

FACE TO FACE

A man of professional dedication and passion

Asim Husain's passion is in technology marketing. He is a Stanford engineer with an MBA from Duke. He has been the marketing head for many technology firms including LMKR, Transworld, witribe and presently is Chief Executive Officer COMSATS Internet Services

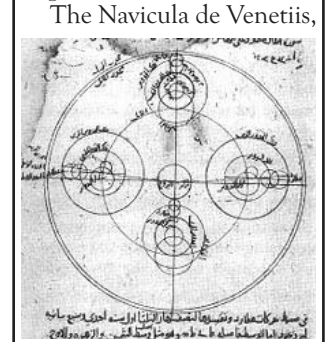


INSIDE

INVENTCORNER Pg5

The Golden Era....

UNIVERSAL SUNDIALS for all latitudes used for timekeeping and determination of the times of Salah in 9th century Baghdad.



The Navicula de Venetiis, a universal horary dial used for accurate timekeeping by the Sun and Stars, and could be observed from any latitude, invented in 9th century Baghdad.

AGRITECH Pg2

Production of Kinnow in Pakistan

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mandarin orange in the world. The production of seedless kinnow on commercial scale in orchards of Sahiwal would probably be started by this year and hopefully show bright prospects of export. Chaudhry Niaz, a team member of NARC, who discovered the seedless kinnow said, "The new plant can bear fruit in...

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INFOTECH Pg2

Pakistan tops with highest number ...

PAKISTAN HAS topped among the regional countries with the highest number of cellular phone subscribers having more than one connection



of different operators. According to a think tank report, the subscribers possessing multiple SIMs are estimated to mark 23 percent share in the overall stated base of the country.

Professionals Network to invest \$12.1m in IT sector

STAFF REPORT KARACHI: The Professionals Network Pakistan has announced to invest \$12.1 million in the information technology infrastructure in the country.

"We will establish business centres across the country. The first such centre will become operational in Karachi in a week's time," said an official of the Professionals Network Pakistan, in a statement issued here last week.

The Professionals Network Pakistan Private Limited, a subsidiary of Washington, DC-based Professionals Network LLC, has secured \$12.1 million from a syndicate of high net worth individual investors in Karachi.

Professionals Network is commonly known as Resbase Group globally.

The funds will be exclusively channeled into the company's new Hexaoffice brand, the official said.

Hexaoffice operates on a model similar to that of Regus, a company listed on the London Stock Exchange, the statement said.

According to Abdul Aziz, a board member at the Professionals Network Pakistan, although the investment is spread over two years, the company has been conditionally committed for additional \$21 million investments by the late 2011, based on how sales pickup during the first two quarters of the next financial year. As the investment is in the Pakistan operations alone.

RGST will impact heavily on agriculture sector

Farmers accuse govt of adopting double standards



STAFF REPORT MULTAN: The Reform General Sales Tax (RGST) would cast negative effects on the country's agriculture, which contributes a significant portion of the GDP, as most of the agriculture related items including fertilizers, pesticides and other things used in farming are imported and with the implication of 15 percent RGST, these things would increase by 30 percent.

The farming community has raised a question before the policy makers that RGST is a consumption tax that is levied on finished products and how the farming community would be able to adjust their tax burden on agriculture produce being raw material and not as finished product. Agriculture produce is not finished good as it is raw material for industrial sectors or food.

They were of the view that on one hand, the government is encouraging mechanized farming in the country while on the other hand it is trying to increase the prices of agriculture machinery and implements by imposing 15% tax. They also argued that out of a total credit line of Rs 3.2 trillion, the agriculture sector is hardly getting 90 billion credit per annum as against the requirement of Rs 800 billion per annum. They were of the view that if the government ensures that Rs 800 billion would be available for the agriculture sector as agriculture credit they would be happy to accept RGST on agriculture inputs.

"If the RGST is slapped on the farming sector, it would subsequently increase the wheat price from Rs 1000 per 40 kilogram to Rs 1100 per 40 kg. Similarly, the RGST impact would be 29% on imports of agriculture products as per value addition methods at each stage," representatives of the farming community said.

They also pointed out that increase in agriculture input would compel the farming community to use less-than-required inputs and it would result in negative impact on agriculture productivity.

It is to be mentioned here that the National Assembly panel has already opposed RGST on agriculture sector.

Some committee members were of the view that agriculture sector was paying a number of provincial taxes and it is not justified to further impose taxes particularly RGST on this sector as the country's economy mostly depend on the growth of this sector.

"We are rejecting the RGST on agriculture sector, as it will prove to be damaging for the farmers and will further increase the input prices including fertilizers, pesticide and other important inputs," they cautioned.

"If the RGST was imposed on agriculture, it would lower its contribution and the fertile lands," they said and added it would become 'barren' due to high input costs.

Multiple factors threatening biodiversity

STAFF REPORT ISLAMABAD: Deforestation, pollution, population growth, over exploitation of natural resources, invasive alien species and environmental problems have emerged as a potential factors that are regularly threatening the biodiversity in Pakistan.

"There is a need to protect biodiversity for future generation by adopting practical measures like reforestation and use of renewable energy," said Vice Chancellor Quaid-i-Azam University, Professor Dr Masoom Yasinzai while addressing a ceremony held here last week to celebrate the "International Biodiversity Day".

The ceremony was organized to increase awareness of issues related to Biodiversity.

On the occasion, Dean Faculty of Biological Science, Prof Dr Mir Ajab Khan, biodiversity and food security were inter-linked. "There is a dire need for research to understand the functions of fauna and flora in various ecosystems, particularly the agro-ecosystem and its

conservation for future generations," he added.

Chairperson of the Department of Plant Sciences Professor Dr Asghari Bano said that Pakistan has rich biodiversity of



plants, animals and microbes.

She said that the Department of Plant Sciences is working on many projects including conservation of biodiversity, biodiversity of wild fruits and vegetables for food security as alternative food, biodiversity of medicinal plants in salt range and moist temperate forests, biodiversity of oil yielding plants for environment-friendly renewable energy.



Zong continues its support for education in Pakistan through its Zong Scholarship Programme for the talented students. This initiative has received a good response and applauded from the beneficiaries. The picture shows Amer Siraj, Regional Director S&D, Zong, presenting a cheque to Gen (R) Muhammad Akram Khan, Vice Chancellor, University of Engineering and Technology, Lahore.

Demand for Wi-max tech set to rise

STAFF REPORT ISLAMABAD: The reform general sales tax would not affect the information technology and telecom-

Wi-max technology will also rise," said Intel Pakistan Country Manager Naveed Siraj. According to him, the com-

He further said that although investments in the IT sector have been conservative so far, businesses will seek to increase their systems infrastructure and sales of new mobile devices will increase.

He announced that the company will launch "sandy bridge" technology in January, which will improve computer performance and increase Internet and video services capability.

"About 1.5 billion are users of Internet in the world now and that the Internet will now be used in distant and remote parts of the country," he said.

He informed that the Intel Pakistan provided 4,000 computers free of cost this year to educational institutions across the country.

Similarly, the company will also complete projects aimed at educating teachers about using computers and building 252 laboratories in the country this year.



munications sector and the use of technologies would increase in Pakistan in near future.

"Billions of dollars will be invested in new technologies in the sector in 2011, the use of video on the Internet will increase and the demand for

puter technologies related to security will be given preference.

Siraj said that the government can bring about a revolution in the education, health and development sectors by promoting the use of IT through public-private partnerships.

Price formula may derail Sino-Pak energy deals

STAFF REPORT ISLAMABAD: The future of \$6.5 billion worth of renewable energy deals signed between China and Pakistan is hanging in the balance as Islamabad has linked the final agreement with the price offered by the Chinese investors.

"The 2300 megawatts power project deals recently signed between Pakistan and China would materialise only if the latter offers competitive tariffs," disclosed an official of the Alternative Energy Development Board to this scribe.

Both the states had signed the MoU for 2000MW wind and 300 MW solar energy generation. After three months the Chinese investors will quote the prices at which they intend to sell the renewable energy, the official said.

Pakistan wants to capitalise on renewable energy to meet its growing power requirements, preserve the environment and encourage investments.

China plans to invest in the renewable energy sector in Pakistan by setting up wind and solar power plants in Punjab and Sindh. About 1000 MW wind and 100 MW solar energy will be generated in Sindh, while 1000 MW wind and 200 MW solar energy will be produced in Punjab, over the next three years.

3G tech has potential to revolutionise IT sector

STAFF REPORT LAHORE: The introduction of 3G networks, devices and services is enhancing quality of life and providing expanded economic opportunities, both in the public and private sectors.

It has brought around development of innovative new services for consumers and greater productivity for enterprises. Going further down the pyramid, 3G is improving the lives of underserved citizens, bridging the "digital divide"

a seminar on 3G arranged by the telecom regulator here.

The theme of the seminar was "To be or not to be is not the question: 3G is coming". Presently, about 143 countries are offering 3G services commercially, compared to 95 in 2007 towards 4G: a number of countries have started to offer services at even higher broadband speeds, moving to next generation wireless platforms.

Going further down the pyramid, 3G is improving the



"By the end of 2010, about 5.3 billion mobile cellular subscriptions worldwide have been registered, including 940 million subscriptions to 3G services. Access to mobile networks is now available to 90% of the world population and 80% of the population living in rural areas people are moving rapidly from 2G to 3G platforms," PTA Chairman Dr. Muhammad Yaseen said this while addressing

lives of underserved citizens, bridging the "digital divide", particularly in developing countries where teledensity and Internet penetration are low, he said.

Cao Long, of Wang Li Heng, Rahel Kamal, representative of Qualcomm. On this occasion all five cellular mobile operator signed MoUs to boost localized applications, content and services.

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Executive Editor **S. J. Raza**
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www.technologytimes.pk
E-mail: info@technologytimes.pk

Head Office
Phones: +9251 2565074,
+9251 2802578
+92 300 988 4450
1st Floor, 86 South, Wali Centre,
Blue Area, Islamabad

Bureau Office
Phones: +9221 35902405-7
+9221 35802406
+92 321 264 6000
P-52, 2nd floor, Carlton Court, Block "A",
DHA Phase-II Ext Main Korangi Rd, Karachi

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Race for water dams construction

Water issues between Pakistan and India have not only turned critical with the latter's announcement and then followed by construction of a number of water reservoirs on the rivers coming to Pakistan but also have exposed the traditional mentality of Hindu leadership sitting in New Delhi. It is not the first time that India has unmasked its cruel face while dealing with Pakistan. While on the other hand, the leadership in Pakistan also seems reluctant or indifferent towards resolving especially the water issues with India. In the backdrop of the removal of permanent Indus Water Commissioner, Jamat Ali Shah, from his seat, the government has to justify the removal which it has failed to reason out. The government of Pakistan should have patriotic and real water management experts to take up its case before the International Court of Arbitration against India over the construction of Kishanganga Hydropower project on River Neelum which is in violation of the 1960 Indus Waters Treaty. Pakistan has the right to oppose the Kishanganga project as its diversion will reduce by 16 percent power generation capacity of the 969-MW Neelum-Jhelum power project on the same river downstream Muzaffarabad in Azad Kashmir. Under the Indus Water Treatment, three western rivers, Chenab, Jehlum and Indus are allocated to Pakistan and India but no storage can be built on them. According to the treaty, if one country builds a water reservoir on a river, it has the right for water storage and in this case the other country will lose the right to raise objection or move any international court in this regard. If the current slow pace of construction of Pakistan's 969-MW Neelum-Jhelum project (NJP) continues, it would be completed in 2018 while India has planned to complete the Kishanganga project construction on the River Neelum by 2016. This has drawn much ire from Pakistani officials because India may gain priority rights on the Neelum River with the Kishanganga project scheduled to be completed in 2016. In case of losing the case in the International Court of Arbitration, the Neelum-Jhelum power project will face a loss of over Rs 6 billion every year. The time is going critical as availability of water is prerequisite to the survival of a nation. Pakistan is already facing a severe water shortage, which is not only badly affecting the per acre yield, but also has led to a drastic reduction in hydel power generation in the country. The only option left with the government of Pakistan is to ensure completion of the Neelum-Jhelum project before the completion of India's Kishanganga as in that case India would lose the right of water storage in Kishanganga.

AGRITECH

Stop corporate seeds in Pakistan

To take advantage of the post-flood situation to push that corporate agenda is simply perverse. What people normally see as seed aid on the surface is actually big business at the core

A deal with Monsanto

As part of its rehabilitation program, Pakistan's agriculture ministry entered a deal with Monsanto for a large-scale importation of its Bt Cotton seeds, despite strong opposition from local seed producers and farmers groups. The Seed Association of Pakistan (SAP) has warned the Punjab government to refrain from signing an agreement with Monsanto, believing this will "annihilate national seed companies, besides causing huge financial burden on the national treasury." The group also believes that the import of Bt cotton seed by the Pakistani government will cost the country millions of dollars in compensatory and royalty payments.

Almost the entire global acreage of about 4.6 million hectares of Bt cotton is sown to Monsanto's Bollgard variety. In Pakistan, farmers have been growing these Bt cotton seeds,



smuggled from India, during last four years. The deal with Monsanto will legalize this.

"This deal by the government with Monsanto can cause more harm than good as it poses great potential for the country's biodiversity to be wiped out," says Gilbert Sape of the Pesticide Action Network Asia and the Pacific (PAN AP), a regional network that supports grassroots movement in promoting food sovereignty and biodiversity-based ecological agriculture. "The use of GM crops has been proven to contaminate the soil, making it almost impossible to cultivate other agricultural products. Far from extending long-denied land rights and food security to small food producers, it will mean handing over peoples' rights and control of Pakistan's food supply to Monsanto."

He proposes: "Pakistan must first ensure the peoples' rights to safe, nutritious and culturally appropriate food in sufficient quantity and quality before taking a step on global food trade. More so, national governments must guarantee the development

AGRITECH

Production of kinnow in Pakistan

By Ismat Sabir

THE SCIENTISTS of National Agricultural Research Centre (NARC) have developed a new seedless variety of kinnow, which is known as kinnow mandarin orange in the world. The production of seedless kinnow on commercial scale in orchards of Sahiwal would probably be started by this year and hopefully show bright prospects of export. Chaudhry Niaz, a team member of NARC, who discovered the seedless kinnow said, "The new plant can bear fruit in two years, while full production would start in three to four years that will reduce the high number of seeds." According to international standards a fruit having one to five seeds is categorised as 'seedless fruit' while a normal kinnow have about 18 to 30 seeds, which people from western countries don't like as much. History: Most citrus species originated in Asia, around the Khasia Hills of Assam and southern parts of China, from where this fruit was taken to other parts of the world. In the 15th century, citrus trees were raised only in private gardens of Mughal emperors and other rich people, as this was considered to be a luxury crop.



The records show that an orange variety popularly known as 'sangtareh' had found in the region of Lahore, Pakistan. Mughal Emperor, Humayun Khan praised this fruit in the following words. "Indeed there is no tasty fruit than the 'sangtareh', a local name for sweet orange. Further, sangtareh has been mentioned in the famous book 'Ain-e-Akbari' by Mughal Emperor, Akbar Khan. After this the fruit was popularly called as 'shahi sangtareh' or King Orange.

Kinnow was evolved as a result of cross between 'king' and 'willow-leaf'. The cross was made by H B Frost, a citrus breeder at the Citrus Research Centre, University of California, USA, in 1951. Both of the parents have Indo-China origins. The name was derived by combining the first and last words of the two parents i.e. 'kin' from king and 'ow' from willow.

The fruit was commercially exploited since 1958, and is now grown in Pakistan. It has been identified in all over the world for its special flavour and taste, which is the result of a series of grafting and hybridization research work conducted in Pakistan over the years.

Pakistan is among the top 10 citrus growing countries in the world. The country has vast potential to produce tropical, subtropical and temperate fruits, flowers and vegetables, which are waiting to be exploited. There is a need to

focus on horticulture and processing industries for value addition.

The government has declared horticulture as a priority sector and making efforts to improve the value chain and identifying new markets.

Harvesting season: Kinnow can be harvested from mid November and continues up to May. However, January to March is the peak harvesting season.

Storage life: The storage life of Kinnow varies from 60 days, late harvest, to 90 days, early harvest, if placed inside cold storage at 5 degree Celsius with plus minus variation of 2 degree Celsius, and relative humidity 85 to 90 percent.

Exports: Kinnow has already been introduced in more than 25 countries of the world. Its exports can further be increased by manifold if modern marketing techniques are applied. The fruit is among the main exportable horticulture commodities from Pakistan. Annual production of citrus on an average is estimated about 2 million ton, of which 90 percent are kinnow, and export also reached to 360,625 tonnes. Pakistan exports to Gulf States, Indonesia, Saudi Arabia, Philippines, Sri Lanka, Afghanistan and CIS that have been supposed as traditional markets. East Europe, Iran and China are emerging markets.

Packaging standard: The general packaging standards is 6, 8, 10 and 13 Kg in corrugated boxes. The number can be varied from 32 pieces to 72 pieces per box. Both packaging size and number of counts per package may be according to the importer's demand.

Under the WTO regime quality of the products will be of paramount importance for penetrating into the international markets. Pakistan Horticulture Development and Export Board (PHDEB) under its mandate is responsible for designing and implementing quality standards in terms of variety, size, colour, appearance and taste of the produce and to define specifications for packaging and labeling. It also pursue private sector to invest in grading and processing plants and uniform export quality produce to build importer's confidence.

Research and development: PHDEB has collaborated with various research institutions to assist companies in providing technical and marketing support in line with the latest techniques, developments and changes occurring in the international trade. Information dissemination is one of the key goals of PHDEB. It is aimed to provide all types of information including practical information on international trade, marketing, rules and regulations, standards, results of research studies, management techniques, latest technologies, etc.

The Board is trying to develop not only technical skills but also administrative and managerial skills of horticulture sector entrepreneurs, growers, processors and exporters, so that the industry may be able to meet the challenges of globalization and the requirements of WTO. PHDEB also aims to develop institutional capacity by supporting both government and private institutions like chambers and associations through donor supported projects and programmes so that there could be an effective implementation of the overall development plans. Formation of farmer cooperatives, groups is another integral part of PHDEB's mandate to attain important outputs.

Last Part

INFOTECH

Pakistan tops with highest number of multiple SIM users in South Asia

By Yasir Ameen

PAKISTAN HAS topped among the regional countries with the highest number of cellular phone subscribers having more than one connection of different operators.

According to a think tank report, the subscribers possessing multiple SIMs are estimated to mark 23 percent share in the overall stated base of the country.

The multiple SIM (Subscribers Identity Module) cards ownership has been witnessed a significant trend among Pakistani customers categorised under low income group or Bottom of Pyramid (BOP) as far as utilisation of telephony services is concerned, Lirneasia, a research centre of IT and Telecom, in its latest report 2009-10 was quoted.

Pakistan is followed by Philippines and Sri Lanka with 19 and 16 percent of the cellular phone users having more than one SIM, Lirneasia report said. Thailand, Bangladesh and India have stood at 13 percent, 10 percent and 9 percent respectively in the trend at BOP level. Pakistan has the highest mobile penetration in region with 64.2 percent following India and Sri Lanka with 59.6 percent and 35 percent by October 2010.

The finding reflected the number of mobile phone users

BIOTECH

In Silico drug designing via bioinformatics approach

By Ayma Aftab, Khalid Masood

THE USE of computers and computational methods saturate all aspects of drug discovery today and forms the core of structure-based drug design. In silico methods can help in identifying drug targets through bioinformatics tools. They can also be used to evaluate target structures for possible binding/active sites, to generate candidate molecules, to check for their drug-like properties. In addition such methods can be used to dock these molecules with the target, to rank them according to their binding affinities, and to further optimize the molecules to improve binding characteristics.

Pharmaceutical industry takes approximately 12-14 years and costing up to \$1.2 - \$1.4 billion dollars to discover and market a drug; (1) Conventionally, drugs were synthesized in time-consuming multi-step processes and further investigating the promising candidates for their pharmacokinetic properties, metabolism and potential toxicity. Such a development process has resulted in with failures attributed to poor pharmacokinetics (39%), lack of efficacy (30%), animal toxicity (11%), adverse effects in humans (10%) and various commercial and miscellaneous factors.

(2) Computational tools offer the benefit of discovering new drug candidates more quickly and at a lower cost. Major roles of computation in drug discovery are; (i) Virtual screening & de novo design (ii) in silico ADME/T prediction and (iii) Advanced methods for determining protein-ligand binding.

Pharmaceutical companies are always searching for new leads as a drug. One search method is virtual high-throughput screening. vHTS screens protein targets against databases of small-molecule compounds to distinguish which molecules bind strongly to the target. A "hit" with a particular compound can be extracted from the database for further testing. Now-a-days several million com-

pounds can be screened in a few days with the help of in-silico drug designing. Therefore, hunt a handful of promising leads can hoard researchers considerable time and expense.

Steps of virtual screening are:

Lead discovery: Lead compounds can be identified depending upon their chemical properties available at various data bases. Although it is not possible to foretell with much accuracy about toxicity and side effects, anticipate transport of a drug. Once a lead is selected, its structures can be modified to get an effective drug.

Identification of Pharmacophore: Only a small part of a lead compounds may be involved in the appropriate interaction. Quantitative structure-activity relationships QSAR studies are performed to optimize lead compound. It basically provides relationship between the biological and pharmacological activity

dock ligand on the target site by using different tools. In this step either the ligand can be kept flexible or receptor according to the research aims. Tools for docking are: FlexLigdock, GOLD, Zdock server, HEX, Autodock.

ADME properties: The most powerful study of "Lipinski's rule-of-five" identifies several vital properties that should be considered for compounds with oral delivery. The key characteristics for drugs are Absorption, Distribution, Metabolism, Excretion, Toxicity (ADMET) and efficacy—in other words bioavailability and bioactivity. Bioinformatics tools to calculate ADME properties are: C2-ADME, TOP-KAT, CLOGP, DrugMatrix, Ab-Solv, Bioprint, GastroPlus etc.

Conclusion: Ligand docking aims to find the optimum binding position and orientation for a compound in active site of the proteins. The best docking programmes correctly dock about 70-80% of



of a compound, and its structural, physical and chemical properties. It actually causes the lead to behave as if in vivo environment.

Active site Identification: Analyze the binding pocket of protein in question. The space inside the ligand binding region would be studied with respect to any ligand having corresponding properties of hydrophobic atom, H-bond donor, H-bond acceptor, Polar atom.

Docking: It is the step to

ligands when tested on large sets of protein-ligand complexes. Nevertheless, virtual screening has proved helpful in docking and ranking a large number of compounds so that the highest-ranking compounds can be selected for gaining or synthesis and experimentally tested for affinity against the target protein. Virtual screening provides a significant enrichment, perhaps twenty fold, of true hits in a selected subset of compounds.



work to enjoy tariff of different operators.

For instance, Rehan Ahmed a youngster owns three SIMs of Mobilink, Zong and Telenor and he uses these SIMs while talking with friends having same operators' network to enjoy long hours call packages. Secondly, Ahmed Sayeed a sales executive of a local company who communicates frequently with its colleagues possess two SIMs of Warid and Ufone because he needs to keep it for avoiding signal interruption snags in different areas of his city, think tank report reveals.

Customers also welcome operators frequent free-minute offers to activate their SIMs before 90 days. They get prize or bonus airtime and SMS to get their SIMs active several times on the announcement of respective operators. The cellular operators are reluctant to lose their inactive subscribers' base in addition to disclose their actual base to the Pakistan Telecom Authority (PTA).

Thanks to regulators' policy of keeping 10 SIMs of each five operators for low rates of SIM cards. Besides Chinese made handsets, branded companies also offer dual-SIM connections technology in single handset to facilitate customers' need in the prevailing trend.

Tele-density Issue
Cellular phone density is the indicator of the mobile phone services penetration in any country, however, number of connections or SIMs are taken into consideration rather than subscribers or individual having cell phone service.

Therefore it is useless to question the cellular tele-density of the country, standing at 60 percent plus in Pakistan. There are many countries with more than 100 percent mobile phone penetration means the number of SIMs or connection have been exceeded with number of people in the country. In countries like UAE, Saudi Arabia, and Germany have more than 200%, 150% and 140 % tele-density respectively. The question is not fit that the number of mobile phone connections are more than the number of CNIC in Pakistan, which is currently reported at 82.2 million and mandatory to activate SIMs, there are millions of subscribers under eighteen years bracket, who got their connections on their relatives name.

Despite all these, the issue of unregistered and unused SIMs are at large in the country and reported in overall base as a matter of fact operators are reluctant to update their database of active users, which will reveal definitely the real picture of the cellular phone subscribers' base of Pakistan.





FACE TO FACE

A man of professional dedication and passion

Asim Husain's passion is in technology marketing. He is a Stanford engineer with an MBA from Duke. He has been the marketing head for many technology firms including LMKR, Transworld, wi-tribe and presently is Chief Executive Officer COMSATS Internet Services



What is the changing role of ISP in the penetration of internet services in Pakistan?

Asim Shahrar Hussain: ISPs are playing a key role in increasing internet penetration in Pakistan. COMSATS Internet Services (CIS) is the pioneer ISP of Pakistan when it launched internet services for the first time in 1996. At present, CIS is offering many internet services including dial-up, DSL, domain registration, hosting, wireless broadband, fiber connectivity, and video conferencing. Following footsteps of CIS, many ISPs launched internet services in Pakistan starting with basic dialup in late 90s to broadband now. The entry of new ISPs has brought new broadband technologies to Pakistan. According to figures that were published by internetworldstats.com in June 2010, Pakistan had 18.5 million internet users out of a total population of 177 million. Broadband penetration is still very low in Pakistan with only 817,000 users as of April 2010, a penetration of only 0.5%. However, in South Asia, Pakistan has the highest internet penetration at present as compared to India (6.9%), Sri Lanka (8.3%), and Bangladesh (0.4%).

ers want mobility, just like voice transitioned from fixed line to mobile phones, data and internet services will also shift from fixed broadband to wireless broadband. CIS is also providing wireless broadband services to corporate customers through point-to-point and point-to-multipoint links.

What do you foresee about the future of dial-up internet service in Pakistan?

Despite the fact that internet users in main cities are upgrading to high speed broadband services, dial-up is still in use in secondary cities in Pakistan. These cities have low income users who do not want to spend more than a couple of hundred rupees on internet per month. Hence, the dial-up will stay in such cities as long as monthly broadband charges are high. Once broadband charges have fallen to a couple of hundred rupees, the dial-up users in secondary cities will upgrade to broadband also.

How do you compare internet usage in Pakistan with other regional countries?

Although Pakistan has high mobile penetration (more than 60%), internet usage is still very low. According to figures that were published by internetworldstats.com in June 2010, Pakistan had 18.5 million internet users out of a total population of 177 million. Hence, internet usage in Pakistan is only 10.4% at present which is very low when compared with some high penetration countries in the developed world such as the Scandinavian countries (Iceland, Norway, Sweden) which have an internet penetration of more than 90%. Broadband penetration is even lower in Pakistan with only 0.9 million users at present, a penetration of only 0.6%. However, when

comparing with regional countries in South Asia, Pakistan has the highest internet penetration (10.4%) at present as compared to India (6.9%), Sri Lanka (8.3%), and Bangladesh (0.4%).

How much of Pakistani market is unserved and under-served with internet facility?

Dial-up is present wherever land line is available. However, broadband is available in areas where DSLAMs have been installed or wireless towers have been setup. Pakistan is still underserved when it comes to broadband because only 0.6% of the population (0.9 million) has broadband connections. One major difference between mobile usage and broadband usage is that there are multiple mobile connections per household whereas there is usually one broadband connection per household. Hence, even in the long run, broadband connections will not reach the penetration levels of mobile connections.

How do you see the affordability of customers and prevailing pricing regime of internet and broadband operators?

According to PTA's 2009-10 report, Pakistan has the lowest charges of Rs. 850 for 512 kbps unlimited amongst all South Asian countries. However, you need to have a computer before you can use the internet. Hence, right now, broadband penetration is only in upper and upper middle classes. As PC prices and broadband tariffs come down with time, it will become affordable for middle and lower classes also. Just like in mobile services, price wars have started in broadband services also. This will make broadband affordable for lower classes also. However, such low prices discourage

foreign investment also because then investors do not see an attractive return on their investment.

Do you think competition among operators is providing ultimate benefit to customers?

Competition is always good for customers because it reduces prices making services affordable for more people. Because of competition in the mobile sector, even international calls are as low as Rs. 2 per minute for some countries. However, out of the 4Ps of marketing, the most common Ps that are used to counter competition in Pakistan are price and promotion. Look at the GSM market. Mobile tariffs have gone so low because of the mindless price wars that some operators in Pakistan have sold their operations and still some other operators are planning on exiting the mobile market in Pakistan. They don't see a return on their investment because of these low tariffs. Operators are spending billions on marketing and advertising just to retain their existing subscribers. There's not much growth in the voice market now because it has reached saturation.

How do you see the profitability of ISP in the country?

Because of price wars in the consumer segment, margins for ISPs for consumer services have shrunk a lot. However, margins are still there for providing internet services to corporate segment. Corporate segment cares more about reliability and customer service than just price. Hence, CIS is focusing more on providing good quality services to the corporate segment. Our positioning "Internet you can trust" conveys the same message. However, we have some internet services for consumers also such as DSL, domain, and hosting.

What measures the government should take to promote internet services in rural areas?

The government is giving importance to promoting internet through the setting up of funds such as Universal Service Fund (USF). The goal of USF is to promote and increase internet penetration in even remote areas of the country. USF is subsidizing costs of different operators in return for providing broadband services in rural areas. My suggestion for the government would be not to limit the USF fund to only certain operators but that bidding should be open to all operators. Whichever operator gives the best cost for a specific region should get an opportunity to setup and promote internet services in that region. Also, simply providing internet services is not enough when consumers do not have the end user devices i.e. computers. Although we have some local

computer manufacturers but we are still importing majority of computers from abroad. Instead of importing computers, the government should encourage entrepreneurs to setup factories locally for manufacturing and assembly of computers locally. Key parts such as motherboard, drives, etc. will still have to be imported. Local manufacturing can provide cheaper computers for the masses and increase internet's penetration in the country.

How could the ISP and broadband services providers penetrate the government sector?

Because of the nature of work, government organizations care more about security than non-governmental organizations. CIS has been providing very secure internet services to many government organizations since its inception. We are the ISP for many ministries and semi-governmental organizations. Our positioning "Internet you can trust" conveys the same theme.

How could the government facilitate the internet service providers and computer system assemblers of the country?

The government should create a level playing field for all ISPs so that they are not at a disadvantage to incumbent operators. SMPs should not be able to reduce tariffs without PTA's approval. Otherwise, low tariffs will discourage new investment in the industry. Also, international bandwidth tariffs are much higher in Pakistan as compared to foreign countries. Because bandwidth is the fuel for an ISP, PTA should bring local bandwidth tariffs at par with foreign bandwidth tariffs to grow broadband in Pakistan.

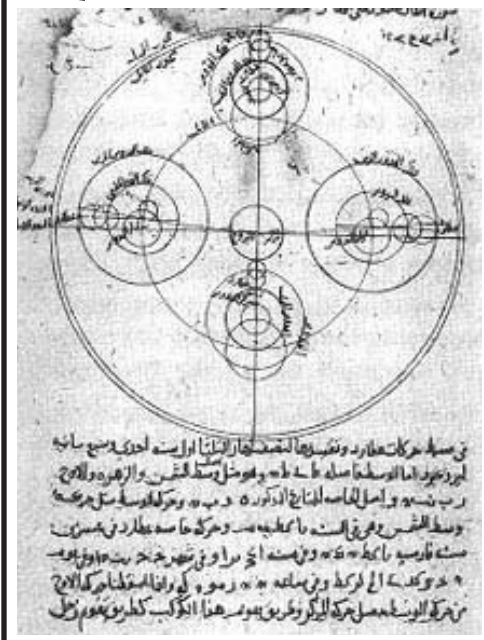
Now that there is sufficient internet penetration in main cities, the government should create technology parks in secondary cities also such as Faisalabad, Sialkot, Multan, etc. This will increase computer literacy and internet usage in those cities also. To promote local production of computers, the government should incentivize big PC manufacturers such as IBM, HP, Dell, and Acer to setup manufacturing facilities in Pakistan by providing them tax-free zones for a certain period such as 5 years or more. Pakistan is a big consumer market and PC manufacturers can make good profits just like mobile operators by investing in Pakistan. The government can provide protection to these PC manufacturers by imposing duties on imported computers.

What are your comments on the weekly technology-based newspaper, Technology Times?

Technology Times is a useful newspaper in the sense that it provides latest technology news and updates on a weekly basis. It is the first such paper in Pakistan. I have come across some unbiased and brave reporting in the newspaper. That is what journalism should be about. Telling the truth and facts. In addition to IT and telecom, the paper should try covering other areas of technology also such as biotechnology, alternate power sources, security equipment, etc.

The Golden Era.....

Dials - The Product of Muslims Genius



UNIVERSAL SUNDIALS for all latitudes used for timekeeping and determination of the times of Salah in 9th century Baghdad.

The Navicula de Venetis, a universal horary dial used for accurate timekeeping by the Sun and Stars, and could be observed from any latitude, invented in 9th century Baghdad. This was later considered the most sophisticated timekeeping instrument of the Renaissance.

Afterwards, the compass dial, a timekeeping device incorporating both a universal sundial and a magnetic compass, invented by Ibn al-Shatir in the 13th century.

Its original meaning was "sundial" and/or "clock dial", from Latin "diālis" meaning "daily", or "concerning the dial", because of its use in telling the time of day.

Modern dial is generally a flat surface, circular or rectangular, with numbers or similar markings on it, used for displaying the setting or output of a timepiece, radio, clock, watch, or measuring instrument. The term may also refer to a movable control "knob used to change the settings of the controlled instrument, for example, to change the frequency of the radio.

The "sundial", which measures the time of day by using the sun, was widely used in "ancient times". A well-constructed sundial can measure local "solar time" with reasonable accuracy, and

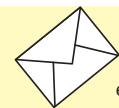
sundials continued to be used to monitor the performance of clocks until the "modern era". However, its practical limitations - it requires the sun to shine and does not work at all during the night - encouraged the use of other techniques for measuring time.

"Candle clocks", and sticks of incense that burn down at approximately predictable speeds have also been used to estimate the passing of time. In an "hourglass", fine "sand" pours through a tiny hole at a constant rate and indicates a predetermined passage of an arbitrary period of time.

Dial "indicators, also known as dial "gauges and probe "indicators, are instruments used to accurately measure small linear distances, and are frequently used in industrial and mechanical processes. They are named so because the measurement results are displayed in a magnified way by means of a dial.

A special variety of the dial indicator is the dial "test" indicator (DTI) which is primarily used in machine setups. The DTI measures displacement at an angle of a lever or plunger perpendicular to the axis of the indicator. A regular dial indicator measures linear displacement along that axis.

Dial indicators may be used to check the variation in tolerance during the inspection process of a machined part, measure the deflection of a beam or ring under laboratory conditions, as well as many other situations where a small measurement needs to be registered or indicated. Dial indicators typically measure ranges from 0.25 mm to 300 mm (0.015 in to 12.0 in), with graduations of 0.001 mm to 0.01 mm (metric) or 0.00005 in to 0.001 in (imperial).



Ed. mail

editorial@technologytimes.pk

The opinion and views expressed in these letters are purely of the public and do not necessarily reflect the policy of the newspaper.

Telenor's Easypaisa: Still lacking the knockout punch?

The Japanese and Korean vision for mobile communication differs vastly from any other nation in the world. Operators and regulators in both countries adopted the telecommunication change not merely as a means to ease the communication link between entities, but saw it as the replacement for almost all established networks; be it business or personal.

The concept dates back to when plastic money was introduced; remember the Visa advertisement, where the girl wears tight-fitting jeans and has no means to fit her wallet, so all she takes with her is her Visa card. Twist that to the 21st century, and all you need is your mobile phone now.

Of course, it will be hard to replicate the models adopted in Japan and South Korea. Both exhibit natures of highly coordinated market economies, where the industry giants have developed from family control and are conglomerates with interests in several sectors. With such extensive spread, it is easier to link the telecommunication unit with the financial services unit, and deploy mobile applications to ease customer needs.

Telenor, with its 150 years of international experience, took the first step towards "mobile money transfers" by introducing Easypaisa in 2009. Based on the regulations in financial trading, Telenor could not perform the service in its own right, and acquired Tameer Microfinance Bank to ensure all required criteria was fulfilled.

The simple model adopted was a bid to cross the boundary of mobile users, enabling anyone and everyone to utilize the service. The only thing required is a copy of your computerized national identity card (CNIC).

With international remittances coming online earlier this year, Telenor has reduced the burden from our slow banking networks that

operate in far-flung areas.

However, the burden has been placed onto small retailers and outlets, which are unlikely to be as trained or skilled in fiscal matters as general bank staff.

Even then, Telenor has to be commended on enhancing the spread within its focus segment of the rural regions. The service demonstrates steps being taken to bridge the innovation gap that exists across Pakistan's population topology.

One worrying factor, among others, that may need attention from Telenor is the recent study on migration from rural to urban centers. While numbers remained steady in the past few years, the recent natural calamities have resulted in a massive spike in the movement. Hence, easypaisa will need to be re-modeled to cater to two very different subsets of the population.

The business model that Telenor has followed is merely the outer layer of payment solutions. Of course, business constraints will always play a role in the planning and implementation of such models. No other operator has managed to match this offering by Telenor, giving it complete control of the market for now. And it is unlikely that any of the 4 competing operators will give Telenor competition on this front.

But a local logistical group may take a fuller advantage, having studied Telenor's model and system, and performed a research study of how to create a deeper connection with the population, urban and rural. The group's belief is that human interaction is still perceived highly across the country, especially when it comes to money.

The core feature they aim to complete with their model is removal of the requirement for a customer to travel to any market to send/receive funds or make payments.

All services at your doorstep and should get done through a mere keypad! @Fawad-Propakistani

REPORT

HEJ Research Institute of Chemistry: Creating world class opportunities



THE HUSSAIN EBRAHIM Jamal Research Institute of Chemistry (H.E.J. Research Institute of Chemistry) was established in 1967 as a "Postgraduate Institute of Chemistry" affiliated with the Department of Chemistry at Karachi University.

In 1976, the institute received a generous donation from Hussain Jamal Foundation, and was subsequently given its present name. Dr Sal-

imuzzaman Siddiqui was designated as the institute's first director. Additional research staff was provided by PCSIR. Prof Dr Atta ur Rahman is the director of the institute and has been affiliated with it since 1969.

In 2001, the institute became part of the establishment of the International Center for Chemical and Biological Sciences under the auspices of

Executive Committee of the National Economic Council. The institute maintains research collaboration with Eberhard Karls University of Tübingen, Germany. H.E.J is the country's most well-known research institute, and a number of prominent scientists have worked there. H.E.J is also responsible for producing notable scientists active in the fields of Biochemistry, Biomedical

sciences and biotechnology.

A number of projects were prepared and submitted to foreign-aid giving agencies, which were funded to the tune of 4.8 million DM from Germany, 1 million pounds from the U.K., 8 million dollars from Japan, 3.5 million DM from Germany and, more recently, 3.0 million dollars from U.S.A. which have transformed the institute to one of the finest centers of natural product chemistry in the world. The dedicated efforts of the faculty members, students and employees of the institute played a vital role in these developments. Having the single largest doctoral program in the country, the institute provides a place of work

to about a hundred bright young scientists who are enrolled for Ph.D. level studies on various aspects of organic chemistry, biochemistry and pharmacology. Pakistan produces about 30 PhD's in the sciences annually from its 24 universities and 130 research centers, of which more than half are now produced by H.E.J. Research Institute of Chemistry alone.

A number of goal-oriented projects relating to the chemistry of natural products and protein chemistry are being vigorously pursued which have led to the award of over 100 doctorate degrees, 30 M. Phil. degrees and 35 M.Sc. degrees and the publication of over 800 research pa-

pers that have earned international recognition.

The areas of research covered in the programs of the institute broadly relate to isolation, structural, synthetic and pharmacological studies on novel natural products as well as various aspects of protein chemistry. To get a clearer idea of the wide range and orientation of the basic researches carried out at the institute would need careful reference to the topics covered in over 800 research publications in international journals. In order to ensure international standards the doctorate degrees are awarded to students of the institute on the recommendations of two eminent scientists from abroad after their assessment of

the doctoral theses referred to them. The scientists trained in the institute are now serving the country in industry and in various R lit D and academic institutes. The quality of the researches being pursued in the institute are reflected from the fact that all the Professors in the institute have been awarded D.Sc. degrees (Prof. Salimuzzaman Siddiqui: Leeds University; Prof. Atta-ur-Rahman: Cambridge University; Prof. V.U. Ahmed: Karachi University and Prof. Zafar H. Zaidi: Leeds University), a unique achievement for a research institute in a Third World country.

Various collaborative researches have been undertaken jointly with scientists of the developed as well as Third World

countries including those with Prof. Al Sayed Alshry (Egypt), Prof. Azad Choudhury (Bangladesh), Prof. Jon Clardy (USA), Prof. Ermias Dagne (Ethiopia), Prof. K.T. DeSilva (Sri Lanka), Prof. Victor Fajardo (Chile), Prof. Leslie Gunatilaka (Sri Lanka), Prof. Jim Hanson (U.K.), Dr. W.H.M.W. Herath (Sri Lanka), Dr. Masood Parvez (Canada), Dr. David Rycroft (UK), Prof. Salim Sabri (Jordan), Prof. Bilge Sener (Turkey), Prof. Maurice Shamma (USA), Prof. Asifuzaman Siddiqui (India), Dr. David L. Smith (USA), Prof. Wolfgang Voelter (Germany) and Prof. Bing Nan Zhou (China), which have led to exciting new results published in leading international journals.

