professional management teams. However, in Russia, the situation is a bit different. Most of the larger domestic IT companies are part of private groups, unlisted and hence not subject to the scrutiny of external shareholders.

The financial, accounting, and performance reporting practices followed by many of these companies are also reportedly non-transparent, designed with the primary objective of minimizing statutory payments like social security and other taxes. In addition to the Russian Trading System (RTS) lacking requisite depth and participation of global financial institutions, linkages with the global financial services sector are also weak. It is estimated that there have been only five initial public offers of Russian companies on the London Stock Exchange, with none of these companies being from the IT sector. As has been indicated earlier, the presence of global venture capital/private equity funds has also been negligible, thereby limiting opportunities for sharing of good practice in business understanding & development, corporate governance and performance reporting.

5.2.7 Government Policies and Implementation Mechanisms

We understand that till very recently, the policy regime in Russia did not have any specific provisions for the development of the IT sector. However, the government has recently incorporated specific provisions for the IT sector in the area of fiscal and other policies. A high level assessment of the applicable policies has been presented in Figure 42 on the next page.

In addition to policies for facilitating development of the IT sector, case studies of successful countries like Singapore, China and India have also demonstrated the importance of having efficient implementation mechanisms. There appears to be significant scope for improvement on this front as far as Russia is concerned. Some of the representative areas that present opportunities for streamlining practices have been highlighted below.

- The climate for business, innovation and investment is considered weak owing to excessive bureaucracy. For example, the process of visa issuance and immigration checks even for business related visits by professionals appears complicated and time consuming, with there being limited scope for preferential treatment. This is corroborated by Russia’s ranking in numerous country level surveys like the World Economic Forum, Growth Competitiveness Ranking (2004) and Heritage Foundation/Wall Street Journal Index of Economic Freedom (2004).
- Absence of formal practices for customs clearance of software, with renegotiations required at the time of every transaction (Source: Russia and Information Revolution, RAND, 2005).
- Although Russia has a Copyright Protection Act that covers IT software, enforcement needs to be strengthened with almost 90% of all packaged software used in Russia estimated to be pirated.
- Despite significant budgets for e-Governance programs like Electronic Russia, it is understood that actual expenditure was around 20% of the budgeted amount during 2002–2004 (Source: Russia and Information Revolution, RAND, 2005). It has been observed in other countries like India that government spending on e-enablement of public services largely benefits local IT firms as most governments give preference to domestic organizations at the time of contracting. Such government spending typically boosts SME segment with bulk of the e-governance projects being implemented by them. Given the long term nature of these projects which includes software development, implementation and maintenance, these projects have a major role in development of the local IT services industry.
## Existing Government Policy Instruments

### Broad Classification

#### Fiscal Policies
- Software companies having substantial export income and employing minimum 50 employees enjoy lower unified social tax rate of 26% against the normal rate of 35.6% on employee salary cost [Source: Article One, Item 1.5, Federal Law No. 144-FZ].
- Computer equipment acquired by an organization involved in IT activities are allowed full depreciation in the course of one year [Source: Article One, Item 6, Federal Law No. 144-FZ].
- IT companies located in Special Economic Zones (SEZ) enjoy fiscal benefits like lower unified social tax rate of 14% [Source: Item 7, Article One, Federal Law No. 117-FZ and Article 241, Part One No. 146-FZ]. 5 year exemption on property tax (normal rate 2.2%) [Source: Item 12, Article One, Federal Law No. 117-FZ and Article 381, Part One No. 146-FZ]. Additionally, these companies also benefit from importing goods without payment of customs duty (normal rates range from 5% to 20%) and value added tax (normal rate 18%) while exports from SEZ are exempt from export duty (normal rate 6.5%) [Source: Article 37, Chapter 8, Federal Law No. 116-FZ].
- Local governments provide additional incentives to IT companies. For example, St Petersburg allows IT companies that have invested more than USD $1.8 million in the city to enjoy a reduced profit tax rate of 20% (normal rate 24%) and companies whose investment in the city exceeds USD $5.6 million additionally enjoy 50% concession on property tax [Source: Russian IT Quarterly, October 2006].

#### Innovation Policies
- Grants received from specified technological development funds/innovation funds like Russian fund of Technological Development, Fund for the Production of Innovations are not considered as income for the purpose of computing profit tax [Source: Article 251 Part One No. 146-FZ].
- Research & Development (R&D) expenses incurred by organizations are considered as allowable expenses while computing profit tax irrespective of whether R&D projects are successful or not [Source: Article 262, Part One No. 146-FZ].
- Computer programs, including source code, object code and databases enjoy copyright protection during the lifetime of the author and 50 years beyond [Source: Articles 3 and 6, No. 3523-1 with changes and amendments introduced by the Federal Law No. 177-FZ]. The implementation authority for copyright protection is the Federal Executive Authority on Intellectual Property.
- Specific laws on legal protection of the topologies of integrated circuits are in place with an exclusive right of the creator to exploit a protected topology for 10 years [Source: Article 10, No. 3526-1 with changes and amendments introduced by the Federal Law No. 82-FZ].
- Under the E-Russia program government facilitates transfer of existing technologies from government/defense institutions to private institutions engaged in research & development activities, with the private institutions having the right to retain intellectual property rights to new products developed.
- An exclusive right to a computer program or database created in connection with service relations on a state contract for federal needs or needs of a subject of the Russian Federation, shall belong to an executor (contractor) unless otherwise provided by a State contract that this right shall belong to the Russian Federation or a subject of the Russian Federation, represented by a State customer [Source: Article 12, Law No. 3523-1 with changes and amendments introduced by the Federal Law No. 177-FZ].

#### Human Capital Policies
- There do not appear to be any specific policies for aligning university curriculum to the requirements of the IT sector.
- A number of labor practices like seeking an employee’s written consent prior to redeployment/relocation within the same organization restrict operational flexibilities [Source: Article 72, Chapter 12, Federal Law No. 197-FZ].

#### Investment Climate Policies
- Government is supporting development of IT infrastructure through the Electronic Russia Federal Priority Program, where 33% of the outlay is dedicated to infrastructure development across the country including construction of high-speed internet backbones and peripheral links.
- Internet penetration across the country mandated by 2003 Law on Communications which states that all towns with a population in excess of 500 to have internet access point [Source: Article 57, Chapter 8, Federal Law on Communications Adopted by the State Duma on June 18, 2003].
- Double taxation avoidance treaty with over 60 countries including USA, UK, Japan, Germany, France, Belgium, Bulgaria, Hungary, Denmark, Spain and Sweden [Source: Point 3, Decision of the government of the Russian Federation No. 1605 and Website: http://www.nalog.ru/doceng.php?id=7220&topic=eng_sotrud-nich].
- No restriction on foreign direct investment in the IT sector. Foreign investments in excess of USD $37 million or projects with foreign stake exceeding USD $4 million categorized as “priority investment projects” and enjoy exemption from customs duty on imports [Source: Article 16, Federal Law No. 160-FZ].
- Federal law on Foreign Investments in the Russian Federation guarantees protection from changes in federal laws which may adversely impact the organization for a maximum period of 7 years like increased rates on specified taxes [Source: Article 9, Federal Law No. 160-FZ].

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**Figure 42.** Existing Government Policy Instruments
5.2.8 Potential Growth Opportunities for the Russian IT Sector

Before attempting to identify specific recommendations for development of the IT sector in Russia, it is necessary that the current and potential market opportunities available to companies operating in this sector are identified. Based on our assessment of the sector, the following represent potential opportunities which can possibly be targeted.

**Domestic market opportunities**

Unlike many other countries like Malaysia, India, and China, realizations on domestic IT services in Russia are currently higher than in IT services exports. There also appears to be significant upside as far as growth in the domestic IT market is concerned, with turnover expected to increase to USD$14.32 billion by 2007 (Source: IDC Blackbook, Euromonitor). In terms of individual market segments:

- The demand for hardware is expected to increase by a CAGR of 16.7% per annum to around USD$10.5 billion by 2007, driven by government spending and industry demand, with many of the customers being in the process of acquiring their first information systems. Based on our assessment of key trends, there appear to be significant opportunities in the semiconductor industry the near term, driven by increasing over demand from IT hardware, telecommunications equipment and the consumer durables sector. Russia may be well placed to leverage its skilled manpower to target specific segments in this market including fab less chip design, semiconductor packaging, and assembly & testing over the near term.

- IT services, for which the market in 2005 was estimated at USD$1.39 bn, is expected to grow at around 20% per annum to reach USD$2 billion in 2007. With many of the larger companies already having implemented packaged application software such as SAP and Oracle Applications, the growth in this segment is expected to be driven by packaged software implementation and system integration requirements of medium-sized firms in sectors such as food, retail, and real estate. The leading packaged application vendors like SAP and Oracle are already gearing up to meet this demand by launching their small & medium enterprise and application service provider (ASP) versions.

- The packaged software applications market is also expected to increase at 20% per annum to reach USD $1.83 billion by 2007. The demand for packaged software is primarily expected from companies in high growth sectors like oil and gas, energy, metals, communication and retail, where there is increasing competition leading to efficiency pressures.

**Export market opportunities**

IT export revenues are expected to increase to $USD1.75 billion in 2007, translating to a CAGR of 34%. Based on our assessment, significant opportunities are expected in the following market segments.

- Leveraging the presence of existing global majors in IT and telecommunications like Intel, Sun Microsystems, Cadence Systems, and Samsung for continuing the focus on high-end development activities in the areas of system software development, wireless technologies, etc. Given that many of these companies are also global leaders in semiconductors and telecommunication equipment manufacturing, expansion of their activities in Russia to cover other areas like fabless chip design for IT, telecommunication equipment & consumer durables, chip fabrication/foundry facilities and semi-conductor packaging, and assembly and testing services represents a potential opportunity.

- Given that the salary costs of IT professionals in Russia are almost half that of other countries like Canada, Ireland, and lower than countries like the Czech Republic and Hungary (please refer figure 41) which have successfully positioned themselves as near-shore destinations to countries like US and UK, there appears to be a significant opportunity for Russia to position itself in this space. Countries like India have emerged as preferred offshore locations leveraging lower human resource cost and thus it will be difficult for Russia to compete with them. The existing competencies of the human resource pool in Russia together with its geographical location & relative cost of manpower are expected to serve as key competitive advantages viz. a viz. other countries. Representative offshore activities which can be targeted include the following:
Packaged application implementation and maintenance through a mix of onsite and offshore services.
- System integration services.
- Software application development for various industry verticals leveraging existing tools.
- IT infrastructure maintenance and support.
- Select knowledge process outsourcing activities like mathematical and econometric modeling for sectors like financial services.

Unlike the high end IT services market proposed to be targeted primarily through captive development centers, the employment (and turnover) potential of this segment is expected to be significantly higher, thereby providing domestic IT services companies the opportunity to scale up rapidly.

5.2.9 Identification of Issues and Growth Strategies
Having identified the potential growth opportunities for the Russian IT sector, it also becomes necessary to identify market participants who are well placed to drive growth in the respective areas, together with potential strategies for development, based on identified good practice in other countries assessed as part of the study.

5.2.10 Role of IT Parks and Proposed Business Models
As has been demonstrated by the case studies, the key requirement underlying setting up of sustainable IT parks is the ability to attract credible occupants to the park, with business models which demonstrate sustainable viability. Consequently, having credible

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**Figure 43. IT Sector Growth Segments & Strategies**

<table>
<thead>
<tr>
<th>Potential growth segments</th>
<th>Identified issues</th>
<th>Recommended growth strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Hardware</td>
<td>Market currently dominated by importers-retailers and assemblers</td>
<td>Facilitate direct presence of global majors like IBM, Wipro, HP and CISCO, as this will enable positive rub-off on IT Services, semiconductors &amp; high end captive development</td>
</tr>
<tr>
<td>IT Services</td>
<td>Market currently dominated by local companies with inadequate scale of operations</td>
<td>Facilitate entry/expansion of global IT services companies like IBM, Microsoft, Accenture, Cap Gemini, Infosys, Wipro and TCS possibly through participation in ongoing e-Governance program—expected to lead to positive impact on IT sector employment opportunities</td>
</tr>
<tr>
<td>Packaged applications</td>
<td>Large companies opting for global packaged applications</td>
<td>Encourage use of established packaged application software to facilitate compliance to good practice in performance management &amp; reporting, offer standardized training platforms to IT professionals which can then be leveraged for export markets</td>
</tr>
<tr>
<td>Exports</td>
<td>Applications in finance &amp; accounting, payroll, etc., from local software developers</td>
<td>Encourage use of established packaged application software to facilitate compliance to good practice in performance management &amp; reporting, offer standardized training platforms to IT professionals which can then be leveraged for export markets</td>
</tr>
<tr>
<td>IT Services including application development &amp; maintenance, and system integration.</td>
<td>Existing captive development centers primarily an outcome of initiative by the respective global player (e.g., Intel, Sun Microsystems)</td>
<td>Proactive Government support for expansion of existing development centers of global companies, together with focus on additional high end services such as chip design and assembly &amp; testing</td>
</tr>
<tr>
<td></td>
<td>Semiconductor design, fabrication, assembly &amp; testing carried out on a limited scale primarily by domestic companies</td>
<td>Two pronged approach comprising a) facilitating entry of global leaders in the semiconductor industry (like Intel, Texas Instruments and ST Microelectronics) possibly with an initial focus on design, packaging, assembly &amp; testing and bi supporting local companies in R&amp;D for fab less design</td>
</tr>
<tr>
<td></td>
<td>Primarily carried out by local companies with inadequate scale of operations</td>
<td>Facilitate entry of global IT services companies with a focus on meeting nearshore export opportunities in Europe and United States—expected to have positive rub-offs on domestic IT services companies and IT sector employment opportunities</td>
</tr>
</tbody>
</table>
anchor investors in the park has been identified as an essential prerequisite for success both in developed as well as developing countries. In the current section, we have attempted to present our assessment of the critical business enablers for IT Parks in Russia, based on the case studies of parks in other countries as well as ground realities in Russia.

The generic critical business enablers which are likely to feature, in the expectations of all categories of IT companies, have been highlighted below.

- Location of the park in an area which permits it to leverage the existing urban and social infrastructure of the three key cities, namely, Moscow, St. Petersburg and Novosibirsk, as availability of the right quality of human resources is expected to be a problem in any other region.
- Simplified policy implementation mechanisms in terms of single window approval facilities in areas including operating license, sanction of building plans, and tax & customs duty registrations, so as to cut down significantly on the time for setting up new/expansion operations.
- High quality physical connectivity and infrastructure in terms of air (both international & domestic), road and rail connectivity, a combination of multi-tenant buildings with contemporary facilities and build to suit options, adequate road & other surface transport connectivity with the adjoining city, intra-park roads, sewage and electricity.
- Lease or sale of land for built-to-suit facilities at rates lower than those prevailing in the adjoining city.
- State of art virtual connectivity in terms of data & voice infrastructure including international connectivity.

In addition, there are a number of potential value drivers which are expected to impact specific types of IT companies, with the level of interest also expected to vary across different categories of IT players (please refer Figure 44 below for details).

One of the probable tenants in the IT Parks are local hardware assemblers. As highlighted in figure 44, the key motivating factor for local hardware assemblers to be located in IT parks is the incremental fiscal concessions that they might enjoy. Such incentives will help these companies increase their realizations. However, the primary discouraging factor for such companies to be located in IT parks is the investment that they have incurred in the existing facilities. Moreover, for the local hardware assemblers being located in proximity to clients is

### Figure 44. IT Parks – Segment Specific Drivers

<table>
<thead>
<tr>
<th>Type of IT companies</th>
<th>Key value proposition of IT Parks, if any</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local hardware assemblers</td>
<td>- Motivating factors: Incremental fiscal concessions, if applicable&lt;br&gt;- Delimiters: Existing investments in infrastructure; proximity to clients</td>
</tr>
<tr>
<td>Global hardware players, including semiconductor companies</td>
<td>- Motivating factors: Reduction of time to market, for new entrants; Fiscal concessions, if applicable; Built to suit options for custom facilities like wafer fabrication plants; Need for state of art facilities for facilitating accreditation; Linkages with centers of excellence for R&amp;D support; Lower investments in ancillary infrastructure &amp; facilities management&lt;br&gt;- Delimiters: Existing investments in infrastructure for players with existing development centers; proximity to domestic clients</td>
</tr>
<tr>
<td>Local software &amp; IT services companies</td>
<td>- Motivating factors: Reduction of time to market for expansions; Fiscal concessions, if applicable; Built to suit options for custom development centers; Need for state of art facilities for facilitating accreditation; Domestic venture capital/private equity support; Lower investments in ancillary infrastructure &amp; facilities management&lt;br&gt;- Delimiters: Existing investments in infrastructure for players with existing development centers; proximity to domestic clients</td>
</tr>
<tr>
<td>Global software &amp; IT services companies</td>
<td>- Motivating factors: Reduction of time to market for new entrants/expansions; Fiscal concessions, if applicable; Built to suit options for custom development centers; Need for state of art facilities for facilitating accreditation; Lower investments in ancillary infrastructure &amp; facilities management&lt;br&gt;- Delimiters: Existing investments in infrastructure for players with existing development centers; proximity to domestic clients</td>
</tr>
</tbody>
</table>
one of the key requirements. If the IT Parks are located in remote locations, far from the client location, then it will be difficult for these companies to operate from such locations.

The other segment of IT players which might be interested to be located in IT Parks are Global hardware companies, including semiconductor companies. Typically the capital investments of such companies are huge and thus the associated risks are higher. One of the key factors which will motivate such players is fiscal incentives, since that will help these companies reduce financial risks. Other specific value proposition that the IT parks can offer to these companies is providing built-to-suit options for custom facilities like wafer fabrication plants. Moreover, these companies need state of art facilities for facilitating accreditation. These companies might be motivated to locate in IT Parks if the park provides such state of the art facilities. Many of these companies need strong linkages with R&D institutes or universities for developing new products. IT Parks which offer such linkages will be preferred by such companies. Additionally, another important incentive for these companies to get located in IT Parks will be lower investment in ancillary infrastructure & service management, which can be shared with other companies like canteen, parking and conference facilities. Further, for global hardware companies which are new entrants in Russian markets, the key motivating factor to get located in IT parks is reduction of time to market the products. Such reduction in time will help these companies capture a minimum market share in short period of time and thus reach financially sustainability.

However there are a number of de-motivators for these companies to be located in IT Parks. One of the key de-motivators for global hardware companies are the investments already incurred in the existing facilities. Additionally, if the IT park is located in remote location away from their clients, then such a location might act as a negative catalyst for the global hardware companies.

The key factors that will motivate the global and local software & IT service companies to get located in IT Parks are (a) the fiscal concessions which will enable them to obtain better realizations and (b) reduction in time to market for expansions given that the IT parks will provide quality space with plug & play facilities. Moreover, the IT parks will provide state of the art facilities which are key requirements for these companies to secure quality accreditations. Additionally, the shared services like conference facilities, shared telecommunication infrastructure, parking, eateries and security services will enable these companies to lower investments in ancillary infrastructure & facilities management. Since many of these companies would like to move to their own facilities with the park on a later date, the parks which offer built to suit facilities for custom development centers will be preferred. For the small companies, additional motivator will be the park management providing support to enable them get access to venture capital or private equity.

However, as in the case of the hardware companies, the key de-motivators for global as well as local software & IT services companies to be located in IT parks are (a) the investments already made in the existing facilities and (b) proximity to domestic clients, in case the IT Park is situated in a remote location.

The IT Park case studies and primary interactions with various stakeholders clearly seem to demonstrate a case for management of the IT Parks to be vested with private sector players for ensuring adequate accountability and efficient service. Possibly, as has been the case in many other countries, existing facility management companies like C B Richard Ellis and Bovis Lend Lease can be considered for this purpose.

As regards investments into and ownership of the parks, there seem to be a number of private real estate companies like Sistema Hals, Rosevro Development, Leeds Property and Technopolis with the requisite financial wherewithal for developing such projects. Given that good Practice in other countries clearly indicates the need for management control of the park development company to vest with the private sector for higher efficiency & productivity. Consequently, a facilitation role is recommended for the government other than in situations where the land is owned by it. In such situations, the government can possibly pick up an equity stake in the development company, given that financial returns on IT parks have been fairly attractive.
5.2.11 Policy Good Practice That can be Leveraged

In almost all the countries assessed under this study, it has been observed that government policies have played a pivotal role in development of IT sector. The role of government in most countries has also been observed to evolve over time, with a more direct role during the initial stages of sector development gradually moving to a facilitative role with the picking up of private sector led growth.

The current section of the report highlights policy good practice that can be leveraged, given the existing scenario in Russia, based on the countries analyzed as part of the study. For purposes of analysis, the good practice have been categorized into i) policies for developing the IT sector in the country and ii) policy good practice for development of IT Parks. Figures 45 and 46 below outline relevant policy good practice for facilitating development of the IT Sector and IT Parks respectively. As has been assessed during the study, IT Park occupants are offered a set of additional benefits over and above those available to IT companies not operating out of IT Parks. Consequently, the policy good practice highlighted for IT sector development would also be applicable to IT Park occupants, other than in cases where additional concessions have been envisaged in a specific area.

The measures outlined below only represent good practice adopted by other countries covered as part of the study. Consequently, these can at best be treated as starting points and additional analysis would be required for assessing their budgetary & other impact for customizing these to meet the requirements of Russia, should the government decide to consider any of these for implementation.

Following the analysis of the Russian IT sector in the previous sub-sections 5.2.1 to 5.2.7, the key issues as summarized in Figure 45, are:

- Russia is well placed to attract more global IT players, focusing on segments such as IT services and system integration. Therefore, it is necessary to encourage direct presence as well as expansion of large global hardware and IT services companies including semi-conductor companies to improve average scale of operations.

- Leveraging the two significant core competencies of Russia (i) expertise & skill base and (ii) the comparative lower salary costs as compared to other near shore countries like Canada & Ireland. The combined effect of these factors should create a significant opportunity for Russia to focus on captive R&D centers, semi-conductor assembly and testing services and near shore IT services for exports.

- Excessive bureaucracy and unclear guidelines in areas such as visa, customs, and taxes shows there is scope for the government to streamline policy implementation mechanisms.

- Improvements should be made to develop the financial services sector for meeting funding requirements of companies as well as improving levels of corporate governance and global linkages.

Countries that are emerging as global leaders in the IT sector have consistently supported the development of the sector with fiscal, innovation, human capital and investment climate policies. These areas form the basis for Policy Good Practice as adopted by the other countries analyzed in this study. Further, such policies can be segregated as (i) policies for developing IT sectors and (ii) specific policies for developing IT Parks.

Fiscal Incentives as identified from the good practice study which Russia can adopt include rationalizing customs duty as well as consolidating export/import duties and simplifying procedures should help attract global hardware companies. Additional Fiscal incentives include providing tax breaks as well as more specific incentives related to customs duties have been mentioned in Figure 45. These are policies which can be implemented in the short term with the immediate benefits being available to prospective investors.

Innovation policies, which have been identified from benchmarking other countries for IT sector development, include providing tax breaks to encourage investment in Research and Development (R&D) as highlighted in Figure 45. Although, there have been recent amendments to many of the copyright related legislation in Russia, the enforcement of such legislations need to be strengthened. Such strengthening could be through the creation of a dedicated tribunal on
**Figure 45. Policy Good Practice for IT Sector Development**

<table>
<thead>
<tr>
<th>Key Issues/Recommended Strategies for Russia</th>
<th>Policy Good Practice which can be considered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Encourage direct presence as well as expansion of large global hardware &amp; IT services companies, including semi-conductor companies to improve average scale of operations.</td>
<td><strong>Fiscal Incentives</strong></td>
</tr>
<tr>
<td>2. Focus on captive R&amp;D centers, semi-conductor assembly and testing services and near shore IT services for exports.</td>
<td>- Rationalizing customs duty on hardware viz. a viz. components, with simplification of import procedures for attracting global hardware companies.</td>
</tr>
<tr>
<td>3. Streamline policy implementation mechanisms.</td>
<td>- Providing tax breaks like exemption from export taxes for an initial period of 5 years for facilitating increase in exports.</td>
</tr>
<tr>
<td>4. Development of financial services sector for meeting funding requirements of companies as well as improving levels of corporate governance and global linkages.</td>
<td>- Providing specific fiscal incentives to semi-conductor companies like:</td>
</tr>
</tbody>
</table>

  - Exempting raw materials, equipment imported for fabrication, assembly & testing from customs duty. |
  - Rationalization of VAT on all semi-conductor products to a lower percentage. |
  - Allowing accelerated depreciation rate for profit tax purposes (up to two times higher than the standard statutory rates). |

**Innovation Policies** |
- Providing tax breaks to encourage investments in research & development such as:
  - 100% exemptions on customs duty for equipment and goods imported for research & development purpose. |
  - 100% income tax deduction on capital expenditure with respect to scientific research. |
  - Any amount exceeding a certain percentage of VAT paid on sale of software products to be refunded provided it is used for R&D purposes. |
- Strengthening enforcement of copyright & patent legislations through creation of a dedicated tribunal for dealing with disputes on copyright & patent related issues. |
- Encouraging quality accreditations like CMMI and BS7799 by providing incentives or grants for reimbursing a part of the expenditure incurred for obtaining such quality certificates or for filing patents. |

**Human Resource Policies** |
- Encouraging development of management & business aptitude in engineering & other students through establishment of finishing schools. These schools could be structured as public-private partnerships, with infrastructure being provided by government (in case of inadequate private interest) and course development & faculty being provided by companies in the IT sector. |
- Developing English language proficiency of the human resource pool through policy interventions like introducing compulsory English education from primary level. |
- Setting up Committees comprising both government officials and IT industry representatives for assessing requirements for changes to existing curriculum. |
- Simplifying visa & associated regulations for IT professionals from other countries traveling on business-related purposes. |
- Strengthening training infrastructure for meeting IT sector manpower requirements through partnerships with global IT training companies. |

**Investment Climate** |
- Implementing a single window mechanism for providing all benefits, concessions & permits to IT companies. This would require a single agency within government to be identified as the nodal agency, with a presence in all key cities, which would then process applications seamlessly in coordination with other Ministries. |
- Consolidating the existing policies applicable to IT companies, together with implementation mechanisms, and communicating them in a transparent manner to existing & potential IT sector investors. Possible options include online publishing on the Minsvyaz website with links from websites of industry associations like Russoft and Ankit. Necessary processes for regular updating of these policies would also be required. |
- Extending all the above concessions to local companies, subject to completion of listing on RTS within a predefined period and extending additional fiscal benefits on successful listing on international stock exchanges. |
- Formulating policies for attracting global venture capital and private equity funds like exemption of tax on income from investments and allowing losses to be deducted from other taxable income. |
- Deepening existing capital markets through measures such as demutualization and attracting large global financial institutions and investment banks. |

Changes in human resource policies that will benefit development of the IT sector fall under three main categories—education, immigration and labor laws.
In terms of education, the development of English competencies and management and aptitude skills are of utmost importance. Policy changes addressing the skills levels in these areas are detailed in Figure 45.

Immigration procedures for obtaining visa permits into Russia are confusing to foreigners and pose an obstacle to the development of the sector. Simplification of visa & associated regulations for IT professionals traveling on business-related purposes are recommended. The one-stop-shop run by the Jordan Investment Board (JIB), which has simplified procedures for issuing visas and residency approvals for foreign investors and professionals, is an example of such simplification.

Implementing a single window mechanism for providing all benefits, concessions & permits to IT companies, would be a key measure for improving the Investment Climate for the sector. The process and benefits of this single agency have been highlighted in Figure 45. It is intended that a designated nodal agency with adequate empowerment be the single point of contact for communications relating to existing policies & regulations and providing assistance to existing & potential IT sector investors for obtaining necessary clearances/approvals for commencing/expanding operations in the country.

In order to improve corporate governance and transparency in local companies, measures could be taken to extend all concessions to local companies which complete their listing on RTS within a pre-defined period and extending additional fiscal benefits on successful listing on international stock exchanges. Further measures, which would support the Investment Climate of Russia regarding capital markets, have been stated in Figure 45.

In figure 46, we present the Policy Good Practice that can be adopted for developing the IT parks in Russia.

Based on our assessment the following categories have been identified as likely occupants for IT Parks:
- Global IT companies primarily engaged in IT services
- Large domestic IT services companies

<table>
<thead>
<tr>
<th>Key Issues/Recommended Strategies for Russia</th>
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<tbody>
<tr>
<td>■ Global IT companies primarily in IT Services are expected to constitute a key target segment on account of reduced time to market through availability of ready infrastructure, potential fiscal incentives &amp; commercial benefits, need for state of art infrastructure &amp; connectivity and simplified policy implementation mechanisms, if available.</td>
<td>Fiscal Incentives</td>
</tr>
<tr>
<td>■ Large domestic IT services companies facing growth pressures and with a focus on exports are also likely to consider IT Parks for their future expansions with the drivers being identical to global IT companies.</td>
<td>■ Providing fiscal incentives to potential IT Park occupants, which are at least at par with the existing incentives available to IT companies located in Special Economic Zones (Policy reference nos. 116-FZ, 117-FZ, 144-FZ, etc.), to ensure adequate attractiveness of IT Parks.</td>
</tr>
<tr>
<td>■ Given the existence of large real estate companies and promotion of private sector IT Parks, it may be possible to attract private developers for IT Park development.</td>
<td>■ Providing land owned by government for development and to IT Park occupants at subsidized rates, depending on level of employment generation.</td>
</tr>
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In Figure 46, Policy Good Practice for IT Park Development

![Figure 46: Policy Good Practice for IT Park Development](image-url)
Based on case studies on IT Parks in various countries, it is recommended that private sector developers be involved in promoting the IT Parks in the country.

The policies listed below have been identified as being key to promote investment/involvement in development of IT Parks in Russia.

Currently, a number of Fiscal Incentives are available to residents of Special Economic Zones, including a five-year exemption on the assets of organizations and land tax and decreased rates of Unified Social Tax. Extending similar benefits to occupants of IT Parks will be a key consideration for IT Companies on deciding to relocate/locate to IT Parks. Further incentives concerning subsidized land rates and rentals have been highlighted in Figure 46. However, it is important to note that all such incentives should be applicable for a specific time-frame and should possibly be linked to minimum employment generation & investment stipulations.

Successful Innovation Policies for IT Parks include providing business incubation services to start-up companies, including initiating contact with venture capitalists similar to those offered by Singapore Science Park. Similar policies in the Russian context have been highlighted in Figure 46.

Permitting mixed land use like commercial and residential in addition to core IT office space/facilities in IT Parks is one of the investment climate policies which would stimulate IT Park development given that return on investments from ancillary facilities like residences, retail & entertainment are usually higher than returns on core IT Park facilities. Developers of Hitec City, Hyderabad and CFZ, Malaysia, are in fact mandated to develop such parks having designated zones for housing and commercial end use which have increased the returns on investments in developing the IT park as compared to the returns from a standalone IT Park. Similar mixed land use policies may be adopted while developing Russian IT Parks as an incentive for private sector participation in development of IT Parks in the country.

Other stimulators for providing investment climate for development of IT Parks include special financial concessions for Russian IT Park residents, which have been highlighted in Figure 46, along with the concept of Single window mechanisms applicable for both real estate players and IT companies & other occupants. It is felt that such a nodal agency would simplify investment and rental/leasing procedures in IT Parks thus improving the investment climate.

As mentioned under the strategy for IT sector development, all of the above concessions should be extended to local companies as well, subject to completion of listing on RTS within a specified timeframe. Additional fiscal benefits can be offered on successful listing in international stock exchanges. This provides an effective system of corporate governance and management, essential to a well performing economy as it provides an assurance for potential investors and ensures sustainability of the sector.

5.3 Country Case Study: Jordan

5.3.1 IT Sector: Contribution to GDP
The Jordanian economy is estimated to have grown at an average rate of 6.1% during the period from 1996 to 2003 (Source: Department of Statistics, Jordan). The growth in the economy has been fuelled primarily by sectors like finance and banking (around 18% of GDP in 2003) manufacturing (15%) and trading (9%).

The services sectors accounted for around 49% of GDP in 2003, with the IT sector contributing USD$295 million, or 2.9% of GDP. While this is significantly lower than countries like China and India where the sector contributes 4%-5% of GDP, the IT sector in Jordan has shown significant growth during the period from 2001 to 2004, with a CAGR of 37% during this period (please refer Figure 47 below).

5.3.2 IT Sector: Growth, Composition and Trends
Compared to other developing countries Jordan has been a late starter in developing its IT sector. The IT industry in Jordan, though active since early 1990s, came into the fore only after the Regulatory Framework, Estate, Advancement Programs, Capital, Human Resource Development (REACH) Initiative was launched by the government in 1999. However, the country is considered to be one of the