The Strategy of Technology Park for The Development of IT Industry in Pakistan

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ABSTRACT

Pakistan has been experiencing slow but steady economic growth in recent years and the software industry is booming thanks to abundant young population who works for programming with good English skills. Recognizing the development potential of software industry, Pakistan government has been promoting its development by providing various supports. However, it seems that the technological ecosystem is not fully developed, the university industry collaboration is weak and technological development is not advanced. In this context, the Pakistani government is trying to introduce a new advanced Technology Park initiative to promote the industry as well as to provide the required work space.

Nowadays, Technology Parks established by government are supporting the development of various industries. In this context, the research was done to evaluate whether the Technology Park initiative for IT industry would be also effective in Pakistan. In the research, the conceptual review was conducted for the Technology Park and SWOT analysis was done for the current Pakistan software industry. It is argued that the Technology Park can play an important role in developing Pakistan software industry when the right policy and management can be assured at the government level.

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1. Research Background and Question

General Information of Pakistan

Population	199,085,847 (2015 Jul)
Area	796,095 sq km (307,374 sq miles) excl. Kashmir
GDP	$4,700 (2014 est.)
GDP Real growth rate	3.6% (2013 est.) 4.4% (2012 est.) 3.7% (2011 est.)

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1. Research Background and Question

Economic Status: Major Indicators

Economic indicator

Economic Indicator	08-09	09-10	10-11	11-12	12-13
GDP per capita (USD)	1,026	1,072	1,275	1,323	1,368
Import (100M USD)	348	347	404	449	404
Export (100M USD)	177	193	248	236	247
Balance of trade (100M USD)	-171	-154	-156	-213	-157
Balance of current account (100M USD)	-93	-35	2	-46.58	-16.54
Foreign reserves (100M USD)	140	179	209	147	123

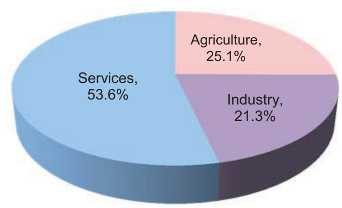
Industrial Structure

- Mainly agricultural and dairy industry (21.5%), manufacturing industry (18.5%), whole sale and retail industry (17.1%)

Major Export Items

- Cotton, clothing, petroleum product, and rice

GDP by sector (2014 est.)



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1. Research Background and Question

- **Pakistan: A developing country with S/W export growth**
  - Agriculture still the largest industry (25.1% of GDP in 2014)
  - S/W export is growing (41% growth IT remittance during 2014-15)
- **S/W industry: growth potential but not fully realized**
  - Young capable English speaking population
  - Growing number of higher education institutes
  - Low technology level and outsourcing focused
- **Technology Park initiative: will it be successful?**
  - Existing Technology Park: minimum services
  - Univ.-Industry collaboration?
  - Establishment of technology eco system?

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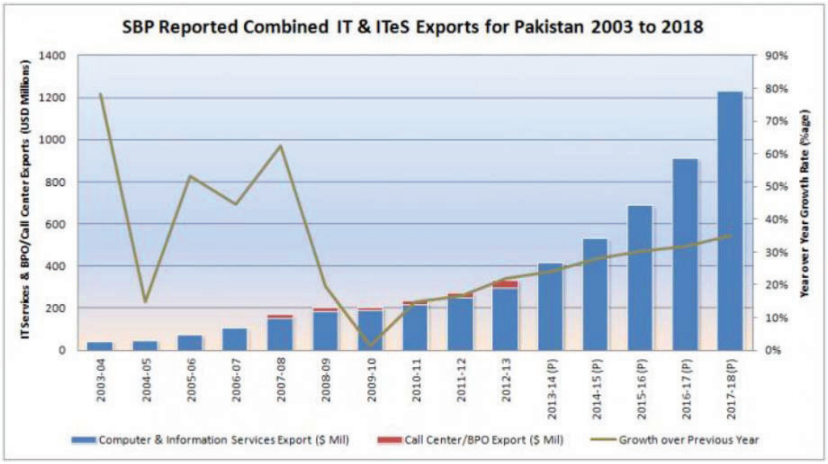
1. Research Background and Question

■ **S/W (IT & ITeS) Exports in Pakistan**



State Bank of Pakistan, FY 2013

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1. Research Background and Question

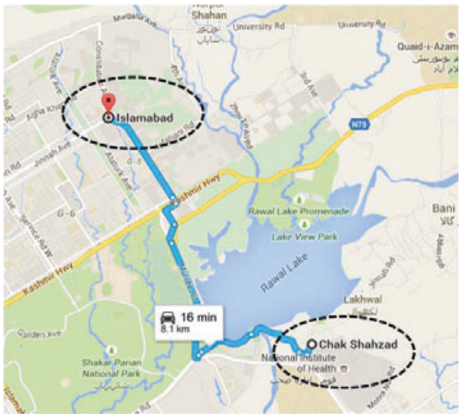
■ **New IT Park initiative**

- **Purpose**
  - Reinforcement of Pakistan IT industry competitiveness to develop innovation actors and provide integrated space which will lead Pakistan's national innovation system, through the advancement of high-tech industry and promotion of IT industry based on 'The Framework for Economic Growth(FEG)' of Pakistan
  - Pakistan IT industry will be led by university-industry cluster so that Pakistan IT Park should be built on the successful operation
  - Contribute IT industrial environment and IT cluster with in-depth feasibility study for Pakistan IT Park establishment both in terms of hardware (construction) and software (management and operation)

1. Research Background and Question

New IT Park initiative

- **Location and Project site**



- IT Park entrance

- Chak Shahzad, Islamabad in the southeast(8km)
- 60,000m^2 of 190,000m^2

1. Research Background and Question

New IT Park initiative

- **Expected Effects**
  - Promote Pakistan economy development by providing investment feasibility of Pakistan IT Park
  - Provide environment of Pakistan IT Business-friendly and promote competitive of IT industry
  - Facilitation of cooperation between Pakistan and Korea in Industry, University and Research Institutes
  - Expect benchmarking IT Park in Islamabad as Pakistani model to the other place

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1. Research Background and Question

Questions

- Is the IT Park is right policy considering the conditions of Pakistan IT industry and international environment?
- What kinds of effects will the IT park bring to Pakistan IT industry?
- What will be needed to bring the positive results from the IT Park initiative?

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2. Conceptual Review of Technology Park

- **Science and Technology Park (STP)**
  - STP means a physical space, which purses technological innovation with the synergy coming from interactions among university, industry, research institute and government.
  - The management of STP often offers business, technology services as well as some incentives to promote certain industries.
  - The STP can be established by government or natural/regional conditions.
- **Technology Park (TP)**
  - Supporter and Promoter of regional innovation system.
  - Refers a certain geographical areas where university, industry, research institute and government are located in proximity or an organization (often non profit foundation) to support regional SMEs and industries.
  - Generally acknowledged as an effective policy tool to promote specific industry and regional innovation by creating innovation cluster effect.

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2. Conceptual Review of Technology Park

- **Innovation Cluster**
  - A networked group of innovation actors and location(s), creating economic and technological values by interacting, competing and collaborating with other actors in innovation processes, which functions as the source of innovative activities for the region/nation, and has global competitiveness. (Yim, 2008; Yim, 2002)
- **Why Science and Technology Park**
  - To produce technological innovation better than other actors in other region
  - Unit of competition is an innovation cluster, not nation
  - Easy to implement the government policies
  - Yet difficult to execute and require a long period of time for positive results

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2. Conceptual Review of Technology Park

- **Case of 'Technoparks' in Korea**
  - More oriented to small and medium enterprises in the region
  - A legal entity (foundation) where the technology organizations, buildings, and facilities are aggregated as a regional innovative base and support regional innovation
  - Major functions such as business support (including the rent of office space), industrial promotion, and R&D
  - Various programs to promote industries and support business and targets for programs are often tenant companies, although some programs are opened to companies in the region due to the source of the funds and purposes

Technoparks in the region

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2. Conceptual Review of Technology Park

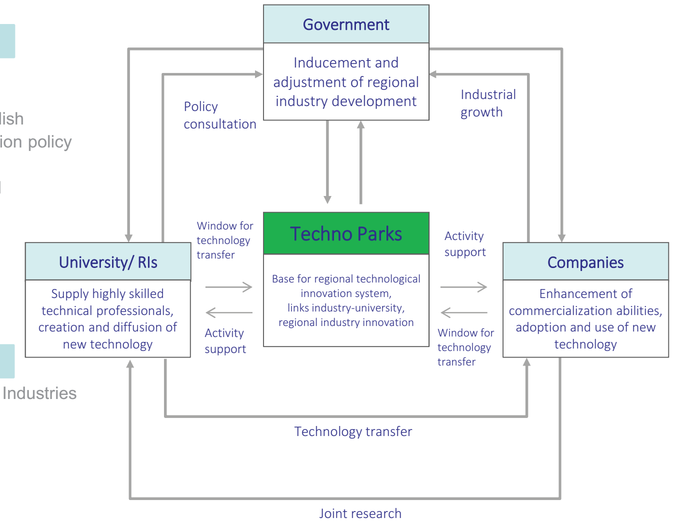
Roles of Technopark in Korea

ROLES

- Infrastructure Builder for Regional Innovation
- Vision Provider to Establish regional industry promotion policy
- Business Supporter to provide programs and to link innovation actors

PROGRAMS

- R&D for Regional Strategic Industries
- Support local Businesses
- Business Incubation for Post BI Companies
- Training and Education



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2. Conceptual Review of Technology Park

- **Key features of 'Technoparks' in Korea**
  - Cooperation between central &regional governments
  - Promotion of regionally selected strategic industries in cooperation with national government
  - Unified operation and control of budgets for each region
  - Both collaboration and competition among Technoparks
  - Operation based on legislation
- **Performance or Achievement of 'Technoparks' in Korea**
  - The Technoparks are regarded as the hub of regional innovation network, especially for the SMEs in the region
  - They help SMEs to get access to technology information and to be connected to right research organization or university.
  - They help SMEs to go global market by providing not only market information but various business services and connecting to national/regional government support programs.
  - They provide the opportunity to use expensive technology equipment at lower price to the SMEs.
  - Some Technoparks do have R&D facilities to support SMEs.

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2. Conceptual Review of Technology Park

- **Case of Daedeok Innopolis in Korea**
  - Started as the Daedeok Science Town in 1973
  - Changed into Daedeok Innopolis to strengthen U-I-R network and commercialize the results of R&D
  - With the enactment of "R&D special zone act,' new promotional program and management, Daedeok Innopolis is new-born as the national innovation hub
  - Dadeok Innopolis case shows that Science and Technology Park or Innovation Cluster approach is quite effective in bringing the innovation

<The achievement after Daedeok Innoplis transformation>

Year	2005	2014
No. of tenant firm	687	1516
No. of employment	23,558	67,390
No. of Kosdaq (Korean version of Nasdaq) registered firms	11	36
No. of research firms	6	88 (year 2015)

Source: http://ddi.or.kr

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2. Conceptual Review of Technology Park

- **Case of Guro Digital Complex in Korea**
  - Started as the industrial complex which focuses on light manufacturing and export in 1964.
  - It went through a rapid change in the dot-come bubble era and became the hub of small technology venture firms around year 2000.
  - Seoul Metropolitan government supported the construction of many venture buildings by providing administrative help and financial aid.

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2. Conceptual Review of Technology Park

- Case of Guro Digital Complex in Korea

	Year 2008	Year 2013	Growth (2012/ 2008)
Firms (No.)	8,604	11,497	33.6 %
Prod. Value (Tril. Won)	5.6	13.8	146.4 %
Export. (Bil. USD)	1.41	2.86	102.8 %
Employee (No.)	108,791	154,471	41.9 %

Source: http://www.e-cluster.net

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3. Status of Pakistan Software Industry

- PEST (Political)

Item	Description
Government type	Federal republic
Capital	Islamabad
Independence	14th August 1947 (from British India)
National holiday	23th March 1940 (Pakistan Day)
Constitution	Passed 19th April 1973
Legal system	Common law system with Islamic law influence
Executive branch	
Head of government	Prime Minister Mohammad Nawaz SHARIF (since 5th June 2013)
Cabinet	Cabinet appointed by the president upon the advice of the prime minister
Elections	President indirectly elected by the Electoral College consisting of members of the Senate, election last held on 9th September 2013 (next to be held in 2018), prime minister selected by the National Assembly
Legislative branch:	
	Bicameral Parliament or Majlis-e-Shoora Consists of Senate (104 seats; members to serve three-year term) National Assembly (324 seats; members to serve three-year term)
Judicial branch:	
Highest court(s)	Supreme Court of Pakistan
Judge selection and term of office	Justices nominated by an 8-member parliamentary committee upon the recommendation of the Judicial Commission (a 9-member body of judges and other judicial professionals), and appointed by the president of Pakistan; justices can serve until age 65
Subordinate courts	High Courts; Federal Shariat Court; provincial and district civil and criminal courts; specialized courts for issues such as taxation, banking, customs, etc.

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3. Status of Pakistan Software Industry

PEST (Economic)

Item	Value
GDP (official exchange rate)	$ 246.8 billion (2014 est.)
GDP – real growth rate	4% (2014 est.)
GDP – per capita	$4,700 (2014 est.)
Labor force	61.55 million
Labor force - by occupation	Agriculture: 44%, Industry: 22%, services: 33% (FY 2013 est.)
Population below poverty line	12.4% (FY 2011 est.)
Budget:	Revenues: $36.92 billion, expenditures: $51.02 billion (FY 2014 est.)
Budget surplus (+) or deficit (-)	-5.7% of GDP (FT 2014 est.)
Public debt	64.3% of GDP (FY 2014 est.), 64.8% of GDP (FY 2013 est.)
Inflation rate (consumer prices)	8.6% (2014 est.), 7.4% (2013 est.)
Agriculture – products	Cotton, wheat, rice, sugarcane, fruits, vegetables; milk, beef, mutton, eggs
Industries	Textiles and apparel, food processing, pharmaceuticals, constriction materials, paper products, fertilizer, shrimp
Industrial production growth rate	4.5% (2014 est.)
Current account balance	-$3.13 billion (2014 est.), -$2.496 billion (2013 est.)
Exports	$24.8 billion (2014 est.), $25.12 billion (2013 est.)
Exports – commodities	Textiles (garments, bed linen, cotton cloth, yarn), rice, leather goods, sporting goods, chemicals, manufactures, carpets and rugs
Exports – partners	US 12.4%, China 9.3%, UAE 8.6%, Afghanistan 8.3%, UK 5.2%, Germany 4.9% (2014)
Imports	$42.57 billion (2014 est.), $41.21 billion (2013 est.)
Imports – commodities	Petroleum, petroleum products, machinery, plastics, transportation equipment, edible oils, paper and paperboard, iron and steel, tea
Imports – partners	China 24.5%, Saudi Arabia 11.1%, UAE 11%, Kuwait 5.7%, India 4% (2014)
Reserves of foreign exchange and gold	$14.29 billion (31th December 2014 est.), $7.822 billion (31th December 2013 est.)
Debt – external	&58.17 billion (31th December 2014 est.), $56.46 billion (31th December 2013 ests.)
Exchange rates (PKR per US dollar)	101.1 (FY 2014 est.), 101.1 (FY 2013 est.), 93.4 (2012 est.), 86.3434 (2011 est.)
Fiscal year	1th July – 30th June

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3. Status of Pakistan Software Industry

PEST (Social)

Item	Description
Nationality	noun: Pakistani(s), adjective: Pakistani
Ethnic groups	Punjabi 44.68%, Pashtun (Pathan) 15.42%, Sindhi 14.1%, Sariaki 8.38%, Muhajirs 7.57%, Balochi 3.57%, other 6.28%
Languages	Punjabi 48%, Sindhi 12%, Saraiki (a Punjabi variant) 10%, Pashto (alternate name, Pashtu) 8%, Urdu (official) 8%, Balochi 3%, Hindko 2%, Brahui 1%, English (official), Burushaski, and other 8%
Religions	Muslim (official) 96.4% (Sunni 85-90%, Shia 10-15%), other (includes Christian and Hindu) 3.6% (2010 est.)
Population	199,085,847 (July 2015 est.)
Population growth rate	1.46% (2015 est.)
Birth rate	22.58 births/1,000 population (2015 est.)
Death rate	6.49 deaths/1,000 population (2015 est.)
Urbanization	Urban population: 38.8% of total population (2015)
	Rate of urbanization: 2.81% annual rate of change (2010-15 est.)
Sex ratio	Total population: 1.06 male(s)/female (2015 est.)
Maternal mortality rate	178 deaths/100,000 live births (2015 est.)
Infant mortality rate	Total 55.67 deaths/1,000 live births
Life expectancy at birth	Total population: 67.39 years, male: 65.47 years, female: 69.4 years (2015 est.)
Total fertility rate	2.75 children born/woman (2015 est.)
Health expenditures	2.8% of GDP (2013)

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3. Status of Pakistan Software Industry

PEST (Technical)

- **Internet and Incentives**
  - The basic principles adopted for the Internet growth in Pakistan would be to encourage competition, avoidance of un-necessary regulations, provision of low cost, reliable and broadband Internet access, Universal Internet Access in the areas connected with the telecom network, free Internet access for public sector Universities and support for the development of national Internet content
- Large potential: IT and R&D
  - Although, there were no rules and regulations for IT industry in past but recently some laws have been approved. In future, it is expected to have more clear and attractive policy for the promotion of IT industry.
  - There are two major institutes for IT promotion; Pakistan Software Export and National ICT R&D
- Policy Strategy
  - The strategies focus on promotion of venture capital industry through incentives, recognition of software development as a priority industry for financing by the banks and DFIs, creation of investment friendly environment,

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3. Status of Pakistan Software Industry

Overview of IT Human Resource in Pakistan

- **Total number of public sector universities in Pakistan**

Sr no.	Province	No. of Universities
1	Federal Capital	13
2	Punjab	22
3	Sindh	15
4	Khyber Pakhtunkhwa	16
5	Baluchistan	5
6	Azad Jammu & Kashmir	2
7	Gilgit Baltistan	1
	Total	74

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3. Status of Pakistan Software Industry

Overview of IT Human Resource in Pakistan

- **Total number of private sector universities in Pakistan**

Sr no.	Province	No. of Universities
1	Federal Capital	03
2	Punjab	21
3	Sindh	14
4	Khyber Pakhtunkhwa	10
5	Baluchistan	01
6	Azad Jammu & Kashmir	01
7	Gilgit Baltistan	-
	Total	61

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3. Status of Pakistan Software Industry

- Human Resource Development
  - Under the HR Action Plan, a huge pool of scholastically and also in fact talented IT labor would be produced to meet the neighborhood and fare needs
  - Policy likewise conceives the foundation of four new IT Universities, Virtual IT University, National Testing and Accreditation Services and Educational Intranet, reinforcing of existing IT Institutes and contracting of Faculty from abroad.
  - A significant bit of the assets under IT Action Plan would be committed towards HR advancement activities.

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3. Status of Pakistan Software Industry

SWOT Analysis

Strength

- Availability of **skilled manpower**
- **Low cost workforce** than their Western counterparts
- **Dedicated workforce** aiming at a long term career
- **Round-the clock benefit** for Western companies due to the huge time difference
- **Low response time** with efficient service
- **Government incentives**, income tax and sales tax holiday benefits available
- Number of **IT companies increasing**

Weakness

- Emerging markets attract trained human resource and creating a **brain drain situation** in the country
- **Energy issues** like electricity, gas and fluctuating gasoline prices
- **Consumer price index gone up** from 300% to 450%
- **Inflation rates** in the country contributes towards unrest in the population

Opportunity

- **To capitalize** on the increased number of universities and number of IT professionals getting developed
- **Young population** of the country; The median age for Pakistani population is around 22
- **Increasing consumer price index & inflation rate** can be an opportunity for rents & foreign investment appreciating in the sense of price and payback

Threat

- **Geographic location** of the country with history of instability
- The **anti-outsourcing legislation** in the US state of New Jersey. Three more states in the US planning legislation against outsourcing
- IT destinations like **China, Philippines & South Africa** could have an edge on the cost factor

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3. Status of Pakistan Software Industry

Establishment of PSEB

- To promote Pakistan's IT industry (Software, hardware, and service)
- To draw foreign investment in the IT industry, Incentive programs: tax exemption, 100% repatriation of foreign capital and profits, cheap rental fees of facilities
- To develop IT parks in several areas (Karachi, Lahore, Islamabad, Peshawar, & Quetta)
- To manage 12 IT parks with 79,000 sq. m currently

Basic information of Pakistan IT industry

- An annual sales has achieved app. 2 billion USD
- An annual growth rate of 35-50%
- avg. 66% increase in software exports per year
- In 2011, software exports of 750 million USD
- Global Information Technology Report of the year 2012 ranked Pakistan's IT level as 127th among 155 countries.

IT Education in Pakistan

- 20,000 people granted IT-related degrees per year
- The number of freelance computer programmers place 4th after the USA and India globally
- 110,000 IT experts with English skills in 2008 20,000 among them engage in the field of IT exports

IT Park in Chak Shahzad

- Chak Shahzad is in the southeastern region in Islamabad
- Its site area accounts for around 60,298 sq. m (14.9 acres)
- Due to a failure of negotiations on BOT model, this project had been delayed in 2008

Source: Pakistan Software Export Board

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3. Status of Pakistan Software Industry

IT Industry Incentives supported by Pakistan Government

- Provision of low-rent Software Technology Parks (STPs)
- 100% ownership of equity allowed to investing foreign IT/ITeS companies
- Income Tax exemption for IT companies till 2016
- 100% repatriation of profits allowed to IT companies
- Seven years' tax holiday for venture capital funds
- Minimum rate of 30% depreciation on computer equipment
- The State Bank of Pakistan (SBP) has allowed banks to open Internet Merchant Accounts
- Over 85% of telecommunication infrastructure is on fiber-optic cables.
- Reduction in cost of 2 Mbps connection to US$ 500 to 700 per month.
- Call centers can avail redundant backup connectivity through PTCL

Growth of Pakistan IT industry

IT Services Exports & Growth Rate forecasted

	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
IT exports (USD)	235	274	334	414	530	690	910	1230
Growth %age	15%	16%	21%	25%	28%	30%	32%	35%

**The forecasted figures are highlighted in red*

Pakistan Ministry of IT, November 19, 2013

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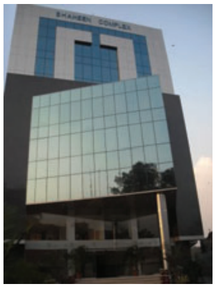
3. Status of Pakistan Software Industry

- PSEB Activities for IT Park in Pakistan (Services available)
  - All STP(s) are connected to Tier-I Telecom Operators' infra. via redundant Optic Fiber.
  - International Bandwidth of any capacity on optical fiber
  - Provision of IP connectivity, including Site Survey, Feasibility Report and issuance of D/Note to the IT & ITeS companies, within 24 hours
  - Infrastructure for the termination of PRI(s)/E1(s) through optical fiber
  - Round the clock technical support to provide an efficient and customer oriented service
  - Lease line connectivity
  - Volume based connectivity
  - Co-location



<Shaheen Complex>

<Aiwan-e-Iqbal>

Source: Pakistan Software Export Board

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3. Status of Pakistan Software Industry

- IT Parks established by PSEB

unit: sq ft (sq m in bracket)

Location	Name	Covered Area	Rentable Space	Rented Space	Occupancy	Average Rent per sq ft
Islamabad	Awami Markaz	82,405 (7,666)	82,405 (7,666)	70,000 (6,503)	85%	Rs. 80
Islamabad	Evacuee Trust	173,856 (16,151)	173,856 (16,151)	100,000 (9,290)	58%	Rs. 80
Islamabad	Khattak Complex	81,000 (7,525)	81,000 (7,525)	81,000 (7,525)	100%	Rs. 70
Islamabad	Rose Center	30,000 (2,787)	30,000 (2,787)	30,000 (2,787)	100%	n/a
Karachi	Tariq Center	61,649 (5,727)	61,649 (5,727)	50,000 (4,645)	81%	Rs. 28
Lahore	Aiwan e Iqbal	108,000 (10,034)	80,000 (7,432)	72,000 (6,689)	90%	Rs. 70
Lahore	Shaheen Complex	360,000 (33,445)	150,000 (13,935)	110,430 (10,259)	73%	Rs. 80-110
Lahore	Anjuman Himayat-e-Islam	24,692 (2,294)	24,692 (2,294)	24,692 (2,294)	100%	Rs. 30
Lahore	Netsol IT Village	50,000 (4,645)	43,000 (3,995)	43,000 (3,995)	100%	n/a
Lahore	JGC Descon	38,000 (3,530)	34,000 (3,159)	34,000 (3,159)	100%	n/a
Lahore	Imran House	30,000 (2,787)	28,378 (2,636)	14,000 (1,301)	49%	Rs. 55
Lahore	TRG Complex	31,960 (2,969)	31,960 (2,969)	31,960 (2,969)	100%	n/a

Source: PSEB website, IT Parks, (http://www.pseb.org.pk/pseb-programs/it-parks.html)

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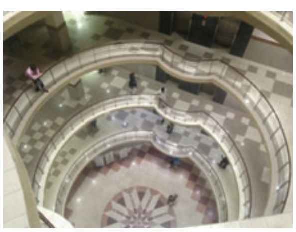
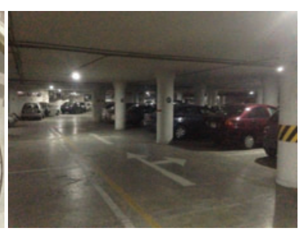
3. Status of Pakistan Software Industry

- Other IT Park: Arfa Software Technology Park in Lahore



Hall



Parking Space

Control Center

HVAC System

Entrance

Security

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3. Status of Pakistan Software Industry

- IT Firms set Priorities in Strategic Direction for IT Parks
  - 1. Highest priority in the IT industry development for the strategic direction of IT Park
  - 2. Need for research center and technology transfer
  - 3. Establishment of IT Park innovation ecosystem
  - 4. More infrastructure and quality service
- IT Firms expect Effect of IT Parks
  - 1. Physical space, facilities, and services
  - 2. Advantages in terms of business and technology
- IT Firms Demand for Move in
  - Around 80% answered 'yes'
  - Appropriate rent level was slightly lower than the average
- IT Firms' Basic Requirements
  - 1. Parking space
  - 2. Cafeteria
  - 3. Education and Training Programs
  - 4. Videoconference facilities and marketing space
  - 5. Business consulting
  - 6. Leisure facilities
  - 7. Guest rooms

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4. Technology Park Initiative in Pakistan

Identity

- Innovation Cluster (M. Porter)
  - Cluster of firms, IT technologies and developers

Role & Function

- Production and R&D base – Income & employment creation
- Site for technology transfer and human resource development

Target Tenant

- Small-to-medium sized software development companies
- In the future, universities and national labs will enter into the Park

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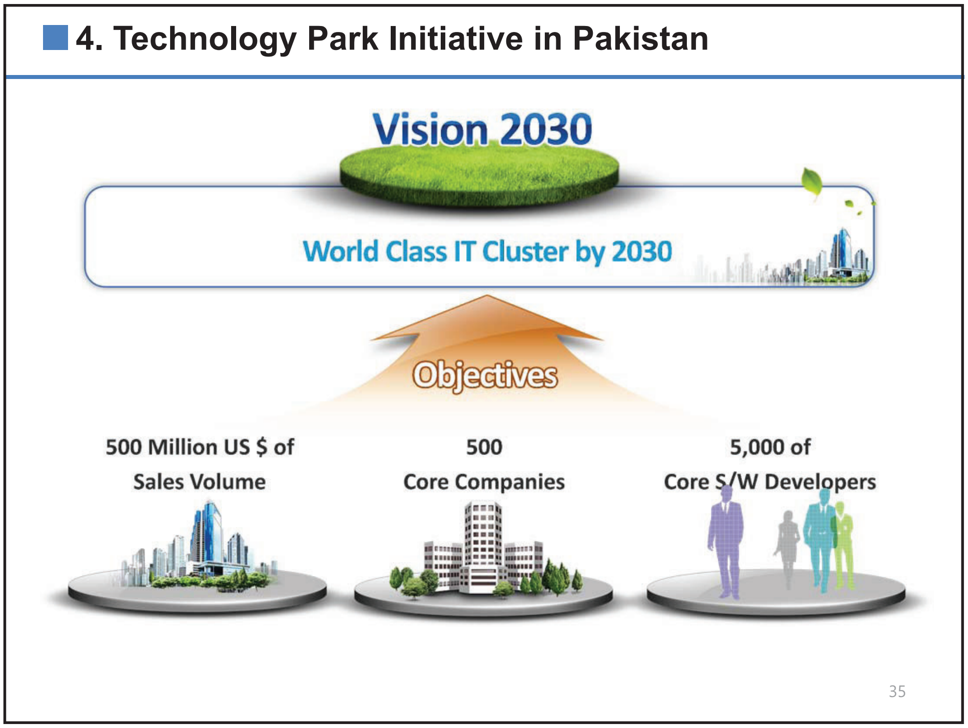
4. Technology Park Initiative in Pakistan
Vision 2030
World Class IT Cluster by 2030
Objectives
500 Million US $ of Sales Volume
500 Core Companies
5,000 of Core S/W Developers
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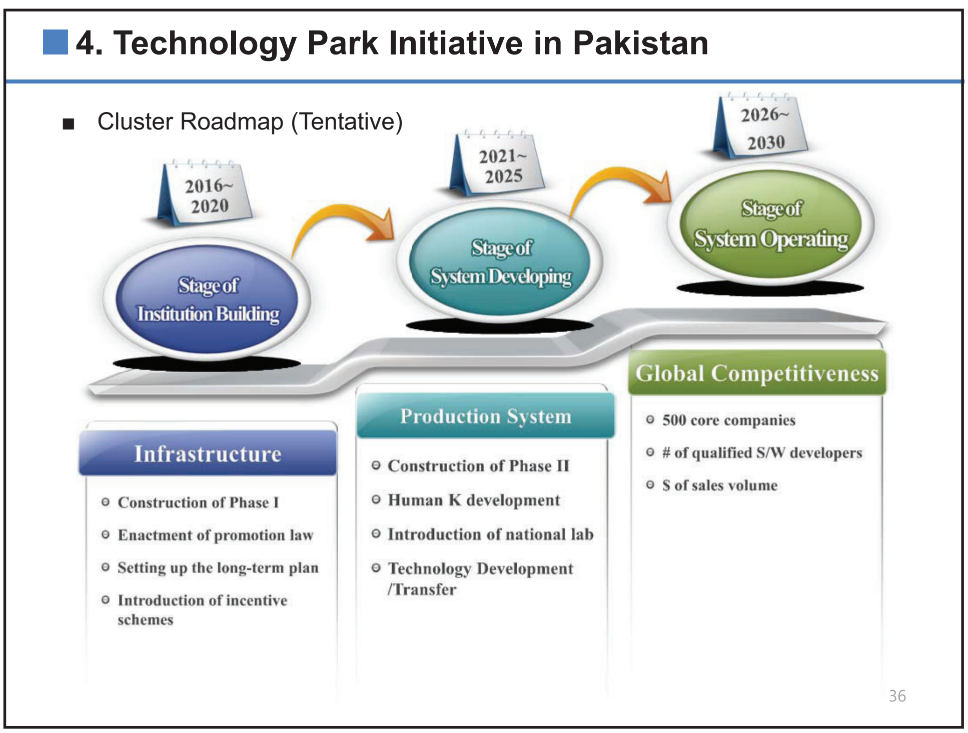
4. Technology Park Initiative in Pakistan
Cluster Roadmap (Tentative)
2016~ 2020
Stage of Institution Building
2021~ 2025
Stage of System Developing
2026~ 2030
Stage of System Operating
Infrastructure
Construction of Phase I
Enactment of promotion law
Setting up the long-term plan
Introduction of incentive schemes
Production System
Construction of Phase II
Human K development
Introduction of national lab
Technology Development /Transfer
Global Competitiveness
500 core companies
# of qualified S/W developers
$ of sales volume
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4. Technology Park Initiative in Pakistan

- Direction of IT Park

01 Global /National IT hub

02 Creativity & Technological Excellency

03 Global Competitiveness

04 Higher Quality of Public Life

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4. Technology Park Initiative in Pakistan

Country		Korea		Japan	India	Pakistan				Pakistan
Functions		Pangyo Techno valley	Chung Nam Techno -Park	Kana-gawa	International Tech. Park	Awami Markaz	KSL	Evacu ee	Arfa	New IT Park
Space	Office	O	O	O	O	O	O	O	O	**O**
	Parking	O	O	O	O	O	X	O	O	**O**
	Exhibition Hall / Auditorium	O	O	O	O	X	X	X	O	**O**
Common Infra.	Data Center	O	O	O	O	X	X	X	O	**O**
	Power Supply (back-up)	N/A	N/A	N/A	O	O	O	X	O	**O**
	Public Transport / Shuttle	O	O	O	O	X	X	X	O	**O**
Business Support	Business Support Center	O	O	O	O	X	X	X	X	**O**
	Training Program (Education / Technology)	O	X	O	X	X	X	X	X	**O**
	Incubation	X	X	O	X	X	O	O	O	**O**
Facilities	Meeting (conference room, auditorium)	O	O	O	O	X	X	X	O	**O**
	Training	O	X	O	X	X	X	X	X	**O**
	R&D	O	O	O	O	X	X	X	X	**Phase1** X **Phase2** O
	University-Industry Linkages (UIL)	O	O	O	O	X	X	X	X	**O**
	Community (in-house or near by)	O	X	O	O	O	O	O	O	**O**
Manage -ment	Managed by Public or Private	Public	Public	Public	Private	Public	Private	Private	Public	**Public**

4. Technology Park Initiative in Pakistan

- Functions of Pakistan New IT Park
  - The functions of IT Park are divided into five categories as follows;

1. Space
   - Types of space: Office space, parking space, exhibition hall space, etc.
2. Common infrastructure
   - Types of infrastructure: Data centre, power supply, public transport, etc.
   - To provide stable data connectivity and accessibility to the park
3. Business Support
   - To incubate SMEs with education/technology training program, marketing and global networking
4. Facilities
   - Meeting facilities: Interview/conference Rooms , Board Rooms, Auditorium, etc.
   - Training facilities: Computer Training Rooms, Seminar Rooms, Media Rooms, etc.
   - R&D facilities: This will be in the phase 2
   - UIL (University-Industry Linkages) facilities: All kinds of facilities above and customized laboratories
   - Community facilities: Hotels, restaurants, stores, gas stations, etc.
5. Management
   - IT Park can be managed by public sector or private sector
   - To develop Pakistan IT industry and to incubate SMEs, it will be managed by public and support education training programs and UIL

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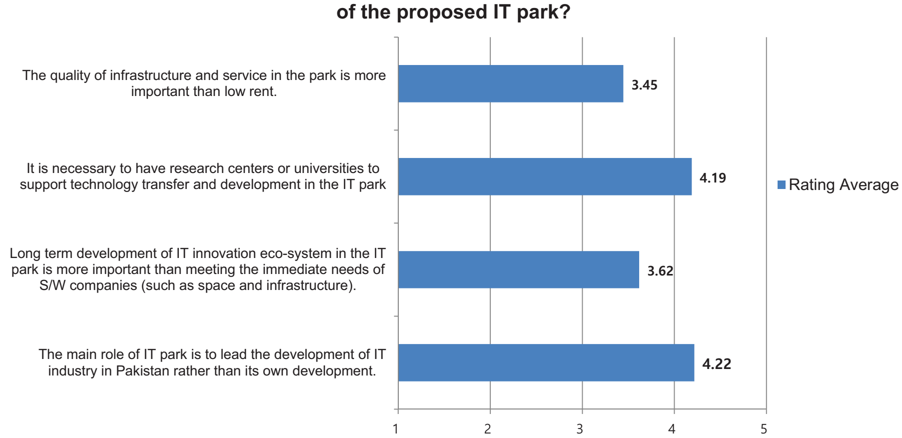
4. Technology Park Initiative in Pakistan

- Strategic Direction and Development Path of the IT Park

What do you think about the strategic direction or development path of the proposed IT park?



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4. Technology Park Initiative in Pakistan

Programs operated by IT Park Management

- **Human Capacity Development Program (Capacity Building with Invited Korean Experts)**
  - Korean talented human resource in IT industry and Sciences & Technology (administer and manager in government office, business, research organization etc.) is sent to the Pakistan IT Park and shared expert knowledge and experience to the local staff members and managers.

- **Business Consulting Support Program (Consulting for Startups)**
  - Supporting the consulting in human capacity such as technology development, demand analysis, operation management, capital secure strategy etc.

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4. Technology Park Initiative in Pakistan

Programs to be operated by IT Park Management

- **Technology transfer & commercialization**
  - By analyzing the demand of technology in business, it will support to increase the productivity with technology transfer and enter to the market

- **R&D Support**
  - It supports to practice(commercialize) technology equipment by funding of research development, technical consultation to the firms which needs the know-how and use of equipment in joint research

- **University-Industry Collaboration (UIC)**
  - From technology commercialization and excavation of new industry, it establishes the system of joint research among universities, tenant firms and SMEs

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4. Technology Park Initiative in Pakistan

Programs to be operated by IT Park Management

- **Clustering for Business to Business**
  - Creating the joint projects in the effective way among the tenant firms in the cluster by sharing the information such as technology, human resource and experiences
- **International Cooperation**
  - Developing the international cooperation networks among global universities, firms, research center and opening the opportunities of overseas expansion.
  - Performing the joint research based on the improved research capacity in global level

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5. Conclusion and Discussion

- **Pakistan has potential but lacks industrial policy support**
  - S/W export is growing
  - But not enough policy support to promote S/W industry
- **There is need for Univ. Ind. Research Inst. (U-I-R) cluster**
  - Need for high value technology capability
  - Synergy can be created
- **New Technology Park initiative can be effective**
  - If proper policy and governmental support are ensured
  - If government and management agency take active role in the beginning stage of Technology Park and its operation

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5. Conclusion and Discussion

- **U-I-R innovation cluster will have following effects.**
  - Create more jobs
  - Upgrade the technology level
  - Provide more business opportunities
  - Creating culture of collaboration and competition
  - Will expand or multiply the model to the other parts of Pakistan
- **IT Park Initiative will be successful.**
  - Because of sufficient & qualified Human Resource
  - If there is enough support for the cluster establishment.
  - If there is excellent management of IT park.
  - If there is effort to upgrade technological level.

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THANK YOU! ☺
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