4.1 Introduction

As in most other sectors, government policies and interventions have played a key role in the development of the IT sector in individual economies. The relocation of leading defense contractor Lockheed to the Silicon Valley in the fifties, thereby bringing in significant orders and leading to creation of a large number of ancillary technology firms represents one of the earliest instances of government playing a crucial role in development of IT Parks. As has been discussed in the case studies of individual IT Parks, similar models have been followed by governments in different countries such as Korea and Singapore. The role of government has also evolved over time depending on the level of maturity of the sector. Consequently, while government institutions/organizations in many countries have played a direct role in facilitating development of the sector in the initial stages, the government has shifted to a facilitation role once the sector has attained critical mass, with much of the subsequent growth initiatives being private sector led.

The current section highlights key findings of an assessment of the impact of government policies, institutional and implementation mechanisms on the development of the IT sector in general, and IT Parks in particular. In addition to direct interventions in the IT sector, we have also attempted to carry out a high level analysis of government policies and interventions targeted at i) other sectors such as physical infrastructure and telecommunications, which usually play a key role in development of the IT sector and ii) facilitating spillover effects from the growth of the IT sector to drive overall socio-economic development.

4.2 Framework for analysis

Given the different types of government policies and interventions impacting the development of the IT sector and IT Parks, a categorization of the individual policy instruments becomes essential. For purposes of the current study, relevant government policies and interventions have been grouped into the following categories.

- Fiscal policies that primarily represent the different financial concessions and benefits offered to players in the IT sector.
- Policies aimed at encouraging innovation, and research & development, areas which have traditionally formed the backbone for the development of certain segments of the IT sector. Some of these policies could involve provision of financial concessions & benefits, as in the case of fiscal policies.
- Human capital-related policies, primarily intended to facilitate availability of requisite human resources, which constitute one of the key enablers for development of the IT sector.
- Policies impacting the investment climate of the country, which are aimed at making the economy attractive to domestic/international investors through a combination of policy measures and instruments. Most government policies and interventions in this category, while they may be tailored to meet the specific requirements of a particular sector like IT, are usually targeted at meeting socio-economic objectives through all round economic growth.

A detailed description of the key policy instruments in each of the above categories, together with suitable illustrations, has been presented in Figure 15 on the next page.

4.3 Fiscal policies

**China**

- Under the Policies for Encouraging the Development of Software Industry And Integrated Circuit (IC) Industry framed by the
State Council, a maximum tax rate of 10% is applicable for key software enterprises identified by the state against the normal tax rate of 30%. A number of government bodies, including the Ministry of Foreign Trade and State Bureau of Taxation, decide which enterprises are eligible for this.

Software enterprises importing capital equipment as well as technology (including software) are exempt from payment of customs duties and import Value Added Tax (VAT).

India

The Income Tax Act, 1961, offers a number of incentives to IT and ITES companies, including a 100% exemption on profits from export of computer software till 2010 and a higher rate (60% compared to 15% for plant, machinery and equipment) of depreciation on computers and software.

Software Technology Parks of India (STPI), an autonomous organization under the aegis of Ministry of Communications and Information Technology, government of India offers a number of concessions to STPI registered IT and BPO units like 100% import duty exemption on capital goods imports, reimbursement of Central Sales Tax (CST) paid on capital goods purchases from the Domestic Tariff Area (DTA).

Many state governments have started the practice of extending various financial concessions/benefits linked to the level of employment

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**Figure 15. Types of Government Policy Instruments**

<table>
<thead>
<tr>
<th>Broad Classification</th>
<th>Key Policy Instruments</th>
<th>Illustrative interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiscal Policies</td>
<td>Direct tax concessions and waivers</td>
<td>Income tax holidays, concessional tax rates, simplified return filing provisions, special tax exemption</td>
</tr>
<tr>
<td></td>
<td>Indirect tax concessions and waivers</td>
<td>Customs duty exemption on exports and imports, service tax concessions, sales tax waivers</td>
</tr>
<tr>
<td></td>
<td>Subsidies, grants, incentives and other financial support</td>
<td>Capital subsidy, subsidies on land, power &amp; telecom tariffs, interest expenses</td>
</tr>
<tr>
<td>Innovation Policies</td>
<td>Research and development (R&amp;D) support</td>
<td>Direct funding through strategic R&amp;D grants &amp; patent incentives, development test bed facilities, tax break on R&amp;D expenses</td>
</tr>
<tr>
<td></td>
<td>Intellectual property rights (IPR) protection</td>
<td>Legislation and implementation mechanisms for protecting products, copyrights and trademarks</td>
</tr>
<tr>
<td></td>
<td>Providing incubation facilities and services</td>
<td>Support schemes for startups and SVEs offering plug &amp; play facilities and other incubation services.</td>
</tr>
<tr>
<td>Human Capital Policies</td>
<td>Formulating educational policies &amp; curriculum with a focus on IT sector requirements</td>
<td>Making changes in curriculum based on IT sector requirements, allowing private investment in education with requisite quality checks</td>
</tr>
<tr>
<td></td>
<td>Supporting training &amp; capacity building initiatives</td>
<td>Government sponsored-supported programs for developing and enhancing skill sets of IT workforce</td>
</tr>
<tr>
<td></td>
<td>Facilitating employment creation and attracting talent</td>
<td>Subsidies linked to job creation, policies to attract foreign experts, relaxed visa regulations and labor market policies</td>
</tr>
<tr>
<td>Investment Climate Policies</td>
<td>Simplified institutional and implementation framework</td>
<td>Declaring IT as a “priority sector” resulting in preferential treatment and efficient policy implementation mechanisms, single window clearance facilities, investment facilitation services</td>
</tr>
<tr>
<td></td>
<td>Facilitating cross-border investments, trade in products and services</td>
<td>Favorable export import policies, free trade agreements, Double Taxation Avoidance Agreements, permitting foreign direct investments (FDI) with profit repatriation</td>
</tr>
<tr>
<td></td>
<td>Enabling development of e-Commerce/e-Government</td>
<td>Legislations for recognizing legal validity of digital signatures &amp; transactions, responsibility of service providers, incorporating cyber crime into existing penal provisions</td>
</tr>
<tr>
<td></td>
<td>Venture capital (VC)/private equity market development</td>
<td>Government sponsored VC funds, transparent &amp; well regulated financial services sector with special fiscal concessions/benefits for attracting global VC/private equity investors</td>
</tr>
<tr>
<td></td>
<td>Facilitating development of enabling infrastructure, leveraging spill over benefits</td>
<td>Allowing competitive development of physical (roads, airports, urban infrastructure) and telecommunications infrastructure, flexible land use policies</td>
</tr>
</tbody>
</table>

India

- The Income Tax Act, 1961, offers a number of incentives to IT and ITES companies, including a 100% exemption on profits from export of computer software till 2010 and a higher rate (60% compared to 15% for plant, machinery and equipment) of depreciation on computers and software.

- Software Technology Parks of India (STPI), an autonomous organization under the aegis of Ministry of Communications and Information Technology, government of India offers a number of concessions to STPI registered IT and BPO units like 100% import duty exemption on capital goods imports, reimbursement of Central Sales Tax (CST) paid on capital goods purchases from the Domestic Tariff Area (DTA).

- Many state governments have started the practice of extending various financial concessions/benefits linked to the level of employment
creation. For example, government of Andhra Pradesh offers a rebate of USD$450 on the land cost for every job created provided at least 333 jobs are created per acre of land.

- Given India’s federal structure, a number of state/provincial governments also offer additional financial incentives to IT and BPO units setting up operations in the region. Typical incentives offered include capital investment and interest subsidies and subsidies on electricity tariff.

**Malaysia**
- Under the Income Tax Act, 1967, 70% of the income from software development is exempt from tax for a period of 5 years.
- Additional benefits are offered to companies located in designated IT Parks like the Cyberjaya Flagship Zone. Companies in such areas are eligible for 100% of their income being exempt from tax for the first 10 years, 100% deduction on approved capital expenditure incurred during the first 5 years of operation, and duty free import of multimedia equipment.
- The government of Malaysia allows duty free import of multimedia equipments to the IT companies.
- The government of Malaysia also offers grants and subsidies to start up companies and local SMEs to meet various expenses through the Small and Medium Industries Development Corporation (SMIDC) of Malaysia. For instance, 50% of the cost of business planning and feasibility studies and 50% of the cost of upgrading production & design capabilities are reimbursed as grants.

**Singapore**
- Under the Singapore Income Tax Act, IT companies with “Pioneer Status” enjoy a 100% exemption from corporate income tax for the first 5 to 10 years of operation. In addition, companies with export revenues in excess of 20% of total revenues are eligible for tax exemption on export profits.
- The Economic Development Board (EDB) of Singapore runs a number of schemes to support local IT companies like the Start-up Enterprise Development Scheme (SEEDS). Under this scheme EDB provides equity support to a start up company by subscribing up to 50% of its share capital subject to a maximum investment of USD$300,000. EDB also provides managerial support to local companies through Directors and Advisors for Technopreneurial Enterprise Scheme and the Enterprise Investment Incentive Scheme.

**Korea**
- The Corporate Income Tax Law gives special breaks to the IT sector under the aegis of Tax Incentive Limitation Law (TILL) for foreign invested companies involved in advanced technologies. Benefits include a 100% exemption from corporate income tax for 7 years from the first year in which profit was generated or the 5th year of operations, whichever is earlier. For the next three years, the income tax exemption is applicable to 50% of the profits. Additionally dividends are exempt from dividend withholding tax.
- The Tax Incentive Limitation Law (TILL) grants exemption from custom duties, VAT, special excise tax to the companies set up with foreign investment. Such companies also get up to 100% (prorated on the foreign ownership ratio) exemption from the aggregate land tax for the first 5 years of operation and up to 50% for the subsequent 3 years.

A comparative summary of the fiscal policies of individual countries has been presented below.

### 4.4 Innovation policies

**China**
- The Policies for Encouraging the Development of Software Industry And Integrated Circuit (IC) Industry framed by the State Council provides incentives for software enterprises to invest in research & development. Any amount exceeding 3% of VAT paid on sale of software products are refunded to the company provided the amount is used in research & development.
- Patent Law of the People’s Republic of China was amended in 2000 with patent right for inventions being valid for 20 years and the patent rights for utility models and designs valid for 10 years. The Copyright Law was revised in 2001 to include ‘computer software’ under the definition of ‘works’ enjoying copyright, with the copyright being valid for fifty years. The Trademark Law, revised in 2001,
states that the period of validity of a registered trademark shall be 10 years. The above amendments are in compliance with WTO’s Agreements on Trade-Related Aspects of Intellectual Property Rights (TRIPS). Additionally, the Measures for Administrative Enforcement of Patent promulgated by the State Intellectual Property Office of China in 2001 aims at effectively resolving patent infringement and other related disputes.

China has a network of incubation centers which are usually set up in partnership between the municipal/local government and domestic venture capital investors. Almost all IT Parks have incubation facilities for start up/early stage companies.

**India**

Given India’s federal structure, a number of state/provincial governments offer IT companies additional incentives linked to research and development. For example, the government of Andhra Pradesh as part of its IT Policy, 2005–2010, offers free space for 5 years to companies engaged in “high-end R&D” together with requisite software tools. Under this policy, the cost of filing patents are also reimbursed to companies based in the state.

The Indian Copyright Act, 1957 was amended in 1994 to include computer programs under the definition of “literary work” and any infringement of such copyrights was made a penal offence. The amended Copyright Act is based on the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) and provides for a Copyright Tribunal and a copyright protection period of 60 years.

STPI, under the Ministry of Communications and Information Technology, provides incubation facilities in each of its 49 centers spread across the country, with plug & play facilities, shared services support.
Malaysia

- The Ministry of Science & Technology Industries (MoSTI) operates a number of schemes to promote innovation among local IT companies. Schemes like the Industry Research and Development Grant Scheme (IGS), MSC Research and Development Grant Scheme (MGS) and Demonstrator Applications Grant Scheme (DAGS) offer up to 70% subsidy on R&D project costs. The Commercialization of R&D Fund (CRDF) has also been set up to support commercialization of R&D products from market survey to product launch.
- The Copyright Act, 1987 was amended in 1999 to include computer programs under the definition of “literary work” and any infringement of such copyrights was made a penal offence. The amended Copyright Act is based on the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) and provides for a Copyright Tribunal and a copyright protection period of 50 years.
- The Techno-preneur Development Flagship (TDF) program was initiated to support local entrepreneurs through various incubation services. The National Incubation Network (NIN) under this program includes a country-wide network of incubation centers for start-ups and early stage companies.

Singapore

- Under the Income Tax Act a number of tax incentives related to R&D are offered like double deduction of all expenses related to R&D and exemption of withholding tax of royalty or technical fees paid to non residents.
- The Economic Development Board (EDB) of Singapore, through a number of schemes like the Innovation Commercialization Scheme (ICS), Innovation Development Scheme (IDS) and Technology Capability Upgrading Scheme, offers grants to support R&D activities. Under the Research Incentive Scheme for Companies (RISC), EDB reimburses cost incurred on training, investment in equipment and professional services related to R&D projects through grants.
- The Copyright Act was amended in 1999 to harmonize it with key provisions under TRIPS. The amended Act provides for a 70 year protection for copyrights and setting up of a Copyright Tribunal to adjudicate IPR violations.
- EDB runs an island wide network of incubation centers named “Hub of Technopreneurs” (HOTSpots), which provide workspace and services like shared administrative resources, assistance in fund-raising and marketing, and general mentoring and guidance. The National Science & Technology Board acts as an advisory board to companies operating from these incubation centers.

Korea

- The Korean Tax laws permit up to 7% of the investments incurred in R&D and man-power development as tax deductible expenses. Up to 50% of the income from technology transfer by the patent holder is also exempt from income tax.
- The Korean government provides matching grants to original investments by foreign companies in R&D centers in the country through special support funds set up for the purpose. Ministry of Information & Communication and Ministry of Science & Technology supervise and operate similar funds to provide financial support for R&D programs.
- In 2000, the Copyright Act, the Computer Program Protection Act, and the Trademark act have been amended to comply with the TRIPs agreement. In addition, a Standing Inspection Team (SIT) has been set up under the Ministry of Culture & Tourism and Ministry of Information & Communication, to work with Ministry of Justice to intervene on various IPR infringements.
- The Small & Medium Business Administration (SMBA) provides a single-point support mechanism to the Small & Medium Enterprises in areas such as human resources, marketing, and innovation. SMBA also supports organizations like the Korean Business Incubation Association set up by incubators and incubation tenants to support and facilitate technical commercialization and marketing activities of incubators and incubation tenants. Almost all IT Parks have incubation facilities which are usually supported by the provincial/local Government and academic institutions for start up/early stage companies.

A comparative summary of the innovation policies of individual countries has been presented below.
4.5 Human Capital Policies

China
- The Law on Science and Technology Progress (1993) and Law on Popularization of Science and Technology (2002) enacted by Ministry of Science and Technology encourage enterprises to cooperate with research & development institutes to increase their capabilities. The government has included in its policy the responsibility of school and educational institutions to make science and technology education an essential part of the curriculum to popularize the same among students and teenagers.
- The government has recently allowed entry of foreign players into higher education on a case by case basis. For example, the Indian IT training company NIIT is in the process of setting up a network of centers for providing training in programming & spoken English to graduates.
- Chinese visa regulations are fairly simple and allow long term multiple entries from most of the countries based on valid letters of invite from business partners in China.

India
- Education is a concurrent subject in India, with both the central (federal) and state (provincial) exercising control. Consequently, a number of state governments have initiated changes like compulsory introduction of English at primary level with a focus on emerging BPO sector trends, setting up specialized units under the education department for tracking emerging trends in the IT sector and planning changes in the curriculum.
- A number of state (provincial) governments also support training & development initiatives with a focus on meeting the manpower requirements of the IT sector. For example, the government of Andhra Pradesh has set up Jawahar Knowledge Centers in all 23 districts of the state with the support of industry associations and corporate entities to impart focused technical and soft skills to engineering graduates with a focus on the IT sector. The government of Karnataka runs 220 training centers all over the state with the curriculum focused on different types and levels of IT and BPO skills.
Visa regulations in India have been simplified for facilitating easy movement of professionals from other countries. India has also entered into a number of bilateral agreements with countries like Singapore (a Comprehensive Economic Cooperation Agreement was entered in 2005) for easy mobility of professionals between the two countries.

Malaysia
- The 2nd National Science & Technology Policy identifies development of human resources capacity & capability as a key thrust area for science & technology (S&T) development. A number of specific measures have been suggested in terms of achieving a specific proportion of students pursuing S&T courses to those pursuing other streams at the upper secondary level, including setting up a post-graduate S&T research university, introduction of financial incentives for students pursuing S&T, expanding the operations of the S&T Human Resource Development Fund, making academic curricula more hands-on & innovation oriented, and strengthening mechanisms for allowing industry to contribute to curricula development.
- Different training programs and institutes offer training programs to improve the available skill sets in line with industry requirements. For example, the MSC K-Workers’ Development Institute was set up by the Ministry of Education with the mandate of matching the demand and supply of knowledge workers. The government, under the 2nd S&T Policy, has initiated measures for strengthening the existing system of certification of technical personnel & classification of skills, expanding the operations of the Skills Development Fund to finance industry training programs, allow joint management of the fund by the private sector and leveraging existing facilities at industrial training & other institutes.
- In addition to these, the government has taken up a number of initiatives like relaxed visa regime to facilitate mobility of resources. MDeC is empowered by government of Malaysia to approve applications by companies to employ foreign nationals.

Singapore
- Over the years Singapore has developed an open education policy inviting foreign universities to set up campuses in Singapore. Currently 15 international universities have their campuses in Singapore. The education curriculum at school and graduation level have been adapted to suit technology based industry. For instance computer education has been made compulsory in schools. As a result a huge pool of English speaking IT resources is available in Singapore.
- The Ministry of Education (MoE) in partnership with IDA runs a number of training programs like Infocomm Training Framework (ITF) to train different segments of the population and Critical Information Resource Program (CITREP) to train IT professionals in latest industry skills.
- Singapore has a policy for enabling easy entry for skilled foreigners through its Employment Pass/Center Pass schemes. Foreign entrepreneurs wanting to promote businesses in Singapore need to apply for “EntrePass”, an employment Pass for foreigners. The application procedures are quite simple. A successful applicant can register the new business on the basis of this pass. In addition to easy visa procedures, the country has entered into bilateral agreements (typically referred to as Comprehensive Economic Cooperation Agreements) with a number of countries for facilitating easy movement of professionals.

Korea
- Both government and private sector organizations offer certification programs in the field of information and communication technologies. The national certification system, implemented under the National Skills Certificate law is administered by the Ministry of Information and Communication and Human Resources Development Service of Korea, under the Ministry of Labor. Currently there are more than
100 IT related certificates issued by industry associations or corporate groups. The government from time to time recognizes certificates issued by these private institutions as national certificates. Currently over a million people have been trained & certified under these schemes.

The government has over time created a strong network of support institutions to promote research on e-learning, develop information related to education and research like the Bureau of Educational Information & Technology (1996) under Ministry of Education and Korea Education and Research Information Services (KERIS, 1999)

In 2000 the ‘10 Million Informatization Program’ was launched by the government of Korea as an initiative to bridge the digital divide. In the same year the National Center for Lifelong Learning was set up under the aegis of Lifelong Learning Act (March 2000) to carry out research, collect information, and provide training to instructors and administrators on ICT education with a focus on senior citizens, illiterates, and the disadvantaged like the deaf and the blind.

South Korean visa regulations are fairly simple and allow five year multiple entries from most of the countries based on valid letters of invite from business partners in the country.

A comparative summary of the human capital policies of individual countries has been presented below.

### 4.6 Investment Climate Policies

#### China

- The Ministry of Information Industry is responsible for formulating and administering policies for the development of China’s IT and telecommunications sector at the Federal level.
- At the local government level, the provincial/municipal governments play a key role in areas
such as overseeing development of the IT sector & IT parks in their respective regions and managing local level venture capital funds.

- The country promulgated the Electronic Signature Law in April, 2005, for establishing legal validity of electronic signatures and institutionalizing the process of issue and certification of digital signatures.

- The role of private sector/foreign players in IT sector development is evident from the Memorandum of Understanding (MoU) entered into between the State Development & Planning Commission of China with Microsoft Corporation of USA in 2002. This is an all encompassing MoU under which Microsoft will assist China in facilitating development of the IT sector besides committing investments of USD$750 million over a three year period.

- China has three main stock markets viz. Hongkong, Shanhai & Shenzen Stock Exchange with 1164, 837 and 569 companies listed in the respective stock exchanges. The Hang Seng is the leading index for shares traded on the Hong Kong Stock Exchange. Started in 1969, the index consists of the 33 largest companies that trade on the exchange.

- In 2005, 44,019 foreign-invested enterprises were newly set up in China, with a estimated investment value of USD$72.406 billion. In China FDI is allowed in a number of sectors including retail, software and electronics. Many foreign players are present in the IT sector including Motorola, Samsung, Langchao, and LG. (Source: www.fdi.gov.cn).

- China is a signatory to a Treaty for the Prevention of Double Taxation with over 65 countries all over the world. Among them are major IT markets like USA, UK, France, Germany, and Japan.

India

- At the central (federal) government level, the Department of Information Technology (DoIT), Ministry of Communication & Information Technology, government of India is responsible for formulating specific policies and promoting the Indian IT sector. It has formulated and administers a number of schemes like STPI, Electronic Hardware Technology Park (EHTP), Export Promotion Capital Goods Scheme(EPCG) for providing various incentives & concessions to IT companies.

- The DoIT has promulgated various legislations such as the Information Technology Act, 2000, and the Semiconductor Integrated Circuits Layout Design Act, 2000 as part of its initiatives to create a supportive legal framework for development of e-commerce in the country. It has also initiated the National e-Governance program (NeGP) for adoption of IT to bring about improvements in citizen service delivery both in the Central Government as well as individual states. Most of the large IT companies have benefited through significant additional business by participating in NeGP.

- The state (provincial) governments also offer additional benefits & concessions through their respective Departments of Information Technology/nodal agencies. Many states have declared the IT & BPO sector as “essential services” to provide additional operational flexibilities to companies in these sectors.

- India has a developed and well-regulated financial services sector, including liquid and vibrant capital markets in the form of Bombay Stock Exchange and the National Stock Exchange. There are a large number of international & domestic financial services players such as commercial banks, financial institutions, investment banks, venture capital & private equity funds, stock brokers, and foreign institutional investors. A number of international venture capital/private equity funds such as the Carlyle Group, the Blackstone Group, and General Atlantic Private Equity operate in the country, in addition to domestic players like ICIC and Kotak Bank. To encourage venture capitalists to invest in India, dividend income and long term capital gains from investments in a VC undertaking are exempted from tax. The Securities and Exchange Board of India, the regulatory body for Indian capital markets in its Guidelines for Venture Capital has laid down the regulations governing venture capital funds in India on listing and inviting public subscription for enterprises funded by VCs.

- While the country lags behind in key ICT indicators, large cities have access to world class telecommunication infrastructure. Significant competition exists in most of the sectors (roads, airports, telecommunications), which usually play key supportive roles in IT sector development, with both government and private sector players being present.
India has double taxation avoidance agreements (DTAA) with various developed and developing countries such as the U.S., the UK, France, Germany, China, Brazil, Malaysia, and South Africa.

While there are FDI restrictions for some of the sectors like retail, which usually are key beneficiaries of IT sector spill over effects, 100% FDI is permitted in other sectors like real estate. With land use being a state (provincial) government subject, most of the state governments have allowed a combination of business, residential and commercial end use as far as IT Parks are concerned, to enable maximization of spillover benefits.

Malaysia

Malaysian Industrial Development Authority (MIDA), the government’s principal agency for promotion and coordination of industrial development in Malaysia offers a number of fiscal benefits for ICT companies. IT companies engaged in software development are eligible to be granted “Pioneer Status”. Further to facilitate investment in IT parks, Multimedia Development Corporation (MDeC) was set up to act as a single window clearance agency for prospective investors in MSC.

The international trade policy of Malaysia is designed to increase exports. Malaysia is part of the ASEAN Free Trade Area (AFTA), established in 1992 to reduce/eliminate tariffs on intra-ASEAN trade. Malaysian External Trade Development Corporation (MATRADE) was set up in 1993 to act as a nodal agency for local exporters and foreign importers. The country has also executed DTAs with 52 countries including Japan, Korea, Germany, France, and the UK.

The Malaysian Communications and Multimedia Commission (MCMC) was created in 1998 to regulate the ICT industry. Communications and Multimedia Act, Digital signature Act and Computer Crimes Act were promulgated in late 90s to ensure security and legality of electronic transactions.

The government has embarked on a drive to create robust infrastructure suitable for IT industry. With the privatization of the government telecommunications department in 1987 and the formation of the National Telecommunications Policy (NTP) in 1994 the market is now fully liberalized. The government in partnership with private sector has invested heavily in building a high speed network (10 Gbps) that connects MSC with Japan, ASEAN, Europe, and the U.S.

Singapore

In Singapore, IT was identified as a core sector as early as 1980 when the first five year “National Computerization Plan” (NCP) was formulated. The industry has been awarded “Pioneer Status”. In addition to a number of special financial incentives it enjoys privileges like simplified compliance procedures.

Infocomm Development Authority of Singapore (IDA), a statutory board of the Singapore government under the Ministry of Information, Communications and Arts was formed in December 1999 to promote and develop Singapore’s vibrant IT industry. The Singapore Economic Development Board (EDB) acts as a nodal agency for administration of financial & other incentives across all industry sectors.

Since 1965, Singapore has entered into a number of DTAs with countries including Australia, Canada, China, France, Germany, and India. Over the years, Singapore has signed free trade agreements with countries like USA, Japan, India, Korea, Europe and others aiming to make Singapore a services hub.

In 1998, the Electronic Transactions Act (ETA) and Computer Misuse (Amendment) Bill were enacted to provide a legal foundation for electronic signatures and to prevent potential abuses of computer systems.

In April 2000, government of Singapore removed restrictions on telecom licenses to introduce full competition in the telecom sector.

The Singapore Stock Exchange (SGX) was formed in 1999, is the Asia-Pacific’s first demutualized and integrated securities and derivatives exchange. SGX is at the forefront of exchanges globally in attracting international issuers and is rapidly emerging as Asia’s offshore risk management center for international derivatives.

Korea


- The government has extended nurturing support to eight technology based services, three crucial infrastructures and nine new business growth engines under its ‘IT839 strategy 2004’ to ensure growth of the Korean IT industry.

- Large amount of public funds has been infused by government to create a domestic venture capital market. Prominent examples of government venture capital funds include ‘Small and Medium Business Fund(SMBF)’ (which has initiatives like ‘Dasan Venture’ and ‘Limited partnership funds’), ‘The technology Credit Guarantee Fund,’ and special funds such as ‘The Informationalisation Promotion Fund’ and ‘The Science and Technology fund’. The government has provided further support in form of legislation allowing venture investments by banks, providing tax incentives to VCs, and creation of KOSDAQ for high technology start-ups.

- The Korean Stock exchange has a total number of 729 listed companies as of November 2006. The main tracking index is the Korean Composite Stock Price Index. The procedure for buying stock on the Korean market is complicated, especially for foreigners. An investor who intends to trade securities on the KSE market must open an account with a KSE member securities firm because only KSE member firms have direct access to the KSE market.

- The government provides incentives for advance technology FDI in the form of exemption/reduction of national taxes, exemption/reduction of regional taxes, free lease of land in Foreign Investment Zones and a negotiated Cash Grant to select companies.

- Korea has DTAA with more than 60 countries including India, China, Germany, and Russia.

A comparative summary of the Investment climate policies of individual countries has been presented in Figure 19.

4.7 Key Findings

As is evident from the analysis of the regulatory and policy regime in different countries, most countries have followed a consistent approach in terms of the different types of policy interventions for the development of the IT sector. However, the level of direct government involvement varies across individual economies, with some governments adopting a facilitative approach while others have opted for direct interventions. For example, while the government of India has primarily depended on private sector venture capital/private equity investments, China has opted for government-sponsored venture capital funds. In the current section, we have attempted to identify key trends in policy development which appear to have an impact on the performance of the IT sector. The six case studies also brings forth a number of policy initiatives which facilitated the growth of IT sector in general and IT Parks in particular. In this section, we also provide illustrations of such policy enablers.

Adopting a holistic approach to policy development is key

As development of the IT sector and IT Parks is dependent on a number of other sectors like telecommunications, roads, airports, venture capital/private equity, capital markets, most successful countries have put in place suitable policies for improving efficiencies and service levels in these sectors. Thus, countries like Singapore were one of the earliest to put in place requisite policies for facilitating competition and private sector participation in telecommunications and infrastructure and ensuring effective regulation and development of the financial services sector, including capital markets. Even India, which is categorized as a developing country, has a policy regime which supports private sector participation and competition in most of the supporting sectors, in
addition to a well regulated and vibrant financial services sector. On the other hand, countries like China are yet to achieve the same level of maturity in their financial services sector and hence have to depend on government-sponsored venture capital funds for supporting IT sector development.

**Efficient institutional and implementation mechanisms are critical**

While most countries have adopted regulations in line with established good practice, establishing the proper institutional mechanisms is integral to effective implementation. Most of the countries have attempted to achieve this by constituting nodal organizations within government for providing “single window services.” For example, most of the incentives offered to the IT Sector and IT Parks in Malaysia are administered through the Multimedia Development Corporation. In India, most of the benefits and concessions are on offer through the Software Technology Parks of India, which has its offices throughout the country.

<table>
<thead>
<tr>
<th>Country</th>
<th>Simplified institutional and implementation framework</th>
<th>Facilitating cross border trade and investments</th>
<th>Enabling eCommerce</th>
<th>Access to Venture Capital</th>
<th>Enabling Infrastructure development</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>Ministry of Information Industry as the policy making &amp; administrative agency, with supportive role from provincial Governments</td>
<td>100% FDI allowed in IT &amp; BPO companies, IT Parks</td>
<td>Electronic Signature Law passed in 2005</td>
<td>Recent interest from global VC funds</td>
<td>Competitive telecom market with dominance of state owned players</td>
</tr>
<tr>
<td>India</td>
<td>Department of Information Technology for policy making &amp; administering benefits</td>
<td>100% FDI in IT &amp; BPO companies, IT Parks</td>
<td>Formation of Cyber Appellate Tribunal</td>
<td>Government supported existing VC funds at provincial/IT Park level</td>
<td>Public private partnership (PPP) for physical infrastructure development</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Central Government schemes like STPI for single window services</td>
<td>MATRade set up in 1993 under Miti</td>
<td>Communications &amp; Multimedia Act, Digital Signature Act and Computer Crimes Act enacted in late 90’s</td>
<td>Presence of established global VC funds</td>
<td>National Telecom Policy, 1999 opened up telecommunication market to private players</td>
</tr>
<tr>
<td>Singapore</td>
<td>IT considered essential services in many states</td>
<td>Tax treaties with Japan, Korea, Germany, France, UK, etc.</td>
<td>Dedicated Venture Capital funds like MSCVC and TPMVF</td>
<td>No tax on income from a VC undertaking</td>
<td>PPP for infrastructure development</td>
</tr>
<tr>
<td>Korea</td>
<td>Focused initiatives like ‘Cyber Korea 21 initia tive’ &amp; ‘IT Korea vision 2007’ to develop a world leader in ICT</td>
<td>100% FDI in IT &amp; BPO companies, IT Parks</td>
<td>Financial hub of Asia with global VC funds</td>
<td>No tax on income from divestment of share by a VC fund</td>
<td>Telecommunication market liberalized in 2000</td>
</tr>
<tr>
<td></td>
<td>100% FDI in IT &amp; BPO companies, IT Parks</td>
<td>Tax treaties with Japan, Korea, Germany, France, UK, etc.</td>
<td>Telecommunication market liberalized in 2000</td>
<td>Govt. backed VC funds</td>
<td>ITB39 strategy for overall development</td>
</tr>
<tr>
<td></td>
<td>DTAAs with around 65 countries</td>
<td>DTAAs with developed and developing countries</td>
<td>Computer Misuse Act and Electronic Transaction Act enacted in 1998</td>
<td>Tax concessions to VC funds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DTAAs with around 65 countries</td>
<td>DTAAs with developed and developing countries</td>
<td>Electronic Signature Act enacted in 2001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 19. Investment Climate Policy Highlights for Different Countries**
The developer of an IT Park requires various clearances for constructing buildings and related facilities in the park. Such clearances include building plan sanctioning, fire services clearances, sewerage & drainage clearances, and environmental related clearances. A one-stop clearance agency helps the developer to get these IT Park related clearances faster, which helps them reduce time and thus enables reduction in project cost. For example, in Hyderabad, APIIC acts as the single point clearance agency for building and related construction of Hitec Park. Developers have significantly gained from this arrangement.

Intellectual property protection policies represent another case in point. While most of the countries like China and India have amended their Copyright Acts in line with TRIPS and have also set up dedicated Copyright Tribunals for adjudication, litigants have the option of approaching the existing judicial system as a final recourse. With the existing legal system in both these countries being considered relatively less efficient, value added intellectual property related IT activities such as new technology development have taken a backseat compared to other countries like Singapore and Korea, which have a faster process and a more streamlined judiciary.

**Focused policies for IT Park development are critical for “developing” ICT economies**

Leveraging IT Parks for IT sector development becomes critical in economies like China and India, which lag behind developed countries in key ICT indicators. With development of the IT sector being closely linked with “support” sectors like telecommunications, physical infrastructure, it is easier to provide these support services in geographically concentrated zones/areas. Consequently, many of these countries have adopted policies for encouraging development of IT Parks. An example of such a policy would be the Information Technology Special Economic Zone (SEZ) policy in India, which offers a number of fiscal/other benefits to companies located in approved IT Parks. On the other hand, countries like Singapore, where the requisite support in terms of best in class telecommunication and physical infrastructure is available throughout the country, have adopted policy regimes applicable to all companies in the IT sector, as against companies located in a designated IT Park.

**Encouraging private sector participation is critical**

Almost all countries have adopted a variety of policy mechanisms for encouraging private sector investment not only in the IT sector but in developing “support” sectors such as financial services, telecommunications, and physical infrastructure development. Other than a few niche areas like specific research & development initiatives where government organizations have played a direct role, the government’s role in most countries has been that of a facilitator. While in some countries, this represents a conscious decision on the part of the government, in others it has also been driven to an extent by existing budgetary/fiscal constraints.

Many of the parks studied were developed through public-private partnership. Such policies have benefited both the private sector as well as government. For example, in case of Cyber Towers, Hyderabad, government contributed by providing land and the private player was responsible for developing the land and construction of the building. Acquiring vast plots of continuous land would have been very difficult and time consuming for the private sector. With the government acquiring land through legislative means, the private sector developers ensured that the related facilities were constructed in a record time of 18 months.

**Flexible land-use policies providing the developers more choice**

Flexible land use polices permits the developer to bundle IT office space construction with construction of other facilities such as shopping complex, hotels, eateries, and housing complex. Such bundling makes the project financially more attractive given that the returns from the commercial/residential end use are typically higher. For example, in CFZ, Malaysia 500 hectares of land has been zoned as commercial use. In Hitec City, Hyderabad, 40% of the net developable/usable area can be used for housing, club house, recreational center, shopping center, a school and other support activities.

**Linking incentives/subsidies with identified strengths/core competencies of domestic companies**

In developing countries like India and Malaysia, most IT and ITES companies are export oriented with the major markets being the U.S. and Europe. It may be
observed that governments in these countries offer a number of fiscal incentives on export income/profit. On the other hand in countries like Singapore where the target market segment for most IT companies is hi-technology, research intensive products, the subsidies and incentives offered by government agencies are linked to R&D spending. Adopting the fiscal policies to suit the strengths and markets of indigenous companies is an effective policy measure to promote the domestic industry.

**Effective coordination with other ministries/departments**

It is important to understand that the presence of good policies alone do not suffice, it is equally important that these policies get efficiently implemented. For proper implementation of policies it is important that there is effective co-ordination between various government ministries, agencies and departments. Different countries have taken different strategies in to enable such co-ordination. In developed countries like Singapore, proper co-ordination between various departments and ministries administering the subsidies & incentives has been ensured through efficient e-Governance systems. In the developing countries like India and Malaysia, a dedicated government agency has been created to administer the subsidies and incentives. For example, in Andhra Pradesh, India incentives are administered through a high level co-ordination committee called Consultative Committee on IT Industry which includes members from various government departments (Information Technology & Communication, Labor Department, Municipal Affairs Department, Land Department), utilities (electricity, water supply) and industry associations (HYSEA, NASSCOM). This committee is responsible for granting various provincial/state subsidies, resolving implementation issues and prescribing guidelines for industry growth.

**Having the right policy mix is essential for maximizing spill over benefits**

As has been established through the IT Park case studies, successful development of an IT Park inevitably leads to significant spillover benefits in terms of other economic activities such as real estate development, vibrant retail, and hospitality and financial services sectors. Many governments have attempted to maximize these spillover benefits through a suit of policies including allowing flexible land use, encouraging private sector investments in these sectors for faster development, and motivating IT sector participation in capital markets. Thus, while India provides additional flexibilities to IT & BPO companies for listing on premium stock exchanges in terms of a lower paid up share capital viz. a viz. companies in other sectors, almost all the IT Parks covered in the study allow mixed land use with a specified proportion of the total land area earmarked for business end use, commercial end use and residential purposes. It is essential for incorporating such flexibilities to existing policies or promulgating new policies with these flexibilities to maximize economic development.

**Fostering efficient linkages with other economies is essential**

All successful countries are observed to have policy and regulatory regimes which encourage trade and investment linkages with other economies. Such linkages are usually facilitated through a variety of policy instruments including liberal foreign direct investment (FDI) guidelines, non-restrictive visa/work permit procedures, unrestricted trade in goods and services, and double taxation avoidance agreements. However, the level of maturity of the individual policies vary from country to country, with countries like Singapore adopting a relatively lower duty structure for imports across sectors, while others like India offer a concessional duty structure for all capital goods imports specifically for the IT sector.

**There are additional flexibilities for policy formulation in a federal structure of government**

In countries like China, India, and Korea which follow a federated structure with both Central (Federal) and State (Provincial/local) governments, regional governments have attempted to differentiate themselves by providing additional benefits/concessions to IT/IT Park companies. For example, in India, a number of state governments offer additional flexibilities/benefits including subsidies on capital investments & interest payments and offering discounted land prices linked to employment generation. In Korea too, much of the policymaking has gradually shifted from the federal to the provincial governments. Such initiatives have led to differential development of the IT sector in...
different geographic regions within the same country, with individual local governments attempting to differentiate themselves through additional benefits/concessions and investor friendly implementation mechanisms.

For countries aspiring to offer offshore BPO services, formulation of a Data Protection Act is a necessity

In view of the recent breaches in security in various BPO organizations, enactment of a data protection law has become a necessity. This has gained further importance with the data protection directive issued by the EU (Directive/95/46/EC on the ‘protection of individuals with regard to the processing of personal data and on the free movement of such data’), which constitutes one of the biggest market for providing offshore BPO services. Based on this directive, UK has already enacted its ‘Data Protection Act’. The EU directive and enactment of Data Protection laws by member countries imply that only countries having data protection laws in line with the EU directives will be favored for off-shoring BPO services from EU member countries. Some countries that are trying to emerge as offshore BPO destinations have already formulated policies addressing this issue. For example, Department of Trade and Industry, Republic of Philippines has issued ‘Guidelines for the Protection of Personal Data in Information and Communications System in the Private Sector’. The guidelines also provides for an independent third party namely, Data Protection Certifier, duly accredited by the government, to certify the privacy program of a company and thereafter to monitor and oversee its implementation and enforcement.

4.8 Policy Prioritization

It is evident from the above that a number of policy interventions need to be undertaken by governments to develop the country’s IT sector. The government’s role in facilitating the growth of the IT sector is primarily through developing holistic IT strategies linked to the core competencies of the particular country such as innovation through Research & Development activities and low cost skilled manpower. The country’s IT sector growth strategy would require policy enablers which would form the basis for formulation of specific policy initiatives. Given that implementation of the IT strategy is crucial to the economic growth, specially for developing countries, some policy initiatives may have short term implications like attracting IT players to the country while other policies have long term implications like ensuring sustainability of the IT sector. Policies that can be implemented in the short term result in an immediate beneficial impact for the sector or “quick wins”. The impact of policies typically aimed at sustaining the sector are seen over the long & medium term like for a non-English speaking country to ensure English speaking IT skilled manpower for the IT sector may take 5–10 years to be effective after implementing the policy initiatives through the school system. Quick wins, although being far from comprehensive solutions in themselves, act as building blocks to a sustainable IT sector development.

Short-term policies

Some of the key priority short term policies are highlighted below:

Provide fiscal incentives to encourage private sector participation

Government needs to provide fiscal incentives in order to encourage private sector participation in the IT industry. These incentives could be in form of tax exemptions, for example in India, IT and ITES companies are provided with 100% exemption on profits from export of computer software till 2010. They could also cover areas such as customs benefits, subsidies for employment generation, and equity support for start-ups.

However, it is also critical that governments not just focus on providing such incentives to the IT companies, but also to ‘support’ sectors like physical infrastructure development like transportation, telecommunications, and real estate players. For example, the government of Singapore removed restrictions on telecom licenses to introduce and encourage full competition in the telecom sector. Similarly, in India, the National Telecom Policy of 1999 opened up the telecommunications sector to private players. As a result, a number of private sector telecom operators started operations, resulting in immediate improvement in the country’s communication infrastructure and customer service delivery on account of competition.
Establish an effective implementation mechanism – Single window nodal agency

Effective implementation of the incentive policies is one of the most important parameters that attracts the private sector to invest. The establishment of proper institutional mechanisms are integral to effective implementation, with most governments preferring setting up ‘single window/one-stop services’. Such nodal agency provide a one stop servicing facility for developers of IT Parks as well as the occupants/residents of such parks. An example of such single window/one-stop service nodal agency in an IT Park is Multimedia Development Corporation in CFZ, Malaysia, which is the single point of contact for park occupants for obtaining requisite government approvals and facilitating business linkages with the government.

Create a coordinating committee which fosters linkages with various government ministries, departments, and agencies

It has been observed that developing/constructing an IT Park requires the involvement/clearances from various government ministries/departments/agencies. It would be beneficial if a coordinating body comprising members from various government departments (Information Technology & Communication, Labor Department, Municipal Affairs Department, Land Department) and utilities (electricity, water supply) be formed so that the process of approving an IT Park developers’ plans, acquisition of land, issues relating to utilities & supporting infrastructure can be undertaken. Such an empowered coordinating committee will ensure a fast track clearance and approval process. An example of such a committee is the “Consultative Committee on IT Industry” in Andhra Pradesh which is empowered in areas such as granting various provincial/state subsidies and resolving implementation issues.

Promote/Facilitate creation of an industry body specifically for promoting and developing of IT sector

Steps should be undertaken by the government to facilitate/promote the creation of an Industry body for the IT sector, which could represent the industry’s interests in issues like government procurement, information security, workforce development, intellectual property protection and accounting, finance and taxation, and act as a bridge between industry and policy makers. One of the main objectives of such body would be to maintain close interactions with the government in formulating the national policy and specific action plans for development of the IT industry. The body’s mandate may also include coordinating with foreign governments and embassies to make the Visa and Work Permit Rules more industry friendly; interacting with the Education Ministry, Universities on current industry’s skill & future skill requirements for ensuring necessary changes in curriculum; and campaigning & generating awareness against software piracy and copyright laws.

Such an organization also offers valuable services to its member organization in terms of encouraging them to improve quality of service, adopt modern technologies and provide innovative solutions through organizing regular interactions/IT sector seminars/meets. The existence of such an organization also provides valuable linkages between entrepreneurs, investors, organizations and individuals desiring to connect with and mutually leverage complementary skills, services, resources, contacts and talents within the country. This also provides an ideal forum for overseas and domestic companies to explore the vast potential available for Joint Ventures, Strategic Alliances, Marketing Alliances, Joint Product Development, etc. An example of such an Industry Body is NASSCOM in India. Box 6 provides a brief description of Nasscom.

Design flexible land use policies for attracting private real estate players

Flexible land use policies are required to attract private sector real estate players to invest in development of IT Parks, as such policies can ensure higher returns on investments for the Park developer. Such policies typically allow mixed land-use i.e. allow residential and commercial land-use along with industrial land-use. Other means of providing incentives to developers include allowing a higher floor space ratio. The Floor Area Ratio (FAR) or Floor Space Index (FSI) is the ratio of the total floor area of buildings on a certain location to the size of the land of that location. By allowing a greater FSI, government enables the private investor to create more space which can be rented out/sold to occupants and thus enables them to realize higher revenues.

Long-term policies

Besides the above-mentioned short term policies that can be implemented on a priority basis to kick-start the IT sector development, governments would
also need to consider implementing policies having long term implications for ensuring sustainability of the IT sector. These include educational reforms to attract private sector in education; foster linkages with other markets like the capital market to attract private funding, introducing Corporate Governance norms so that even if some short term measures like providing fiscal incentives are removed after a specified timeframe, the continued development of the sector can be ensured. Long-term policies should be aligned to the core competencies of the country. For example, if a country’s IT strategy is to focus on encouraging IT software development to leverage its low-cost educated manpower base, the government

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**BOX 6. National Association of Software and Service Companies (NASSCOM)**

NASSCOM is the chamber of commerce for the IT software & services industry in India having over 1100 members, of which over 250 are global companies from the US, UK, EU, Japan, and China. NASSCOM was set up to facilitate business and trade in software and services and to encourage advancement of research in software technology.

NASSCOM’s vision is to establish India as the 21st century’s software powerhouse and position the country as the global sourcing hub for software and services. NASSCOM is committed to work proactively to encourage its members to adopt world class management practices, build & uphold highest quality standards and become globally competitive. The primary objective of NASSCOM is to act as a catalyst for the growth of the software driven IT industry in India. Other goals include facilitation of trade and business in software and services, encouragement and advancement of research, propagation of education and employment, enabling the growth of the Indian economy through the development of the IT sector and providing compelling business benefits to global economies leveraging global sourcing. NASSCOM is engaged in a number of activities for developing the IT sector of India which includes:

**Fostering Partnership with the Government**

NASSCOM has representatives in various committees in the government of India, including the Ministry of Information Technology, Ministry of Commerce, the Ministry of Finance, Department of Telecommunication, Ministry of Human Resources Development, Ministry of Labor, and the Ministry of External Affairs. NASSCOM also acts as a consulting body for various state governments in India.

NASSCOM has played a key role in enabling the government in India to develop industry friendly policies. NASSCOM has been a proponent of free trade, arguing for zero tariff protection, strong intellectual property and data protection laws, deregulation of the telecom market and the creation of software technology parks and private sector participation in the education system—measures which have already resulted in significant growth of the industry. NASSCOM has also been interacting with several foreign governments to promote a win-win partnership through global sourcing to India. NASSCOM also plays a role in representing IT Industry interests in issues relating to global alliances on software quality standards, immigration policies, WTO and free trade in services and next-generation good practice in global sourcing of services.

**Global Partnerships**

NASSCOM plays an active role in the international software community. NASSCOM is a member of the Asian Oceanian Computing Industry Organization (ASOClO) comprising representatives from 20 countries encompassing over 10,000 companies of the region. NASSCOM is also a founder member of the World Information Technology and Services Alliances (WITSA). This forum comprises ICT associations from around 70 countries.

**Undertaking Research and Thought Leadership**

NASSCOM undertakes research on the ICT industry in India and the world in order to continuously educate its members on new business opportunities, business practices in global markets, potential threats to industry growth and attract additional investments in India.

**Encouraging improvement in Quality of Products and Services**

NASSCOM strongly believes in encouraging its members to provide global quality products and services. The association provides assistance to its members in achieving international quality certifications by organizing seminars and related programs on quality standards and disseminating relevant information.

**Intellectual Property Rights**

NASSCOM is an ardent supporter of strong intellectual property laws in India. In 1990, NASSCOM began an active public awareness campaign to educate users about the lawful use of software and launched the country’s first anti-piracy hotline and India’s first anti-piracy toll-free hotline. NASSCOM has also successfully facilitated enforcement laws against software piracy in India and helped introduce Cyber laws. NASSCOM continuously engages with the government of India for required changes in the IPR laws, keeping in line with WIPO and other International Laws and treaties. NASSCOM also works closely with the Business Software Alliance (BSA) to enforce copyright laws.

NASSCOM provides its members with various forums for making business connections and sharing good practice, for example, ITES/BPO Forum, Emerging Companies Forum, Product & Innovation Forum, Quality Forum, Security Forum, IT Workforce Development Program, IT Domestic Market Forum, NASSCOM Engineering Services Forum.

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would need to improve the legal system to protect and promote proprietary knowledge as this is often a company’s main business asset. As such, laws relating to intellectual property, and the implementation of such laws would be critical to gaining investor confidence.