

ASIA-PACIFIC

December 2009 / Vol. 1, No. 7

# BUSINESS & TECHNOLOGY

₩8,500, \$8.00 | www.biztechreport.com

REPORT



## DRIVING S. KOREA'S ECONOMIC GROWTH

**DR. S.A. SAMAD**



**KING SAUD  
UNIVERSITY  
ON A MISSION**

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|--|--|
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3 Park Avenue, 17th Floor  
New York, NY 10016 USA  
Tel: +1 212 705 8900  
Fax: +1 212 705 8999  
society@comsoc.org, www.comsoc.org

**Singapore Office**  
Fanny Su Beh Noi, Manager  
59E Science Park Drive  
The Fleming, Singapore Science Park  
Singapore 118244 SINGAPORE  
Tel. +65 778 2873, Fax: +65 778 9723  
f.su@ieee.org

**China Office**  
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Rm 1530, South Twr,  
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December 2009 / Vol. 1, No. 7 | [www.biztechreport.com](http://www.biztechreport.com)



Publisher: Lee Deuk Ho  
Editor-in-Chief: Lee Deuk Ho  
Published by: Asia-Pacific Business & Technology Report Co.  
Registration date: 2009.09.03  
Registration number: 서울중. 라00307  
Price: ₩8,500/ US\$8  
Annual subscription fee: ₩96,000/ US\$90

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Issue date: December 2009

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# ELECTRONICS HELP DRIVE SOUTH KOREA'S GROWTH

BY ROB YORK

In the third quarter of 2009 South Korea's economy grew 2.9 percent from the quarter prior, the greatest quarterly growth the country has achieved in more than seven years. It probably shouldn't be seen as a coincidence, then, that Samsung Electronics posted a record profit, worth more than \$3.14 billion, during the same time.

Much has changed in the nation's economy since the 1960s, as have the fortunes of its most internationally recognized company. In 1969 Korea was less than halfway into the tumultuous tenure of Park Chung-hee's developmental dictatorship, and its GDP was not to reach \$100 million in value for another decade in a half (it would join the Trillion Dollar Club in 2007 before sliding down to between \$800 and \$900 billion).

It was in 1969 that the Samsung Group opened its electronics wing, then called Samsung Electric Industries, to sell products such as calculators, air conditioners, and black and white televisions. By 1981 it had manufactured ten million B&W TV

sets, and by 1988, the same year Seoul stepped onto the world stage as the host of the Summer Olympic Games, Samsung's electronics arm had merged with Samsung Semiconductor & Communications.

In 1993, with the Korean economy stabilizing and climbing past the \$200 billion mark, the electronics company became the world's largest maker of memory chips. Such was the company's strength that by the late-nineties it was scarcely affected at all by the Asian Financial Crisis, and by 2005, just two years before Korea reached the Trillion Dollar Club, Samsung Electronics officially overtook Japan's Sony Electronics as the world's top consumer electronics brand.

In 2006 it became the world's top maker of TV sets, and the following year overtook Motorola as the second-largest maker of mobile phone handsets, behind only Nokia. By the start of this November, when it celebrated its 40th anniversary, Samsung Electronics ranked as the world's 47th largest company of any kind.

Not bad for a once small maker of TVs in a once poor country.

## Growth ahead

The period of growth known as the Miracle on the Han River transformed South Korea from an impoverished nation at the beginning of the 1960s into the country with the world's thirteenth-largest economy by the middle of the this

decade, the fourth-largest in Asia. With the explosive economic expansion of the past few decades fresh in their minds, it is probably natural that the South Korean people would have high expectations for the future.

Even as its GDP reached unimaginable heights in this decade, its economic expansion slowed, but continued to grow, during the tenure of former President Roh Moo-hyun. When the former Hyundai CEO and Seoul mayor Lee Myung-bak campaigned for president in 2007, he encouraged Koreans to hope for more through his "747 Plan," which promised seven percent annual growth, a per capita income of \$40,000, and the status of the world's seventh-largest economy.

A critical eye would say that such promises were far from realistic; for one thing, seven percent growth would be just one point lower than what the nation consistently achieved during the Miracle, whose very name should suggest its improbability. As for the other planks of Lee's plan, the nation's per capita GDP was less \$20,000 at the time of his promise, and Korea is now the world's fifteenth-largest economy; getting to seventh place would seemingly require it to hopscotch over three-quarters of the rapidly growing BRIC nations.

Unsurprisingly, Lee's first two years in office have not met his lofty goals: Due to the onset of the worldwide economic crisis growth was meager last year, and recent announcements that a contraction may be avoided when 2009 ends have come as a pleasant surprise.

Even so, it's widely believed that South Korea's economic future will continue trending upward: The New York Times on October 26 quoted the chief of Asian forecasting at Singapore's Action Economics as saying that the recovery is "full-fledged" here following the news of its staggering third-quarter growth. That 2.9 percent expansion in turn prompted a rise in Asian markets in general. For now, at least, the growth of the consumer electronics industry in South Korea seems critical, perhaps interlinked to the growth of the nation as a whole.

The record third quarter Samsung Electronics racked up would seem to have bolstered its confidence, as it recently proclaimed its intent to quadruple sales to \$400 billion by 2020, making

it one of the world's top ten companies. Korea's undervalued won and emphasis on free trade agreements has indicated the nation's intent to grow on the global stage, and Samsung Electronics plans to go with the flow by increasing its percentage of overseas employees to forty-five to sixty-five over the next decade. According to report in the October 31 edition of The Korea Herald, it plans to increase the number of non-Koreans at its headquarters from eight-hundred-fifty to two-thousand.

To meet its towering sales goals, The Herald reported that the company must maintain market leadership in the areas of memory chips, LCD panels, TVs, and handsets. At the same time, it has to increase its share of the market in home appliances, computers, printers, and three other areas from twenty percent thirty percent of its total revenue by 2020.

The nation's other electronics giant, LG Electronics Inc, saw its third quarter 2009 profit accelerate by more than fifty percent from the previous three-month period as it took in more than \$733 billion. By comparison, in the third quarter of the previous year, its profit was a far more modest \$48.4 billion. LG is currently battling Sony for second place in the LCD TV market but saw its share of the handset market recede from eleven percent to 8.8 in the third quarter.

However, just in time for this development, on November 3 LG Electronics CEO Young Nam told an audience in Washington, D.C. that his company will focus on smartphones in the near future. LG is currently situated near the top among worldwide cellphone makers, but does not occupy a spot near the top of the smartphone industry. In fact, Samsung Electronics currently holds a 2.6 percent share of the smartphone market, while LG maintains less than one percent. Nonetheless, Reuters quoted Nam as saying that he no longer considers LG's competition to be the cell phone giants Sony Ericsson and Nokia Corp.

Rather, LG means to challenge Apple's iPhone, Research In Motion Ltd.'s BlackBerry, and Palm Inc. LG has a line of smartphones it can deploy against these heavy hitters, but not a single one whose name recognition can match that of the BlackBerry or the iPhone. It might therefore sound presumptuous for Nam to speak of them as

SAMSUNG



**iRiver's first model was the iMP-100, a portable CD player that made it possible to decode MP3 files on compact discs. Soon the company had secured the number one position in the global market for MP3 players, though the ascent of Apple's iPod shortly thereafter makes this now seem a distant memory.**



his company's rivals, but considering what they've accomplished in the last few decades, international observers ought to be wary of underestimating the Taeguk Warriors' business acumen.

"We're not yet there," Nam told his audience at the Woodrow Wilson International Center for Scholars, "but we'll get there." If either Samsung or LG is going to challenge the iPhone or the BlackBerry, more development in terms of their content, use interface and aesthetic advantages had pushed ReignCom's music player business into the red: The Chosun Ilbo reported loss of 18 billion won loss in that year's first quarter. Around this time the company seemingly cast its lot elsewhere, announcing that it was recalibrating to focus on the handheld gaming.

**iRiver's troubled waters**

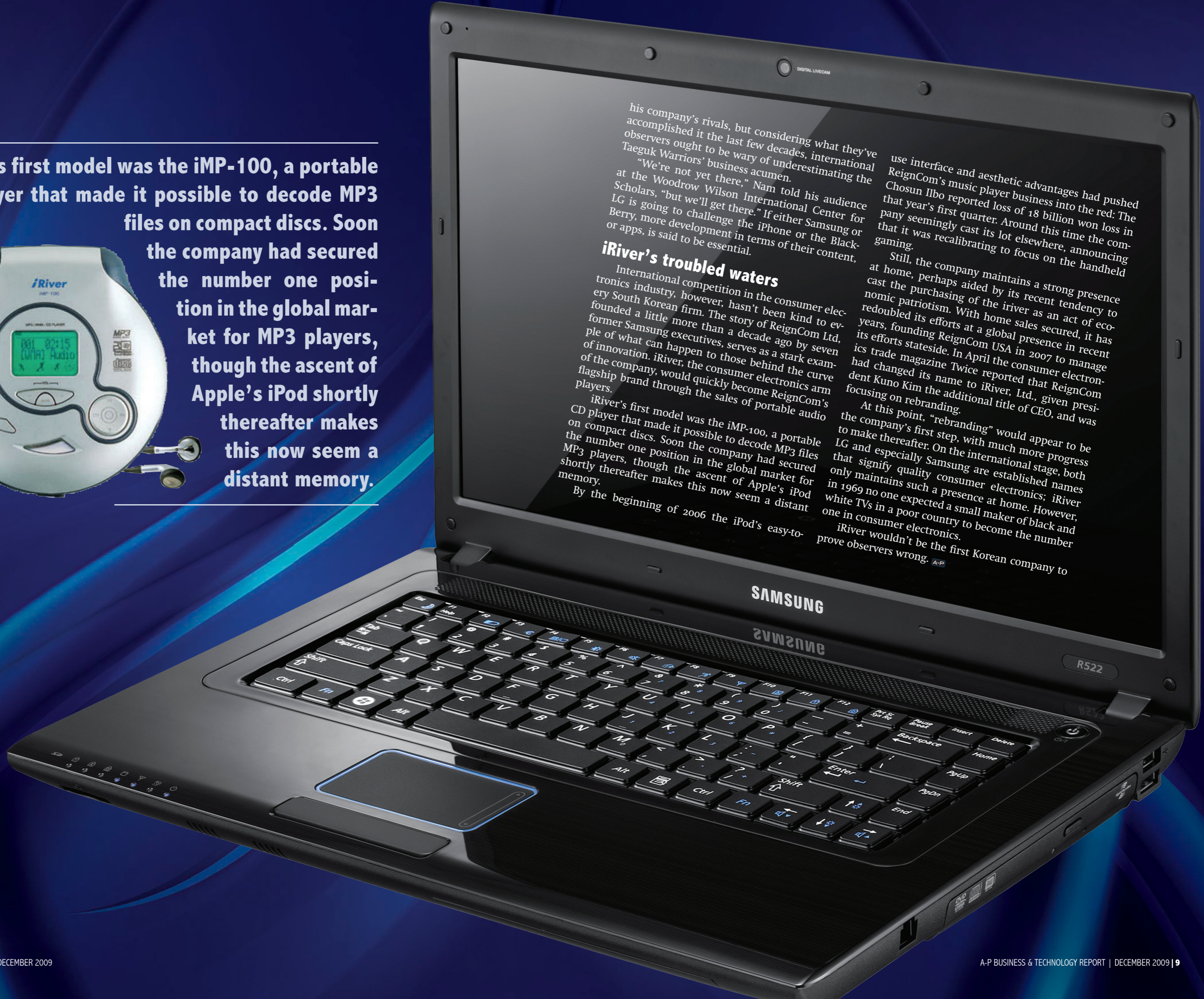
International competition in the consumer electronics industry, however, hasn't been kind to every South Korean firm. The story of ReignCom Ltd, founded a little more than a decade ago by seven former Samsung executives, serves as a stark example of what can happen to those behind the curve of innovation. iRiver, the consumer electronics arm of the company, would quickly become ReignCom's flagship brand through the sales of portable audio players.

iRiver's first model was the iMP-100, a portable CD player that made it possible to decode MP3 files on compact discs. Soon the company had secured the number one position in the global market for MP3 players, though the ascent of Apple's iPod shortly thereafter makes this now seem a distant memory.

Still, the company maintains a strong presence at home, perhaps aided by its recent tendency to cast the purchasing of the iriver as an act of economic patriotism. With home sales secured, it has redoubled its efforts at a global presence in recent years, founding ReignCom USA in 2007 to manage its efforts stateside. In April the consumer electronics trade magazine *Twice* reported that ReignCom had changed its name to iRiver, Ltd., given president Kuno Kim the additional title of CEO, and was focusing on rebranding.

At this point, "rebranding" would appear to be the company's first step, with much more progress to make thereafter. On the international stage, both LG and especially Samsung are established names that signify quality consumer electronics; iRiver only maintains such a presence at home. However, in 1969 no one expected a small maker of black and white TVs in a poor country to become the number one in consumer electronics.

iRiver wouldn't be the first Korean company to prove observers wrong. A-P



# DISSECTING A DICTATOR

*Will the Real Kim Jong-il Please Stand Up*

BY DONALD KIRK

**D**ozens of people have portrayed North Korea's Dear Leader Kim Jong-il on South Korean television comedy shows. His once-chubby appearance, platform heels and bouffant hairstyle provide great material. Now, North Korean refugees are telling contacts in South Korea that Kim Jong-il has not one but several look-alikes playing the role for him in North Korea, and they're not doing it for laughs. It's not clear, however, if any of the doubles is playing the Dear One in face-to-face meetings with foreign visitors.

Still, it would seem logical that Kim Jong-il had one or more stand-ins, as did the Iraqi president, Saddam Hussein, in his final years in power before the American invasion in early 2003. No way could Kim have time for all those trips to farms and factories and military units while his health remains uncertain and he's preparing his youngest son, Kim Jong-un, to take over de facto power as early as next year.

North Korean defectors have been spreading stories that support the view that Kim Jong-il indeed has a double. "A North Korean defector was talking to me about the same thing," says Ha Tae-kyung, whose "Open Radio for North Korea" broadcasts short-wave news and views for two hours a day into the North. "He said he knows a girl whose father is the actor for Kim Jong-il." More than one actor, though, has got to be playing the role, portraying Kim Jong-il when he was fat and healthy – and then sick and underweight when he appeared on North Korean TV last April for the

first time since suffering a stroke in August of last year. "Recently Kim Jong-il is losing his hair," says Ha. "He's very skinny these days. Most of the pictures put out by North Korean authorities are not the real Kim Jong-il."

The sense among analysts is that Kim Jong-il has to be preoccupied with arranging his succession. Third son Jong-un still seems to be the front-runner even though he's not getting a lot of publicity these days. As long as the father survives, the Dear Leader's brother-in-law, Jang Song-taek, is believed to wield the most power, says Ryoo Kihl-jae at the University of North Korean Studies in Seoul, "but his authority stems from Kim Jong-il and two or three generals are vying for control."

Whenever the Dear Leader passes away, the generals are likely to want to grab real power behind the figurehead of the son. All of which lends credibility to the view that Kim Jong-il does have doubles – but that he can speak and act for himself when it comes to dealing with his own underlings as well as foreign visitors.

The next chance for close-up scrutiny may come if Kim Jong-il accepts an invitation from China's President Hu Jintao to come to Beijing. It may be unimaginable for a double to replace him on such a journey, but the trip should provide a chance to pick up some DNA evidence. That's just in case a few drops of sweat and saliva are needed to determine who's really who as the Dear One clings to life while transferring power to his son and hanging on until what may be his last big blast, ceremonies in 2012 marking the 100th anniversary of the birth of his father, the late Great Leader Kim Il-sung, who died in 1994 but still reigns as "eternal president."

But is Kim Jong-il really still alive? The Japanese writer Toshimitsu Shigemura has written two books and numerous articles claiming that Kim Jong-il has been seriously ill for the past decade. He may have died, according to Shigemura, who spent 30 years as a correspondent for Mainichi Shimbun, a leading Japanese newspaper, including lengthy tours in Seoul and Washington. Even if Kim is alive, says Shigemura, you cannot say he's on his last legs. Rather, Shigemura insists, he's not on his legs at all but bed-ridden,



unable to walk at all – that is, if he has not already joined his father in the pantheon of deceased Great Leaders. It was after the June 2000 summit with the late Kim Dae-jung, the former South Korean president who died in August, that Shigemura says Kim Jong-il “was bedridden with diabetes,” a disease that in its later stages is sometimes controlled only by amputation of one or both legs.

Shigemura cites the names of three Japanese who claim to have met the Dear Leader’s lookalikes. One visitor believed he was meeting Kim Jong-il, Shigemura says, until the man said frankly, “I am a double.” The most convincing evidence, in Shigemura’s view, is the testimony of a Japanese magician named Princess Tenko, whom Shigemura says Kim Jong-il met in the 1990s in a fancy nightclub in Tokyo’s swank Akasaka district. Princess Tenko told Shigemura that she had called on Kim two or three times in Pyongyang. “Kim Jong-il appeared on a wheel chair,” Shigemura said in a recent lecture in Portland, Oregon. The attentive magician asked a son and daughter of the Dear Leader – it’s not clear who – to call her when he appeared near death, as Shigemura told the story, “and they called her cellular phone at the beginning of 2003.”

And if that really was the real Kim Jong-il, wan and weak as he sat down on the dais before his Supreme People’s Assembly several days after North Korea fired a long-range Taepodong-2 missile on April 5, says Shigemura, it was an altogether different Dear Leader who hosted the former U.S. president, Bill Clinton, in early August. Clinton spent three hours and 17 minutes in the company of the alleged Kim Jong-il before returning to California in a private jet with two TV women who’d been held in North Korea for 140 days after North Korean soldiers grabbed them as they were filming along the Tumen River border with China for Al Gore’s Current TV network.

Or was that an actor mouthing well-rehearsed lines? Yes indeed, Shigemura assures me, and he’s equally convinced that an actor played Kim Jong-il in October while hosting China’s Premier Wen Jiabao. The same actor who played Kim Jong-il for Clinton’s benefit, Shigemura believes, greeted Premier Wen when he arrived in Pyongyang in early October, two months after Clinton’s visit, and then bade Wen farewell in an elaborate airport ceremony. Nothing short of the most sophisticated equipment is going to provide the answer, is he Kim Jong-il or is he not Kim Jong-il?

The question is like asking, Is God Dead – God, that is, in the person of the Kim Jong-il, who together with his father, the Great Leader, assumes god-like stature in North Korea in a holy trinity that also includes the Dear Leader’s sainted mother, Kim Jung-sook. Somehow the world has got to know. Until we get the definitive answer, the debate is sure to rage. But how will anyone be able to prove or disprove Shigemura’s claims? The next time some big-time foreign visitor calls on Kim Jong-il in Pyongyang, the people with him should bring not only little gizmos for picking up traces of DNA, but also carry tiny thumb-nail-sized cameras and recorders tucked away in their coat lapels and tie clips.

Intriguing though Shigemura’s theories may sound, however, they’re not universally accepted. Self-respecting Korean experts shy away from guesses that may seem too

speculative. Ryoo Kihl-jae says the claim that actors are posing as Kim Jong-il is “a famous argument,” but, “I do not have any trust in such findings.” For now, says Ryoo, Kim Jong-il is “living well” and a lot of those reports of a double standing in for him are “just imagination.”

The wave of public appearances reported by the North Korean propaganda machine to show he’s in good health convinces others that North Korean actors are portraying him far more regularly than before his stroke. Shigemura, now a professor of international relations at prestigious Waseda University in Tokyo, is undeterred by questions from skeptics who suggest that perhaps his evidence about Princess Tenko and other visitors is a little outdated.

Has Kim Jong-il not proven his existence by hosting Bill Clinton? And how about his subsequent meetings with the chairwoman of Hyundai Asan, Hyun Jeong-eun, the company responsible for developing both the Gaesong Industrial Complex and the Geumgang tourist zone inside North Korea? Most convincingly, how could anyone doubt his authenticity after those sessions with China’s Premier Wen?

Shigemura laughs politely at the notion that anyone should accept what he clearly views as scams. “The Kim Jong-il who saw President Clinton is totally different,” he

observes. “He looked very healthy” – in contrast to the sickly looking one who appeared four months earlier before the Supreme People’s Assembly. A skilled actor, Shigemura believes, could easily have rehearsed what to say and gotten off all the right lines for the benefit of Clinton and the impressionable aides and advisers who accompanied him. But could Ms. Hyun of Hyundai Asan as well as Premier Wen, both of whom had met him before, be so easily fooled? Certainly, says Shigemura, especially since the Kim Jong-il they had met previously may well have been the same actor.

There seems to be little question that Kim Jong-il does have a double, or maybe a few of them, to cover for him on all those trips he makes to farms and factories,

army bases and art exhibits. How else could one man, an ailing one at that, really have gone on more than 120 such excursions reported so far this year? Kim Jong-il started going on all of those trips when he resurfaced several months after his stroke. The real question everyone was asking initially was whether North Korean photo editors had doctored the photographs, showing earlier pictures of Kim Jong-il, or whether he had a double sitting in for him. The best guess is that some photographs were doctored and in others showed a look-alike. And in some cases, the doctored photographs may have been photographs of the look-alike.

Shigemura believes careful study of the photographs alone leaves no doubt of his thesis, and the fact that dictators everywhere seem to like to have doubles for protection against assassination adds weight to this view. “These dictators always need look-alikes for security reasons,” says Choi Jin-wook, senior North Korean specialist at the Korean Institute of National Unification. In any case, he observes, “Kim Jong-il has been doing on-the-spot guidance too often for his health.” Kim Tae-woo at the Korean Institute for Defense Analyses takes a measured view. “There have been such rumors,” he says. “We don’t know whether this is real or fake.” As an obvious precedent, he goes along with the



example of the late Saddam Hussein, who often sent a double for appearances around Baghdad.

No doubt there were auditions for the role of Kim Jong-il, possibly at the sprawling film studios in Pyongyang where the Dear Leader once personally directed and produced propaganda epics. A whole cast of actors may have had to be trained to play the role considering the changes in his appearance. “One of the refugees said she has heard of many look-alikes,” says Kim Bum-soo, editor of a political weekly here. “He must have. Why not?” When Kim Jong-il showed up live on video at the Supreme People’s Assembly, he was no longer the pudgy fellow that he was before his stroke eight months earlier. An actor would have had to rehearse diligently, as if for the starring role in a great international theater, to portray him as he slowly recovered to the point at which he could meet and

greet first Bill Clinton and then Wen Jiabao.

After going to Pyongyang for the inter-Korean summit of June 2000, Kim Dae-jung discouraged satires on Kim Jong-il for fear of upsetting his Sunshine Policy of reconciliation with the North. From time to time, however, South Koreans still delight in appearing on TV satirizing the curly-haired little guy. In North Korea, of course, the role of the Dear Leader is no laughing matter. Could it be that an actor is not only playing the part but usurping the power – extemporaneously mouthing orders? And do all those at or near the center of power in Pyongyang necessarily know who’s really who? It’s time to end the game of guessing of who’s Kim Jong-il and who’s not. Will the real deal, that is the Dear Leader himself, please stand up and be counted – not two or three or four times, but once and for all?



# GOING GREEN IS PROFITABLE

ADOPTING GREEN TECHNOLOGIES IS GOOD FOR THE PLANET AND YOUR BUSINESS

BY ANURADHA SHUKLA

**G**reen Business Technology practices have become the winning approach for enterprises to realize business success and it also puts them in the limelight for being environmentally friendly companies. But the best part is that companies can also make money while fighting climate change.

Business technology alone consumes 1 percent of the world's electricity and consumes 415 million tons of coal per year, emitting 864 million tons of greenhouse gases. The figures indicate that it makes more business sense to implement green energy-efficient solutions in any company as it accelerates business growth and ensures greater sustainability for the business.

Significant energy consumption cost reductions can be realized if data center capacity, physical assets and virtualization solutions are optimized besides outsourcing parts or entire data centers. Such green initiatives enable easier management, monitoring and measuring of the environmental footprint in order to meet corporate and regulatory commitments. Business continuity and effective power management prevents outages and also optimises resource allocation. Supply chain and materials management further offers social, economic and environmental advantages.

Employee bases grow with energy saving devices, and there is greater collaboration between companies with less travel, owing to the presence of virtual collaboration tools. Telepresence solutions bring people across the globe face-to-face besides reducing travel expenses and the carbon footprint.

## How to use green practices for profitable business

Energy conservation and resource efficiency can be brought to practice by reducing waste, reusing equipment

and recycling supplies. In data centers, companies can use data transformation solutions such as server consolidation and smart cooling solutions.

Solutions like teleconferencing and video conferencing allows getting the work done between companies without the employees having to step out of the office. Energy-efficient PCs also reduce the total cost of ownership and electricity charges besides making the devices ENERGY STAR compliant.

To deploy green solutions, companies have to make the initiative a corporate policy and then identify and prioritize their IT and environmental goals. The present IT scenario has to be studied and a sustainable green IT plan has to be put in place after studying alternative plans and vendors. The Green IT solution selected has to be in line with business objectives and the company should be prepared for investments if they wish to enjoy returns.

## Many Asian businesses are profiting from green technologies

Corporate Social Responsibility practices by companies in Singapore encompass business strategies and operations along with universal values for realizing positive and sustainable outcomes for customers, suppliers, employees and the environment.

The annual Carbon Forum Asia 2009 trade fair and conference, which took place in Singapore in October, served to showcase regional and international carbon market players from more than 27 countries including 22 from the Asia Pacific such as Singapore, Australia, China, India, Indonesia, Japan, Laos, Pakistan, Malaysia, Mongolia, Thailand, Bhutan and Papua New Guinea.

Project developers and carbon credit sellers displayed project ideas for environmentally friendly solutions including biomass-biogas combined heat and power generation, conversion of waste coal gas to energy and methane avoidance solutions. Discussions were held regarding emissions trading, carbon finance and climate change. Developing countries like China, India and Brazil have benefited a lot from the Clean Development Mechanism, according to sources.

Korean and Indian companies are ahead of their counterparts in Singapore and other Asian countries, as was revealed by a recent study on corporate policies regarding carbon footprint and reduction of greenhouse gas emis-

sions.

## Enterprises need to innovate solutions

Green IT solutions are applicable for all enterprises big and small that have a data center in place. But green initiatives are not restricted to the IT industry as shown by a laundry business in Singapore. Green N Clean Laundry uses a wet cleaning methods to clean delicate garments using water instead of petroleum based solvents as in the dry cleaning method.

The laundry business owners said that wet cleaning uses non-toxic soaps, which are safer to use besides being eco-friendly, as the wash water with biodegradable soaps can be discharged into the sewers. In dry cleaning, the solvents used cause body irritation and cancer according to the United States' Environmental Protection Agency. The solvents are poisonous and not fit to be discharged into sewers.

Dry cleaning also consumes more power owing to the recycling process involved in getting the solvent ready for the next load. This makes it a totally non-environmentally friendly solution. Businesses need to innovate more and create eco-friendly practices in whatever way possible to reap health, cost and environmental benefits.

Earlier this year, Nokia held its first Virtual Eco-Roundtable in Singapore in which Nokia's global and Southeast Asia Pacific (SEAP) executives spoke on environmental sustainability and its commitment to the environment. The highlight of this conference was that it was held in Nokia's videoconference room, the Halo Room, while some speakers were presenting from the company's headquarters in Finland.

Nokia is integrating sustainability into the business and its environmental strategy, which includes optimized materials management, take-back and recycling. Nokia includes these policies into the business and adds green features in its products also.

The design process involves observation and the devices are made for a longer life. The new products and accessories are free of PVC, phthalates and flame retardants. Packaging materials and costs have been reduced drastically by using compact packing made of recyclable material. The company saved 99,000 tons of paper on packaging material and reference guidebooks.

To save energy in the no-load mode, energy-efficient chargers have been made by Nokia that alerts users to unplug the chargers when the device is fully charged. Energy consumption is reduced by 80 percent in the no-load mode. Also, the company is supporting a common charger interface, which will eliminate the need for multiple chargers for different manufacturers. Nokia also promotes the recycling of old mobile phones.

Nokia's green services, Green Explorer, Ecozone and we:offset advocates sustainable choices among people leveraging its global reach. Green explorer is a green travel planner offering overviews, facts, commuting advice and city guides with eco-friendly choices, which can be downloaded to Nokia devices. Ecozone is preinstalled in most devices and gives access to eco information and services. we:offset is a carbon emission offsetting tool that lets users offset their carbon emissions, caused by traveling, with ClimateCare.

Green IT or the practice of environmentally friendly

solutions in the IT industry is a fast growing sector today. Hewlett-Packard operates in over 170 countries and provides printing and personal computing products, IT services, software and solutions. The company strives to support business growth with new initiatives and products besides trying to reduce harmful environment-impacting activities.

HP Asia Pacific has identified areas in which customers are adopting Green IT such as in virtualization, management, power & cooling and asset-recovery services. Increasing the energy efficiency of servers and power supplies,

implementing solutions which augment the energy efficiency in cooling a data center and developing software to measure energy usage are green initiatives taken by HP.

Following such examples – whether it is implemented by a small laundry business or global giants such as Nokia and HP – all businesses can incorporate sustainability and business responsibility and take their businesses green.

Green business is also sustainable business, as it has no negative impact on the global and local environment nor on the community, society or economy. Sustainable businesses, which highlight human rights policies, should now also include environmental policies.

All processes, products and manufacturing activities have to meet environmental and corporate profit-making goals.

“The needs of the present world have to be met without compromising on the ability of future generations to meet their needs,” say experts in an environmental study. Products have to be designed that will leverage the environmental benefits now and also perform well with renewable resources. Sustainability involves a delicate balance between people, planet and profit. Value should be created for customers, investors and the environment in order to run the most ideal business today.

## More awareness about the benefits of green technologies is required

Lack of awareness about the benefits accruing from such energy-efficient technologies prevents people and businesses from adopting safe technologies. The social and business benefits result in significant cost savings in the long run. The lack of regulatory guidelines across the Asia Pacific region acts as a deterrent to adopting Green IT solutions. The introduction of carbon taxes and other regulatory measures will result in optimized environmental policies.

All eyes are focused on the outcome of the Copenhagen Climate Conference to be held in December this year. The key issue under discussion will be global warming and how to tackle this problem. Evidently, global warming is the favorite topic the world over. It also needs urgent attention as it is reaching alarming proportions according to the results of the annual Arctic Report Card. The changes in the Arctic are “drastic” says the National Oceanic and Atmospheric Administration.

Scientists believe that climate change is affecting the Arctic more than other places. The changes are alarming and businesses should take immediate steps to reduce greenhouse polluting gases and to try to stop climate change throughout the world. It has become imperative for every citizen of this planet to look for greener alternatives to all their activities both at home and at work. **ASP**





# WASTE MANAGEMENT IN SOUTH KOREA

BY AMANDA MIN CHUNG HAN

**I**n the old days, there were special hogs living beneath the restrooms on Jeju Island, the southern resort island of South Korea. This old styled two-story restroom was located in the yard of houses as most Korean restrooms were at the time. The hogs were kept downstairs and people used the toilet upstairs. The staple food for these hogs was human feces. When a person came into the restroom, the hogs were excited that they would soon have food to eat. It might sound very unsanitary, but there was not enough food even for people back then. Human feces were the only things that people could give to their hogs. In return, the hogs became food for the people.

These days, it is extremely uncommon to find houses with the old styled restroom on Jeju Island. And you can only find these hogs in Seoung-eup folk village. The story about these hogs still amuses people, although these hogs do not eat human feces anymore. It was a good example of "one person's trash is another person's (or pig's) treasure" in the old days.

Lately, there are many attempts to make trash into treasure. Unlike the lack of food and resources that led to these human feces-eating hogs, these new waste recycling attempts in this age of superabundance aim for using fewer resources. Once human and animal excrement was collected for fertilizer, now it generates electricity for households.

Junior Kosdaq market listed livestock feed company Easy Bio System produces 350 to 400 kw of electricity per hour from hog excrement through a bio gas plant. Excrement is fermented into combustible gas, 60 percent to 70 percent methane, in a warm temperature with an organic compound in the bio gas plant. The methane gas is burned in the plant to generate electricity instead of burning the more conventional coal.

When the plant processes the maximum 100-tons of hog excrement and an organic compound, it produces 9,600 kw of electricity each day. Considering one household uses 300 kw of electricity per month, this is enough for 1,000 households' electricity usage. Easy Bio System sells this waste-recycling electricity to Korea Electric Power Corporation (KEPCO) and earns 27 million won to 33 million won per month. If the plant running at maximum capacity, the sales will surpass 45 million won per month or 500 million won per year.

Upo World hog farm, a sister company of Easy Bio System, has 12,000 hogs and the resultant excrement was always a headache for the owner. Ocean disposal of excrement costs 26,000 won per ton.

Mr. Yoo Min-soo, the owner of the farm said, "The cost of ocean disposal for 70 tons of excrement per month is 42 million won and exceeds 500 million won per year." Even worse, ocean disposal will not be allowed after 2012. Therefore, finding a new way to treat hogs feces was the key to sustaining the business.

After long hours of discussing and visiting companies in Germany and Denmark, Easy Bio System and Upo World decided to set up the bio gas plant in the back yard of the hog farm. Since October 2008, the company has generated electricity from hog excrement and sold it to KEPCO. Instead of paying 42 million won for ocean disposal, the company earns 45 million won from selling the electricity generated from hog feces.

Mr. Yoo explained, "When the plant is running at capacity, we can save 500 million won in ocean disposal costs and earn 500 million won from selling electricity, and an additional 500 million won from the treatment of food waste (organic compound), so it's up 1.5 billion won per year."

He also added that if the wasted heat and carbon dioxide gas from the plant were reused for greenhouses, the profits would be higher. The leftover waste from the burnt animal excrement will be supplied to farms as fertilizer.

Korea is not the only country that generates energy from excrement. Prisoners in Rwanda eat food that was cooked from natural gas generated by their own feces. In overcrowded Rwandan prisons with 120,000 prisoners, the demand for energy was pretty high and the amount of human feces to process was huge.

Prior to the construction of biogas facilities at the prison, human feces used to be dumped into nearby rivers. Now, these biogas facilities not only process human feces, but also reduce the cost of annual wood fuel by 60 percent, a number that used to reach US\$1 million.

The Korean government is gearing up for a biomass en-

ergy project to reduce greenhouse gases and also to save the natural environment. The government aims to have three locations for animal feces energy recycling pilot projects in 2010. The animal feces will be used to generate energy and the left over will be used as fertilizers for nearby farmland.

The Ministry of Food, Agriculture, Forestry and Fisheries aims to set up 150 facilities to treat 5.5 million tons of hog excrement, which is 35 percent of the total hog excrement produced per year. One hundred places out of 150 will be facilities to produce energy from the excrement with an ultimate goal of 3.65 million tons per year.

The pilot projects are going to be for three different forms: animal excrement, animal excrement with leftover food and excrement with by-products of agricultural products.

The target operating bodies are likely to be a corporate body such as Nonghyup (Korean agricultural cooperatives) and/or private companies. The budget for each operating body will be 7 billion won (US\$5.9 million), with 30 percent from a federal grant and 30 percent from state aid.

The government also encourages the research and development of excrement-derived energy technology in order for Korea to rank with other developed countries by 2020. An official of the Ministry of Food, Agriculture, Forestry and Fisheries explained that the economic effect of the animal excrement energy project is equal to 67.4 billion Korean won and the government expects the project will create 7,800 new jobs for the plants' operations.

Since the ocean disposal of animal excrement will be banned from 2012, the Korean government aims to recycle 90 percent of excrement as an energy source by 2013. Therefore, 94 facilities for animal excrement processing and 15 bio gas plants will be built by then.

The government also hopes that the recycled energy from biomass and waste can cover 3.17 percent of total domestic energy supply while total recycled energy will account for 3.78 percent of total domestic energy supply by 2013. By 2020, recycled energy will account for 6.08 percent of total domestic energy supply with 4.16 percent from biomass and waste recycled energy. The ultimate goal of the Korean government is for recycled energy to account for 11 percent of total domestic energy supply by 2030.

The estimated cost for these projects is 5.6 trillion won in total, including 2.7 trillion won for recycled energy projects, 400 billion won for the low-carbon green-village project, and 2.5 trillion won for the agriculture, forestry and fishery biomass project. The government plans to raise funds through local government expenditure, national expenditure and public organizations' investment. It is believed that these projects will create 143,000 new jobs by 2013 and the economic effect of 15.2 billion won by 2030.

According to the Ministry of Food, Agriculture, Forestry and Fisheries, about 11.69 million tons of recyclable industrial waste is generated per year while a mere 220,000-tons is reused to produce energy.

Another waste-recycled energy is Korea is refuse derived fuel (RDF) or solid recovered fuel (SRF). This is a fuel produced by shredding and dehydrating municipal waste such as plastics and biodegradable waste in an autoclave.

Municipal waste is unloaded from a truck and shredded in a crusher. Shredded waste goes around on a conveyer belt while an air hose blows light refuse away. Non-combustible materials such as glass and metals are removed as well. After this pre-treatment process, the residual material is compressed into a cylindrical mass, or RDF.

Every day at one of the landfill sites in Incheon that treats municipal waste from the Seoul area, 200 tons of RDF is produced. As of October 2009, the Incheon RDF plant is busy with its pilot operation. This facility is the second after Gangwon province's RDF facility, which began operations

in 2006 and produces 80 tons of RDF daily.

RDF from the Incheon facility generates 4,800 kcal per kg. One ton of RDF is equal to the energy of 500 liters of oil. Jeonju paper and ERG Services are consumers of this RDF as boiler fuel.

RDF has many positive points compared to its conventional competitors such as oil and coal. It reduces the expenses for importing oil and waste treatment and produces less greenhouse gases. The total economic effect will equal 52 billion won by 2013.

An official at the Sudokwon Landfill Site Management Corporation said, "Recycling the waste into energy reduces the amount of landfill and it also increases the life span of the landfill by another 55 years to 2099." He also added that the methane gas that escapes from the landfill affects global warming 21 times more than carbon acid gas. That is why recycling the methane gas as an energy source can decrease greenhouse gases, he emphasized.

The Ministry of Environment aims to produce 360,000 tons of RDF at the Incheon landfill, 1.03 million tons of RDF nationwide through all 13 energy towns and an additional 241,000 tons for a total of 1.63 million tons per year by 2013. The government also plans to produce 265,000 tons of biogas at the Incheon landfill, 409,000 tons at the 13 energy towns and an additional 372,000 tons or a total of 1.04 million tons per year through food waste and animal feces by the same time. The government also has a plan to reuse the heat that is generated from the trash burner for air conditioning and heating to 410,000 Gcal. by 2013.

The official at the Ministry of Environment explained, "Korea imports 97 percent of its annual energy needs; however we have wasted the reusable wastes. Since we have a very well established separate garbage collection system, it will be favorable for recycling waste energy."

POSCO, the world's fourth largest steelmaker, also participated in waste recycling projects. POSCO set up an affiliate, POSCO Environment & Energy (POSCO E&E) to transform house sewage into RDF and to generate electricity through it last Aug. 22. POSCO E&E dries sewage and compress it to make a cylindrical mass RDF as a fuel instead of coal. The heat that is generated during the process can be used for other purposes as well.

A POSCO public relations person said that the company started a waste-to-energy business in Busan and Pohang and plans to expand the business across the nation later on. **A-P**



# COMBATING PHISHING ATTACKS

BY ANURADHA SHUKLA

**P**asswords to more than 10,000 Hotmail accounts were recently posted online. This is not the typical lone phishing scheme seen in recent months as hackers continuously 'phish' for personal, sensitive information.

Phishing or brand spoofing is a technique used by hackers to gain access to vital information from gullible Internet users. Hackers are cyber criminals who fool users into revealing information about themselves such as bank account numbers, passwords, credit card data and other financial data.

Internet scammers literally "fish" for information by launching their own Websites which are exact replicas of the Websites of even major companies. Requests in the form of fake emails are sent to unsuspecting customers asking for passwords, etc. to be entered on official looking forms. The data is siphoned off to the hacker who can use it to draw money from the customer's account.

Recent attacks involved Charlotte's Bank of America, Best Buy and eBay. Internet users are warned against responding to emails which state that that his/her account will expire soon. Before answering such emails, users are advised to verify the authenticity of the email from the company itself or not answer at all.

Internet users should know how to spot a fraudulent email even if it includes authentic looking marks like trademarks, logos, graphics and URLs. But the copied web page will not have details like the user's name, account number etc. The user may be addressed as sir or madam or cardholder. The HTML tags in the URL should be noted, which also indicates the authenticity of the site. A lock image on the URL also shows that the Website is a safe one.

Clicking on the link in a fraudulent email exposes the computer or network to a Trojan program. These programs install themselves on the PC and keep track of every keystroke made by the user. This gives the hacker full access to all the personal information.

## Proactive Protection of the PC

Internet users have to fortify their computers against Trojans and other attacks by erecting Internet firewalls against them.

Anti-virus software detects and removes the latest viruses. The operating system and Internet browser should be armed with the latest antidote to the newest virus. Users are requested to keep themselves informed about the latest viruses, reviews of anti-virus software and employ steps to protect the computer proactively.

When giving personal or financial information on Websites, users have to look for the padlock icon on the status bar of the browser. Double-clicking on the icon should reveal a



security certificate which should be from an authentic firm. If any doubt arises regarding the authenticity of a Website, then it is best to leave the site immediately. It is always best to type the full Website address in the URL while accessing a financial institution's site rather than clicking on a link that appears in an email.

Phishing for passwords is the favourite game of hackers. A password such as that of Paypal is enough to siphon off money from a victim's account. Passwords have to be well chosen and should not be names of family members, important numbers, etc. It should be a mix of lower and upper case letters with numbers and other characters and more than six characters in length. It is best to change passwords from time to time to secure it, say security experts.

To keep one step ahead of hackers, credit card and bank account statements should be scrutinized carefully to check for unauthorised transactions. Also, the billing address and account balance should be checked in case there is a delay in receipt of the transaction statement. Consumers should avoid using computers in Internet cafés and other public terminals for financial transactions.

Again, it is wise to double check the source of any email requisitioning vital information before revealing any details. The bank or any other organization can be contacted over the phone to cross check the authenticity of an email. Most Websites offer an email address to which doubtful emails can be forwarded. In case there are doubts that account details are in the danger of being given away to a phishing site, the customer service number must be contacted to stop any fraudulent transaction.

## Social Networking Sites under Attack

Social Networking sites seem to be the source of all the information required by hackers. One can find all information like the names of hometowns, birthdates, spouse names, ad-

resses, offices, businesses, names of pets and alternate email accounts. Social networking is a new threat as reported by security firm Websense.

The leakage of vital information is actually more profound through social Websites than was imagined before. U.S.-based information security consultancy Intrepidus found that about 23 percent of the 500,000 sites tested by it have been victims of an engineered phishing attack.

Intrepidus co-founder Aaron Higbee said, "Attackers are bypassing all layers of security and are going after the soft targets – social network users – with targeted phishing. And it's very effective."

## Financial institutions under phishing attack

Recently there were reports that local banks in Singapore have been victims of phishing attacks. The new Trojan directed users to an authentic looking fake bank portal. The log-in information stolen from the fake site can be used for fund transfers. Warnings against the cyber criminals were issued by the Singapore Banks to alert customers to threats to their online banking accounts and activities. Online Banking users were given a two-factor authentication step to make their transactions as reliable as possible.

Security companies McAfee and Symantec identified the Trojan and it was categorized as a low-risk type. The Trojan affected users irrespective of their geographical location and the damage level was low and was soon contained by the security agencies. However, United Overseas Bank Singapore sites were not targeted, according to reports.

United Overseas Bank sources said, "Various security solution providers have confirmed this fact for us. The bank has in place Internet technologies that track and monitor all incoming traffic. This is enforced as part of the bank's existing suite of security measures and independent of any potential threats like the latest Trojan program. One vital step in our ongoing efforts to ensure a safe online environment for our bank customers is to proactively engage and alert our customers of any potential threats that may surface."

## Asian Banks fight back

ReadMinds, a Singapore-based firm specializing in security software for financial institutions, reveals that Asian banks have realized the importance of online security transaction threats. The study conducted last year covered the countries of Bangladesh, Cambodia, Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, Sri Lanka, Taiwan, Thailand and Vietnam.

Most banks in these countries have implemented online security in the form of two-factor authentication, or 2FA, a software-based mode of second-factor authentication. The percentage of financial institutions that were focused on educating customers on online fraud and identity theft was only 20 percent. The methods used in implementing security in most financial transactions include risk-based transaction authorization, fraud detection and strong user authentication.

## War Against Hackers

With more sophisticated methods of online attacks, it is imperative for anti-spam vendors, browser makers and Internet service providers to try and fortify the Internet with new technologies. Phishing Websites have evolved into a new dimension where even frequent Internet users are easily fooled into revealing data and other credentials.

Spam messages have been sources of phishing information for some time now and social networking sites like Twitter and Facebook are being used by phishers to attack unsuspecting victims.

"Whether it is phishing or malware, the one thing we cannot do is blame the victims," said Mary Landesman, senior security researcher at Web security services vendor ScanSafe Inc. "The world has changed in terms of security risks and I don't think, by and large, that people's perceptions have."

Phishers are using phishing tool kits to create any number of false domains and phishing URLs. Hackers work on the assumption that if a user presses even one wrong letter key he/she would be taken to one of their phishing sites. Symantec said that over 110 Web hosting services were accessed in September, amounting to 11 percent of phishing attacks.

Security software vendors try to keep one step ahead of phishers who are getting equally smart. The FBI in America conducted raids to shut down phishing rings and the FTC also closed down an ISP that hosted phishing domains. Yet, educating end users and letting ISPs detect and shut down phishing Websites should be in focus for long term results.

Dave Jevans, founder and chairman of the Anti-Phishing Working Group, or APWG, said that technology should be used as a tool to fight phishing. Anti-phishing measures as suggested by him include extended validation (EV) SSL certificates and two-factor authentication as part of login procedures. EV SSL features have to be embedded in browsers as they will guide people in detecting legitimate and illegitimate Websites, he noted.


Recently, the FBI and Egyptian authorities caught several people involved in an international phishing ring. APWG is working with Internet Corporation for Assigned Names and Numbers (ICANN) for developing a method that will help registrars deal with phishing domains and malware.

Asia domain, a top level registry, has tightened security norms and plans to close down phishing sites. Also DotAsia Organisation will implement a policy to put an end to phishing domain names. When fraudulent domain names similar to well-known brand names are detected or are reported, they are removed from the Internet by ISPs and registries. But it is a known fact that this does not deter phishers, as they simply change hosting providers and continue using the same domain name and repeat their attacks.

They use the "fast faux" technique, which ensures that a Website is always available. Using a fast faux Website can resolve to different IP addresses necessitating the removal of all of them from the Internet resulting in a long, drawn out antiphishing effort. If steps are taken to stop the use of same domain names again and again, then phishers can be left in the lurch. Security agencies and their expert teams the world over are working on such a scenario.

Reports that phishing and malware attacks will increase in the coming year are alarming and it has been found that advertising networks will be the delivery wagon for most malware on consumers' PCs. Research firm Gartner forecasts more trouble unless email providers, advertising networks and other Websites keep malware away from their portals. They suggest incentives for such infection points to stop the Internet disease from reaching consumers.

Anti-Phishing solutions and anti-malware services have to be subscribed to by enterprises to prevent the virus from spreading its tentacles across the Internet and catching consumers unaware. Financial services providers should fortify their systems by implementing fraud prevention solutions, using stronger user authentication and transaction verification.

Online security solutions provider VeriSign conducted a survey of Asian countries including India and Singapore and found that most Internet shoppers were not aware of harmful sites and how to detect them. Their simple advice is to look through the site for spelling errors, unknown domain names, check the browser for the padlock icon and green address bar and double check to verify the offer on the item before giving away credit card numbers and other details. 

# 3 TAKES ON THE KOREA ELECTRONICS GRAND FAIR

BY ZACH BARDON

The extreme concentration of technology experts at the Korea Electronics Grand Fair in KINTEX from Oct. 13 to 16 was baffling to even the most organized of media teams. With every one of Korea's strong IT industries represented in full at one time, it was difficult to find a single figure to focus on for any length of time. However, when plunged into the depths of the event, searching for the men and women who could give it meaning, one could see illustrated the important parts of the whole by speaking to the right people. Many representative voices could be found at the exhibition, and different perspectives seen. And despite the vast differences in the viewpoints of these three examples, one overall theme was prevalent – now is the time for massive growth and positive thinking in Korean electronics.

## What Happened in the Alphabet Soup

But before we get to that, we must review what exactly was going on. There was an over-arching event happening on Oct. 13: the Korea Electronics Grand Fair. This event encompassed several smaller events, which were combined together in order to illustrate the prevalence of Korea's IT industry. These formerly individual events were the Korea Electronics Show (KES), the 9th International Meeting on Information Display (IMID), the International Semiconductor Exhibition (i-SEDEX) and IT Convergence Korea. They were all held at the same time in the same venue, the Korea International Exhibition Center (KINTEX) in Goyang City, Gyeonggi-do.

The confusing litany of acronyms unfortunately does not stop. There were some interesting highlights at the KES opening ceremony. The traditional ceremony of suited gentlemen shredding an innocent ribbon was foregone in favor

of a fashion show, in which models strutted around in the latest in technological, computerized fashion. In the halls of IMID-ia, noted experts in the field urged caution while painting an optimistic future as far as display technology development was concerned. The i-SEDEX exhibition was rather subdued, with the only remarkable thing the number of participating companies – 145 from seven different countries. The IT Convergence Korea conference was the first of its name, held to try to create a new industry. Diverse attendees such as Nissan and the Korea Expressway Corporation were learning how to work together.

In order to measure the success of the event, one could measure the numbers. Since the events are combined, the numbers are pretty big. A total of 857 companies from 16 countries around the world opened booths at the Electronics Grand Fair. During the exhibition period, about 88,000 visitors walked through the halls, and some 3,000 potential foreign buyers searched for futuristic electronics gadgets and devices. This march of numerals will be the standard by which all subsequent events are measured.

## Chaebol Leading the Way

Chang Won-kie, president of the LCD Division of Samsung Electronics, gave the perspective of the vested interest in the event. He delivered the keynote address at IMID 2009, on the third floor of the completely packed exhibition hall. He talked about how the LCD business has grown up in the past 15 years. He spoke about the volume of business expanding over 10 times, and the revenue growth expanding exponentially. He emphasized how important the display industry was in the world, how heavily it had impacted Korea and the globe, and how important Samsung was to the success of Korea itself.

He also spoke about the new advances in the display industry, the new devices that will impact the industry in the future. He spoke about digital signage, and how that will be more important in the future. Now, he said, LCDs are not useful for signage in the daytime, but new advances will be essential for showing bright, daylight-proof, eye-catching signs. He also spoke about interior displays, things similar to a TV but not actually a TV. Customers will be able to use these interior displays to decorate their walls in order to display art, or show movie scenes, or anything at all. TVs, of course, were mentioned, but Mr. Chang said that interactive TVs were the wave of the future. He emphasized that 80-inch ultra-high definition (UHD) TVs, which could completely fill the eyes, would be viable within three years. He identified that there were some specific technical hurdles that the LCD industry needed to overcome to get to the 80 inch TVs, which included special semiconductor devices

He was also the man to talk to about the statistics of this particular event. "IMID this year has 470 papers with 120 companies and 320 display booths for our part of this event."

es with better performance than was possible at the present time. However, he had supreme confidence that the technical hurdles would be overcome soon. Not to be stopped at three, he continued to say that personal digital boards would be important in the future, something mobile that people carry with them. The fifth new thing to watch out for is the e-paper displays. Those are coming out even now, such as the Kindle by Amazon. However, Samsung finished its own e-book type devices a few months ago and by this time next year Mr. Chang expects the market to be much more mature.

Lastly, he mentioned a strategy for Samsung to follow in the future with this growing market. He said that value creation and risk management were the two most important things to focus on as the market changes. He said that the display market was a little oversupplied now, so the company should watch out for that. After painting such a rosy picture of the future of the display industry, he definitely set the stage for a positive conference. According to an attendee, "Samsung's presentation material and presentation itself was super."

## Display Industry Perspective

Dr. Kim Hyun-jae, a professor at Yonsei University in the School of Electrical and Electronic Engineering and the IMID 2009 General Secretariat, also shared his views as an organizer about the event. He was quite happy with the way the whole thing was going, especially the presentation by Chang Won-kie. He was able to point out some of the other more interesting parts of this IMID conference. "AMOLED is very hot nowadays. I've seen some sessions filled up and they needed more chairs. That session is pretty hot I think," he said.

He also spoke about the other events going on at the same time, KES and iSEDEX. "Its huge, there are so many things to see. You may have to take up hours to just see everything." He offered the display-centric perspective on the whole conglomeration of events by saying, "Most of KES is oriented towards the final product – appliances and stuff, rather than components such as LCD panels and materials. So some people say it's better to have separate exhibitions next year."

He was also the man to talk to about the statistics of this particular event. "IMID this year has 470 papers with 120 companies and 320 display booths for our part of this event." He noted that there was one day less in the schedule this year compared to previous years, but that there were also post-sessions during the day's schedule, so more information had been squeezed into less time. Finally, he said, with the maturity of the e-reader market, he anticipates that next year the conference can have a promotional deal with one of the e-book manufacturers. He says that since IMID is an information display conference, they should be one of the first places to adapt new, cutting-edge technologies. He hopes to be able to distribute all of the program's information on an e-book type device next year, and mentioned that he would approach Samsung for the honors. It definitely gives IMID conference-goers something to look forward to in the future.

## The Other Asia's Point of View

After the corporate point of view, and the academic point of view, the view of the man in the booths was next. A visiting dignitary from India was holding down a booth to promote



DR. KIM HYUN-JAE  
IMID 2009  
General Secretariat

Customers will be able to use these interior displays to decorate their walls in order to display art, or show movie scenes, or anything at all. TVs, of course, were mentioned, but Mr. Chang said that interactive TVs were the wave of the future. He emphasized that 80-inch ultra-high definition (UHD) TVs, which could completely fill the eyes, would be viable within three years.

his Communications and Manufacturing Association of India, or CMAI, on the immensely-crowded show floor of KES 2009. To the right of iSEDEX, behind the IMID booths, and two aisles down from the China delegation, one could find the rows of KES 2009 participants, and CMAI's booth.

CMAI, according to its representative, was involved in policy formations with the Indian government and other stakeholders in technology, innovation, indigenous manufacturing and communications. CMAI has been actively involved in telecom policies for the 3G spectrum, licensing, and other similar areas.

The representative said that he was specifically visiting Korea because he was interested in the advanced IT infrastructure of the country. "Here, you have 3G, you have broadband, you have everything, and it is very dense," he explained. He went on to say that India is lagging behind in this kind of infrastructure, and that his organization was most interested in fixing the technological gap. He was here for market research, market development and international trade and hoped that he could establish a lasting relationship with the relevant Korean people on this side of the continent.

He said that he chose to come this time specifically because of the recent Comprehensive Economic Partnership Agreement (CEPA) between the two countries. During discussions he let it slip that he was involved in the negotiations and policy formation of the technological aspects of the CEPA, and that he was uniquely poised to understand and take advantage of the new understanding between the two countries.

The man from India was not only involved with CMAI, but was also involved in an extreme number of other telecoms and electronics associations in India. He was a part of a 17 member Indian delegation made up of interested CEOs and officials all hoping to create stronger ties with the Korean economy. Incidentally, India's industrial output rose at its fastest pace in 22 months in August, the Wall Street Journal reported Oct. 13. The Central Statistical Organization revised the July output number from a provisional 6.8 percent expansion reported earlier, but didn't give any reason for re-

vising the data. The index for industrial production grew 10.4 percent from a year earlier in August, after a revised 7.2 percent jump in the government agency's July data. Manufacturing activity expanded 10.2 percent from a year earlier in August. Also, India signed pacts with the World Bank for loans worth US\$4.2 billion, Dow Jones reported Oct. 13. The loans include US\$1.2 billion to state-run India Infrastructure Finance Co. Ltd. to help it fund infrastructure projects and US\$2 billion for expanding the capital base of state-run banks. The balance of US\$1 billion will be used to upgrade India's power transmission system. For Korean businessmen, now is the perfect time to take advantage of the visits of Indian businessmen of this caliber.

### Three Perspectives Agree

These three different perspectives on the vast undertaking that was the Korea Electronics Grand Fair 2009 show one thing in common – now is the time for massive growth and positive thinking in Korean electronics. From the insider's viewpoint within the industry, to the organizer's viewpoint from the event itself, to the view from the man on the show floor, everyone is upbeat, everyone is full of the future, and everyone sees opportunity. New advances in industry, new markets opening up, new agreements to take advantage of, and new growth in newly available economies are everywhere. This all spells success for all parties involved in the Korea Electronics Grand Fair, and testifies to the effectiveness of the event.

Perhaps it is events such as this that can bring Asia closer together as an IT powerhouse. The communication between Asian countries has historically been very bad, and untold problems have been created because of it. But with exhibitions such as this occurring in Korea, countries from all over Asia can come to take part in the bright, hopeful future of a technological dream. Korea can be instrumental in creating a technocracy throughout Asia offering a brighter future for all of Asia's citizens. It is this hope that is sparked by such events, and this hope in many people's minds that makes such events successful. (A-P)



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# IPv6

## WHAT IS IT, WHY IS IT IMPORTANT AND WHO IS IN CHARGE?

... answers to common questions from policy makers, executives and other non-technical readers.

BY PAUL WILSON

### 1. What is IPv6?

“IP” stands for Internet Protocol, the set of digital communication codes that underlies the Internet infrastructure. IP allows the flow of packets of data between any pair of points on the network, providing the basic service upon which the entire Internet is built. Without IP, the Internet as we know it would not exist.

Currently, the Internet makes use of IP version 4, or IPv4, which is now reaching the limits of its capacity to address additional devices. IPv6 is the “next generation” of IP, which provides a vastly expanded address space. Using IPv6, the Internet will be able to grow to millions of times its current size, in terms of the numbers of people, devices and objects connected to it.<sup>1</sup>

### 2. Just how big is IPv6?

To answer this question, we must compare the IPv6 address architecture with that of IPv4. The IPv4 address has 32 bits, allowing today’s Internet to connect up to around four billion devices. By contrast, IPv6 has an address of 128 bits. Because each additional bit doubles the size of the address space, an extra 96 bits increases the theoretical size of the address space by many trillions of times.

IPv6 address space is very large, but it is certainly not infinite. When subdividing and distributing addresses, generous allocations are preferable, as they provide greater flexibility and efficiency in network design, benefiting service providers and end users alike. However, these will also result in wastage of addresses, so a suitable balance must be maintained between a simple administrative framework and the need for ongoing conservation of addresses.

In developed countries today, the rate of utilization of IPv4 addresses is generally around 2 addresses per head of population.<sup>2</sup> If this rate of Internet penetration were replicated throughout the world, a total of 12 billion addresses would be needed, an impossible achievement since IPv4 provides a maximum of just 4 billion addresses. On the other hand, the same level of IPv6 penetration would require less than one billionth of the entire IPv6 address space.<sup>3</sup>

IPv6 provides an address space that is sufficient to provide addresses for any conceivable number of individuals, organizations, devices or network-enabled objects in the foreseeable future (for a number of centuries, at least). Even assuming a uniform global Internet that is a million times denser than that of today’s most advanced economy, IPv6, if properly managed, will be able to provide the required addresses.<sup>4</sup>

### 3. How are allocations made and to whom?

IP addresses are managed under a system which has been in operation for some 15 years and which has supported the successful growth of the Internet by a factor of over 100 in that time.<sup>5</sup> This system was established initially by the Internet Engineering Task Force (IETF),<sup>6</sup> a recognized international standards development organization that is the home of the Internet’s core technical standards.

Today, organizations known as Regional Internet address Registry (RIRs)<sup>7</sup> receive IP addresses from a central global source, IANA (or Internet Assigned Numbers Authority, which is operated by ICANN, the Internet Corporation

for Assigned Names and Numbers).<sup>8</sup> The RIRs then make allocations directly to Internet Service Providers (ISPs) within their respective regions. This system achieves a balance between uniform resource management (which is critical to the maintenance of a single, globally-cohesive Internet), and the direct service needs of ISPs (namely, those who need and use Internet address space).

Each of the RIRs is a non-profit organization that acts in accordance with policies and practices that are established by the Internet community in its region.<sup>9</sup> These policies and practices govern the management, allocation, usage and recovery of IP address space (both IPv4 and IPv6) according to the best current practices of the Internet, its industry and stakeholders. At the global level, policies and practices are coordinated through the Address Supporting Organization (ASO)<sup>10</sup> of ICANN.

In some cases (currently eight in total), National Internet address Registries (NIRs) provide services within a specific country or economy, in effect, as an agent of the RIR.<sup>11</sup> Such registries operate under the policies and authority of their RIR and do not receive their own allocations of IP address space.<sup>12</sup> The existence and operation of NIRs is specific to local needs and circumstances: for instance, some may be governmental bodies while others may be independent.

### 4. How are IPv6 addresses actually being allocated?

Like IPv4, IPv6 address space is allocated by the RIRs in line with the topology of the network itself, to the ISPs that require it. Allocations are made under a set of transparent address management policies, in accordance with the demonstrated technical needs of the recipients. When new technologies or applications are developed which may impact upon address management techniques, these are accommodated via an open policy development process that allows policies to adapt accordingly.

In their policymaking to date, the RIR communities have made a series of specific decisions to ensure that there are minimal barriers to IPv6 adoption by ISPs and others. At present, the minimum size of an IPv6 allocation to any ISP is greater than the entire existing global IPv4 address space, yet each allocation is the equivalent of only a single IPv4 address on today’s Internet (one four-billionth of the available address space).

At the end user level, IPv6 addresses are also allocated in very substantial blocks rather than in single addresses or small blocks, as has been the case with IPv4. Under today’s policies, each IPv6 user receives enough address space to allow the use of hundreds or thousands of separate segments within a home or business network. Depending on their service configuration, each end user has enough address space to address any conceivable number of devices (literally millions) that might be used. This will allow IPv6-enabled devices including appliances, sensors and objects to be deployed easily and cheaply in the large numbers that are expected in coming years.

### 5. Why did such large IPv4 address allocations go to U.S. organizations, including the U.S. Government and its Department of Defense?

The Internet was developed by the U.S. Defense Ad-

vanced Research Projects Agency (DARPA) and was originally used by the American Government and academic organizations. Until the late 1980s, the Internet was never expected to become a critical global infrastructure and IPv4 address allocations were made in a liberal manner, not just in the United States, but also to government and academic institutions throughout the world. This resulted in many large allocations of IPv4 address space and the early depletion of the IPv4 address pool (to the extent that in 1991, more IPv4 addresses were allocated than in any year since then).<sup>13</sup>

It was only in the early 1990s, when an Internet “boom” became apparent, that concerns arose about the rate and manner of address space distribution.<sup>14</sup> At this time, the RIR system was proposed<sup>15</sup> in order to ensure that addresses were managed by the Internet community itself, in the best possible manner. At the same time, work commenced on the “next generation” of the IP, which would be necessary to support long-term Internet growth. This was standardized in 1995 as IPv6.<sup>16</sup>

As described above, IPv6 allocations have been made on a neutral and impartial “demonstrated need” basis, and address management policies have required little adjustment since allocations started in 1999. IPv6 allocations are made uniformly to any organization that demonstrates its requirement according to current policies and there is no possibility of “special” allocations being made to any organization, whether governmental, business or otherwise.

## 6. Are the special needs of developing countries being considered? Can't we simply reserve IPv6 addresses for use by those countries in the future?

Through the RIR policy processes, all stakeholders have the ability to bring concerns to light and to propose solutions for any problems that can be demonstrated. In this way a variety of issues affecting developing countries have been raised and addressed in the past, resulting in policy changes that have supported Internet deployment in those countries (for instance by reducing the size of the minimum IPv4 allocation that can be made, allowing easier access to address space by those in disadvantaged circumstances).

Currently, there are no mechanisms for the explicit reservation of IPv6 address space on a regional, national or local level. However, the current global address management system could allow for such a policy to be proposed and agreed through the respective regional and global policy processes. While such a proposal has never been made, there is no reason why it could not be put forward and eventually approved in the future.

It is notable that each of the RIRs, in accordance with its regional priorities and needs, has placed substantial resources into support for Internet development and capacity building in their regions and particularly in developing countries. This support has taken the form of targeted and subsidized training programs, conference scholarship support, discounted fees, online resources, remote participation facilities for RIR meetings and many other measures. In the future, as the IPv6 Internet evolves and grows, the regional address policy processes will ensure all relevant considerations are brought to bear on policy formation, in both developing and developed nations.

## 7. Would it be better to set up a UN-based multilateral organization to manage IP address allocations?

As the Internet has grown, governments and inter-governmental organizations have responded by playing much stronger roles (each according to its jurisdiction, means and circumstances) in governing its use and ensuring that its

role is properly regulated. Likewise, industry has worked in an environment of fierce and vibrant competition at national and global levels to ensure that the network has grown in the most efficient and effective way, delivering the best content and applications to its users at the best possible price. Civil society has also acted, often at an international level, to ensure that the Internet is put to the best possible uses in serving human development, while being developed and governed in a way that is open, accessible and secure. Various non-governmental organizations, formal and informal, have emerged and evolved to take responsibility for coordinating functions or representing interests, in spheres related to the infrastructure, applications, uses and users of the Internet.

Moreover, it has been the recent experience of many diverse economies that successful development of high-capacity, efficient and cost-effective Internet infrastructures has followed the deregulation of the industry in favor of a more self-regulatory and competitive environment.

## 8. And what about the future?

The Internet today is a uniquely distributed, decentralized, multi-stakeholder enterprise, but one that is also reliable, efficient and secure enough to carry trillions of dollars in value and investment worldwide. Indeed, it is argued by many that the success of the Internet has not occurred in spite of its unique mode of coordination, but rather because of it.<sup>17</sup>

IPv6 represents a turning point for the Internet, albeit one which will take another five to 10 years to fully materialize. Some may see this transitional period as an opportunity to propose alternative mechanisms for the management of either IPv6 address allocations, or indeed the Internet itself. However in the absence of any consensus that a new approach would be beneficial or that challenges related to IPv6 adoption and transition cannot be managed through the systems, the RIRs will continue to operate as proven, open and inclusive, multi-stakeholder organizations; indeed as some of the best examples of effective Internet governance that can be found in the world today.

## Acknowledgements

The authors wish to thank Nick Thorne, International Relations Adviser to the CEO of ICANN, for his valuable contributions to this document.

<sup>1</sup> ISOC Briefing Paper 1, “IPv6 and the Future of the Internet” <http://www.isoc.org/briefings/001/>.

<sup>2</sup> From <http://resources.potaroo.net/is03166/v4cc.html>.

<sup>3</sup> A conservative calculation which assumes the equivalence of 1 IPv4 /32 identifier (of which 232 are available) and 1 IPv6 /64 identifier (of which 264 are available).

<sup>4</sup> A calculation which follows directly from (4).

<sup>5</sup> From the World Bank, “World Development Indicators”, Internet user population 1993 to 2007 (<http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=135>).

<sup>6</sup> RFC1366, “Guidelines for Management of IP Address Space”, <http://www.ietf.org/rfc/rfc1366.txt>.

<sup>7</sup> <http://www.nro.net>.

<sup>8</sup> See <http://www.icann.org>.

<sup>9</sup> ISOC Briefing Paper 10, “The Regional Internet Registry Policy Development Process” <http://www.isoc.org/briefings/010/>.

<sup>10</sup> See <http://www.aso.icann.org>.

<sup>11</sup> See <http://www.apnic.net/services/services-apnic-provides/policy/apnic-policies/nir-criteria/nir-criteria>.

<sup>12</sup> See <http://www.apnic.net/services/services-apnic-provides/policy/apnic-policies/nir-operational-policies>.

<sup>13</sup> See proceedings of APNIC 27: [http://meetings.apnic.net/\\_data/assets/pdf\\_file/0011/8939/pan-nro-stats.pdf](http://meetings.apnic.net/_data/assets/pdf_file/0011/8939/pan-nro-stats.pdf) (slide 4), and APNIC 25: [http://www.apnic.net/\\_data/assets/file/0004/6646/20080225-apnic25-igf2008.ppt](http://www.apnic.net/_data/assets/file/0004/6646/20080225-apnic25-igf2008.ppt) (slide 16).

<sup>14</sup> RFC1338, “Supernetting: an Address Assignment and Aggregation Strategy”, <http://www.ietf.org/rfc/rfc1338.txt>.

<sup>15</sup> RFC1366, “Guidelines for Management of IP Address Space”, <http://www.ietf.org/rfc/rfc1366.txt>.

<sup>16</sup> RFC1886, “Internet Protocol, Version 6”, <http://www.ietf.org/rfc/rfc1886.txt>.

<sup>17</sup> <http://www.isoc.org/news/4.shtml>.

<sup>18</sup> <http://www.icann.org>. [A-F]



## Overview

### Who we are

Snovasoftware is one of the fastest growing global software firms. We are based in the U.S.A. with support locations in India. We specialize in providing customized products and solutions across many industries. Some of them are:

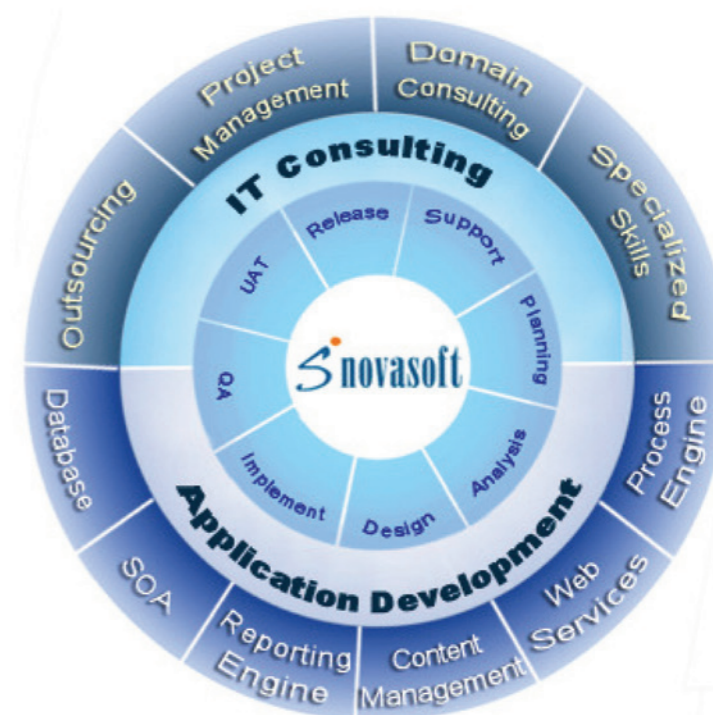
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- Health Care
- Insurance
- Human Resource Management
- E-Commerce

### What we offer

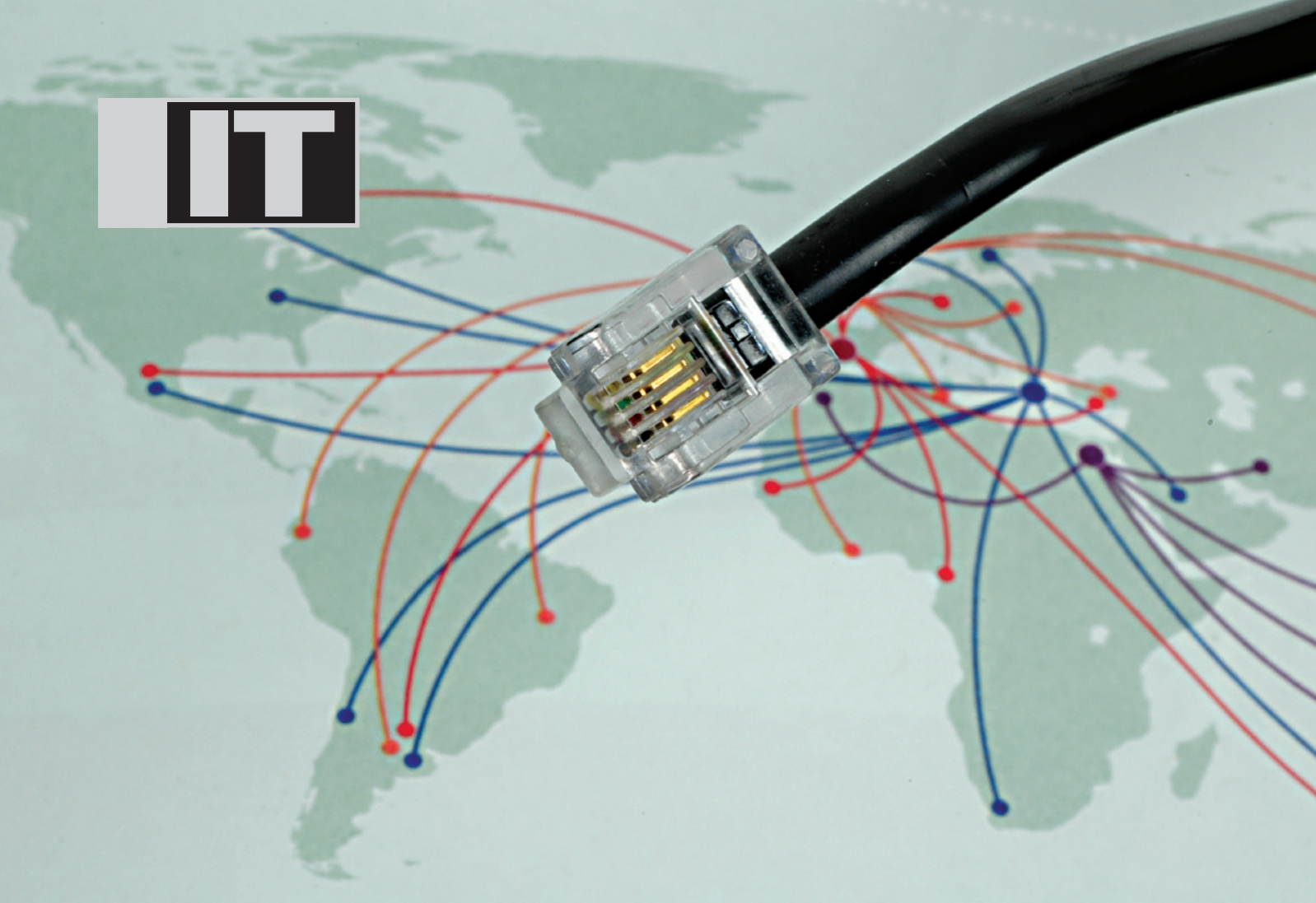
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- Business Process Outsourcing services
- Maintenance and Technical Support services
- Network and Security services

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# AN OPTIMISTIC LOOK INTO MOBILE VOIP

BY RAJANI BABURAJAN

**V**oice over Internet Protocol (VoIP) refers to a technology for delivering voice communications over Internet Protocol (IP) networks rather than the Public Switched Telephone Network (PSTN). To facilitate an Internet call, the analog voice signal is first converted into digital format and then compressed into IP packets for transmission over Internet. The process is then reversed at the receiver point.

Mobile VoIP, abbreviated as mVoIP, is an extension of VoIP to mobile devices. Mobile VoIP is currently meant for customers who are always on-the-go and want to make long distance calls. The technology is gaining popularity primarily due to the cost benefits offered to residential and business

customers for making international calls.

## Technology

Mobile VoIP involves integrating the mobile handset into an IP network. This can be done using several techniques. One of them is to turn the mobile device into a standard SIP client. For this, the mobile handset should support high-speed IP communications. In such a technique, standard VoIP protocols are used over any broadband IP-capable wireless network connection such as EVDO rev A, HSDPA, WiFi or WiMAX.

Mobile VoIP can also be implemented using a softswitch like gateway that bridges SIP and RTP into the mobile network's SS7 infrastructure. In this technology, while the mobile handset continues to operate in the standard format (GSM or CDMA), it can also be controlled by an SIP application server that provides advanced SIP based services to it.

## Mobile VoIP Market Today

Currently mobile operators are not very keen to offer mobile VoIP to their customers. This is mainly due to the lower demand for VoIP services from customers. Very few

customers rely on VoIP to make international calls currently. The bigger issue is that cheaper VoIP calls which are offered over the unlicensed spectrum are, in fact, a real threat to operators offering voice services over their costlier networks.

However, with the emergence of 4G technologies such as LTE and WiMAX, mobile VoIP will gain momentum, says a new report from In-Stat. 4G technologies are characterized by greater network capacity and security – two major concerns related to mobile VoIP. 4G networks are also capable of offering voice, data and streamed multimedia to users anytime, anywhere at much higher data rates than that offered by prevailing technologies.

In-Stat researchers say that once 4G networks are in place, they will be layered onto the existing networks, and service providers will be able to offer mobile VoIP as a replacement of legacy cellular voice technologies, not just for long distance calls but for all calling.

The report *Mobile VoIP Transforming the Future of Wireless Voice* estimates that “by 2013, mobile VoIP applications will generate annual revenues of \$32.2 billion, driven by more than 278 million registered users worldwide.”

In-Stat describes various scenarios by which VoIP is integrated into mobile interface not only to offer cheaper international calls to users but also to provide them with rich communication experience. One of them integrates Mobile VoIP into a unified mobile interface to social networking sites. In another scenario, MVNOs and 3G operators without legacy networks are using Mobile VoIP to more cost effectively add voice to data offerings. In yet another scenario, a few carriers are using a form of Mobile VoIP, UMA, to support better indoor coverage and off-load macro networks.

According to In-Stat, the EMEA region has more mobile VoIP related revenue currently. The research agency also predicts that Asia Pacific will be the largest regional market by 2013. The subscribers and the revenue associated with mobile VoIP will be divided among online mobile VoIP providers, 3G-based mobile VoIP providers and WiMAX and LTE players. Considering the huge demand of VoIP-enabled mobile devices, In-Stat predicts that nearly 400 Million dual-mode handsets will be shipped in 2013.

“While Mobile VoIP still poses a direct threat to operator voice revenue, it also represents a dynamic new capability that promises numerous applications,” In-Stat report said. In-Stat also reveals that the activities associated with early mobile VoIP successes are likely to influence LTE operator voice plans in ways that potentially favor IMS.

Mobile VoIP will emerge as an important service as mobile device manufacturers further exploit the power of processors to design cheaper memory cards to meet user needs. Smartphones, once considered as the choice of the ‘elite’, are now evolving to fit the needs of ordinary customers. A recent research by ABI Research, “Smartphone and OS Markets” says that 45 percent of smartphones will be priced below USD200 by the year 2014. The research also finds that the largest increase in smartphone shipment volumes over the next five years will be found in the \$100 to \$200 price range. These

## Leading Mobile VoIP Providers

### SKYPE

Skype Mobile has been offering mobile VoIP services on 50 popular phones from Nokia, Sony Ericsson, Motorola and Samsung for free of cost. The service can be used on numerous cellular data networks. The service includes group chatting, presence setting and Skype-to-Skype calls. Skype also offers 3 Skypephone to customers in UK, Italy, Austria, Hong Kong, Australia, Ireland, Denmark and Sweden. The phone costs about USD 98 and can be used on a pre-paid basis. Calls cost nothing if they're made from Skype. iSkoot is another service that works on mobile handsets such as BlackBerry, Nokia, Windows Mobile and Palm OS models. It also works on GSM networks. Since iSkoot is a hybrid VoIP/GSM service, it uses SMS and mobile minutes when making and receiving calls or Skype IM messages, so it is more expensive.

### GOOGLE VOICE

Google Voice currently allows free calls all 50 states in the United States including Alaska and Hawaii. Users can get these free calls through their online Google account, through their mobile applications, or by just dialing the Google Voice number from any regular phone and choosing the option 2 to place a call. The service, which is currently available only in the United States, will undoubtedly extend to other countries very shortly.

### JAJAH

According to officials at Jajah, users can save up to 98 percent on their international phone calls from mobile or land-line phones. Jajah IP Platform, which the company claims as the world's only complete IP voice and messaging platform, is now offered to carriers, Internet companies, mobile operators and service providers to deploy and manage new, value-adding services and solutions.

### NIMBUZZ

Nimbuzz is available for Symbian phones; they are working on an iPhone version. The service is free. It allows users to engage in IM conversations and conduct VoIP calls, as well as to share media such as photos and video. Nimbuzz also allows for client-to-client calls and has widgets enabling calls to originate from Facebook and MySpace. The service is compatible with Skype, Google Talk, AOL Instant Messenger, Windows Live Messenger, Yahoo, MySpace, Facebook and Jabber IM networks.

### TALKONAUT

Talkonaut service works for Java-based phones, Symbian and Windows Mobile. The service includes free VoIP and IM chatting. Talkonaut supports Google Talk, ICQ, AIM, and Yahoo. Talkonaut can also use SIP for VoIP calling.

### GIZMO 5

Gizmo 5 works on Nokia Symbian handsets, BlackBerry, Windows Mobile, Nokia Tablets. It offers free VoIP calls and low per-minute charge to call landlines and to SMS to mobiles. It allows IM conversions with Gizmo5, MSN, AIM, Yahoo and Jabber users. The mobile client supports several mobile phone platforms and on both Mac and PC. Voice quality is commendable.

### Vopium

Vopium leverages mobile VoIP and Wi-Fi technology to offer heavily discounted international phone calls made from mobile phones. Vopium integrates directly with the user's mobile address book, and automatically re-route all international calls via the least expensive method available, say company officials.

### XMAX

xG Technology's xMax is a mobile VoIP solution that enables consumers to benefit from much lower cost mobile calls via the Internet. “xMax is similar to Vonage or Skype, but in the form of a fully mobile handset that doesn't require the use and extra cost of a computer or broadband Internet connection,” xG officials said.

changes will be mainly driven by the emerging 4G technologies and associated services including mobile VoIP.

### Why Operators Fret over Mobile VoIP?

While mobile VoIP is a cost-effective option for the end-users, the service poses a real threat to mobile operators. As mobile VoIP depends on Internet Protocol, users want to get the service free (apart from the Internet costs) and flawless. Such a scenario challenges the existence of the main revenue-generating service in telecommunications – the voice.

Frank Dickson, In-Stat analyst, says, “Applications such as Skype and Vonage have influenced users to think of voice as a data application. The increasing penetration of Wi-Fi in mobile devices was the beach head that mobile VoIP applications needed. As user habits are being shaped by rich on-line communication experiences, mobile carriers control over devices and data applications is waning. Mobile carrier attempts to slow the spread of on-line Mobile VoIP are proving challenging as well.”

Operators have already sensed the danger, and a few of them have decided to rethink their strategies on offering VoIP over their networks. Instead of considering it as a threat, they are trying to explore the technology to offer services that will generate more revenue. In a recent such move, AT&T, the largest telecommunications services provider in the United States, revised its strategy on VoIP applications running on Apple iPhones. It now lets Apple run the VoIP applications on AT&T wireless network, not just the Wi-Fi networks as agreed in their previous policy.

For some operators, mobile VoIP promises as a channel to offload their demands. T-Mobile is using the dual-mode handsets as a ‘type of femtocell’ that switches user calls from their traditional wireless backbone onto a home network, In-Stat analyst said.

Mino Wireless USA, a leading provider of managed alternative roaming services, offers mobile VoIP calls to forty different countries. The service is offered with a flat

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**In a recent such move, AT&T revised its strategy on VoIP applications running on Apple iPhones. It now lets Apple run the VoIP applications on AT&T wireless network, not just the Wi-Fi networks as agreed in their previous policy.**

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monthly fee and 2.2 cents per minute to customers of Cingular, Nextel or T-Mobile services for Internet data.

When mobile VoIP evolves further, next-generation mobile communications services will include fee-based packaged offerings such as service convergence, full duplex video telephony, instant messaging, unified messaging, multimedia advertising, multiparty gaming, video streaming, Web/audio/video conferencing, and push-to-talk among others, say experts. All of these promise new revenue generating opportunity for the providers.

### Fighting for Survival

Mobile VoIP market is facing tough challenge due to opposition from incumbent carriers. Mobile VoIP startups like Truphone are victims of anti-VoIP campaign from leading carriers. T-Mobile UK has been blocking access to Truphone, making it impossible for T-Mobile customers to call Truphone numbers. Their policy, as they told to Truphone, is that they don't connect to VoIP-based low-cost calling services.

Truphone's mobile VoIP client allows users to make cheap calls over dual mode phones like Nokia N95 and Nokia E-Series phone. Truphone offers free calls, SMS and voice mail while logged into the Truphone network via Wi-Fi. Otherwise, Truphone forwards calls to users' mobile handset and they pay a low per-minute charge.

Earlier too, Truphone's plans had been vetoed by telecom majors. Orange and Vodafone had prevented Truphone from working on devices that carried their own version of the operating system. After this issue, Vodafone announced a new policy that will make the data plans for anything other than browsing and email more expensive. Surely their aim was to sever the mobile VoIP at its budding state itself.

How long will they be able to stop mobile VoIP providers? The question contains the answer as more and more mobile VoIP providers are emerging leaving no better option for conservative mobile operators. Ultimately, the market is driven by end-users who primarily look for cost benefits. Mobile VoIP will be the best-ever option for such customers.

### Security and Reliability of Mobile VoIP Networks

As compared to the PSTN networks, the IP networks are less reliable, so they are prone to congestion and DoS attacks. The IP network does not provide a reliable mechanism to ensure that data packets are delivered in a sequential order. Mobile VoIP, therefore, may face problems mitigating latency and jitter. A number of protocols have been defined to support the reporting of QoS/QoE for VoIP calls. The latest amendment IEEE 802.11e to the IEEE 802.11 standard defines a set of QoS enhancements for wireless LAN applications through modifications to the Media Access Control (MAC) layer. The standard is considered of critical importance for delay-sensitive applications, such as Voice over Wireless IP.

### Conclusion

With VoIP services gaining significance because of their cost-effectiveness, authorities are now keen to act in favor of customers. Government agencies such as the US Department of Justice (DOJ), the Federal Communications Commission (FCC) and the European Union are looking at the practice of allowing VoIP over mobile. If such a move succeeds in addressing the concerns of both the operators and customers, mobile VoIP will emerge as the most cost-effective and efficient way of communication. [A-P]

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# Putting the Constructive into Constructive Criticism for Korea

BY ZACH BARDON

**O**n October 21, 2009, three organizations brought some of the best minds in the business together at the President Hotel for a meeting titled “G20 and Overcoming the Global Financial Crisis in Asia: Strategies for Growth, Development and Prosperity.” The Asia-Europe Perspective Forum, the Institute of Economic Liberty, and the Indo-Korean Business and Policy Forum organized the event to create some constructive dialogue about the globalization of Korea. Noted professionals and long-time professional expatriate residents of Korea such as Tom Coyner, president of Soft Landing Korea; Sean Hayes of Joowon Attorneys at Law; Donald Kirk, journalist and writer; Desmond Scully, of the Asian-Irish Chamber of Commerce; and many other notable figures.

It is one of the favorite pastimes of a gathering of expatriates living in Korea to complain about the difference between Korea’s globalization goals and the reality on the ground. But trying to shape that dissatisfaction into something constructive is a difficult and rarely-attempted feat. During this event the heads in the room tried to do just that, however – to create some meaningful, constructive dialogue on the path that Korea should take to achieve its own goals. The format was rather informal – a presentation was given by one speaker, with official panelists sitting in attendance. The panelists would respond to the presentation, and the floor would be open for question and debate. Many excellent points were brought up, many perspectives analyzed. Adding additional analysis and commentary is beyond the abilities of this journalist, so instead there will be a simple recounting of arguments in the first panel session, called Economic Reform Policy and Deregulation.

His Excellency Ambassador Eamonn McKee of Ireland spoke for the keynote address. He compared Korea’s diaspora with Ireland’s own diaspora. He recounted Ireland’s successful appeal to diaspora-related foreign direct investment (FDI) in its own economic growth, and suggested a similar plan for Korea. If a favorable environment is set up for Koreans abroad to invest in their own country, then they will most definitely do so. But it takes the right environment, according to the Ambassador. He also stressed that educating the local population is a key factor in creating an environment favorable to FDI.

## New Levels of Competition

After that, Tom Coyner took the podium to give the first paper presentation. He spoke about the competition that Korea should be taking on, rather than what it is taking on.



The thrust of his paper was that Korea is not a developing nation any longer, and it should begin trying to compete with other developed countries, rather than taking the position of developing nation. He then went on to compare Korea with other developed nations to see how it measures up. Unfortunately he was not satisfied with what he found.

He hit on three major criticisms that are familiar to anyone who has worked in Korea for a length of time – autocratic leadership, the collective mindset of Korea, and a lack of critical thinking skills. He said that the autocratic leadership style of Korean executives was not useful or necessary anymore. He admitted that perhaps in the past, when the number of educated people in the country’s workforce was lower, the autocratic style was appropriate. But now, there are good ideas coming from all levels of a Korean company’s organization. These ideas are often stifled by an authoritarian culture, especially if they come from younger Korean workers. He did admit that Samsung ranked second in the world in the number of patents filed, and that this was an indication that creativity was not lacking in the country. However, he countered this by saying that individual products and marketing campaigns do not live up to that of other countries’ companies.

On the subject of the collective mindset of Korea, he said that the shared lack of respect for salesmen is a problem. He pointed out that in Korean companies, junior members are relegated to sales positions, giving them the appearance of a distasteful position. However, in Mr. Coyner’s case, he got into sales only after he got an MBA.

Thirdly, he criticized the lack of critical thinking skills in the country’s workforce. He pointed out that the Korean educational system’s emphasis on rote memorization was a disservice to the students, most of whom have learned that the best way to get good grades is to uncritically accept whatever is told to them by professors. He said that the educational system should begin to encourage critical thinking at the earliest stage possible, and that academic dishonesty such as plagiarism should be dealt with more harshly.

He finished by saying that these disadvantages that the Korean work environment has does not show up when Korean companies are competing against each other, because they all have the same disadvantages. And when Korean companies are competing against developing nations, their educational advantages and strong work ethic push them to the forefront. However, when Korean companies compete globally, they need to get rid of these disadvantages in the name of efficiency. He referenced the 1980s in the US, when sloppy American management was challenged by Japanese

efficiency. He said that the time had come for Korean companies to be challenged by global competitive efficiency, and to do what it takes to compete on the international stage.

## Financial Reform

The second paper presented was by Sean Hayes, Attorney at Law for Joowon Law. He spoke about the cause of the financial crisis and related it to Korea’s prosperity. He said that the financial crisis in the US was caused by government interference. According to him, the US government tried to implement a policy of universal home ownership too quickly by manipulating the market. This government interference caused the global financial crisis.

He went on to say that freedom in the market gives prosperity, and that market freedom can be evaluated using a grading system over ten different criteria, called the Index of Economic Freedom made by the Wall Street Journal and the Heritage Foundation. These criteria are business freedom, trade freedom, fiscal freedom, government size, monetary freedom, investment freedom, financial freedom, property rights, freedom from corruption, and labor freedom. The highest scoring countries with a score of 80 points or more, out of a maximum of 100, were also the most financially successful countries. These are Hong Kong, Singapore, Australia, Ireland, New Zealand, Canada, and the US. The lowest-scoring countries represented some of the least prosperous countries in the world – Liberia, Bangladesh, Iran, Venezuela, Cuba, and North Korea. South Korea’s score in this ranking turned out to be 68.1, which makes it Moderately Free, and 40th in the world. It is also lagging behind most of its neighbors in the immediate Southeast Asian region, while being the equal of Malaysia and Thailand.

The two factors that bring Korea down, pointed out Sean Hayes, are Freedom from Corruption and Labor Freedom. Korea has an unsavory reputation as a corrupt system. While this is not as true as it once was, Mr. Hayes says that the reputation for corruption is just as harmful as actual corruption, an important point. If foreign businessmen hear of the possibility of being hassled by a system which seeks to exploit them, they will simply go elsewhere. Mr. Hayes pointed out that in most other countries, if a company is being audited, they hire an accountant to make sure their numbers are correct. However, in Korea, when a company is audited, they hire a lawyer who has the connections to make sure everything goes smoothly. Only in Korea is an accountant inadequate defense against an audit.

Also Mr. Hayes spoke about labor unions. If a company anticipates trouble with labor unions formed by its workers, the company will simply seek to locate itself elsewhere in Asia. In Korea, joining a labor union is not optional, and is often completely superfluous to employment. While in other countries labor unions are used to protect the rights of blue-collar workers, in Korea even white-collar jobs such as bank tellers have non-optional labor unions associated with them. Additionally, labor union leaders are not employees of the company, but professionals brought in from outside. Many of them use their professional labor union leader job history to launch a political career. The system is set up to create political power for professional labor union leaders, without as much regard for the rights of the workers. Mr. Hayes felt very strongly about these two points, and said to the assembly, “I work with foreigners daily. I see why they don’t choose Korea. I see why they go to Hong Kong. I see their problems with tax audits, with labor unions. They have problems and they did nothing wrong.” He went on to explain that his job is to basically sell Korea to businesspeople who come in, but the facts as they are do not help. “I don’t like to explain the problems, and the benefits. And I have a difficult time with companies, if they want to establish a regional headquarters. I have a difficult time beating Hong Kong, Singapore, or Malaysia.”

## Measured Response

After the presentation of the two papers, the panelists were given time to give their responses. Donald Kirk brought forward a good point right away by saying, “We’ve been hearing about Korea’s authoritative culture, so it seems like nothing ever changes. I heard about that in the 90s. I wonder how Korea manages to do so well with all the criticism it endures.” He went on to point out that Korea has become a global economy using its own methods, so he hesitated to criticize them too much. He also commented that comparisons to American can be misplaced, because many expatriate Americans idealize their own system more than they should. He said there is corruption in America too, there is plagiarism in schools, there are all these things. He closed by saying, “Corruption is still a problem everywhere. They don’t go to jail in the Philippines for it, but they do here. So that’s an improvement.”

Next to give his response to the problems presented was Desmond Scully. He said that the perception of corruption in Korea is worse than the actual corruption. It has actually gotten a lot better. He said the same thing for labor union problems. He emphasized this point by saying, “It used to be very, very, very hard to do business in Korea. Now, it is just hard.” That is a marked improvement of three orders of magnitude at least. He spoke also on the causes of the financial crisis, pointing out that the banking sector were not innocent lambs led to the slaughter by the US government, but were well aware of what they were doing. They were not pushed into the mortgage industry, but chose it. The financial sector created very complex financial products that the government regulatory bodies did not understand, he said, and therefore circumvented regulations for their own gain. Then he brought it back to Korea and said that the Korean financial system was not involved in such schemes, probably because they learned a lot from the Asian financial crisis of 1997. He then said that Korea does not have to follow the same path of development that other countries did. It does not have to be bureaucratic or autocratic entirely, it does not need to give total financial freedom. It can do something along the middle of the two extremes, and it is his opinion that it will go that route.

The session then devolved into heated discussions about the viability of corporate greed, plagiarism, and the relevance of the discussion to the Korean business sector. The event was a fertile ground for ideas and discussion; the kind of ideas that take a long time to grow. Korea has come a long way, stepping out of the ranks of developing countries into something different. However, despite its criticisms, it has done this in its own way. Will it change to accommodate business as usual in the international arena, or will it change the international arena to accommodate it? The answer can only be seen in the future. **A-P**

Dr. Lakhvinder Singh, Indo-Korean Business and Policy Forum (left) and His Excellency Ambassador Eamonn McKee of Ireland



# A Korean in Riyadh:

## Korea's Top Innovator Introduces the Country's Know-How to the Middle East

BY STAFF REPORTER

**M** r. Kang Gye-doo, President and CEO of Daedeok Innopolis—Korea's foremost research cluster—visited Saudi Arabia to discuss closer collaboration between Korea and Saudi Arabia. Kang took advantage of this visit to deliver an inspiring keynote address at the first annual "International Conference on Entrepreneurship" (25-26 October, 2009) held in Riyadh. Kang stressed the importance of institutional innovation, something that he is famous for. He shared his experiences in the internationalization of Daedeok Innopolis over the last year, stressing the importance of entrepreneurs and the universal validity of the Korean developmental model.

The conference was held at King Saud University, Saudi Arabia's premiere research institution.

CEO Kang and his delegation also visited the Riyadh Technology Incubation Center (RTIC) booth at the entrepreneurship exhibition to brief the RTIC team about the upcoming International Association of Science Parks (IASP) Conference scheduled for May, 2010, in Daedeok Innopolis. That conference is dedicated to "global green growth," a new paradigm for growth established on environmental principles that Mr. Kang is promoting. Mr. Kang serves as Chairman for IASP 2010 Daedeok and has been central in promoting a new level of cooperation on environmental issues between science parks. He invited King Saud University to participate in the upcoming conference that will take place from May 23 to 26, 2010 and received an enthusiastic response.


The Korean delegation also met with Prince Sattam bin Abdulaziz and Prince Magrin bin Abdulaziz, as well as Higher Education Minister Dr. Khalid Bin Mohammad Al-Angari, President of King Saud University, Dr. Abdullah

Othman and other royal highnesses and ministers.

CEO Kang took time to discuss future cooperation with Prof. Dr. Ali Saeed Al-Ghamdi, Vice Rector for Graduate Studies and Scientific Research at King Saud University. Also present at this meeting were Dr. Fars Alanazi, Assistant to Vice Rector and Dr. Mezyad Alterkawi, the CEO of Riyadh Technology Incubation Center. The focus of the meeting was strategies to strengthen cooperation between King Saud University and Daedeok Innopolis. A proposal for closer institutional collaboration, including a representative office for King Saud University in Daedeok Innopolis, was included in the discussion.

Mr. Junseok Seo of Daedeok Innopolis, who currently serves as Director of IASP Conference, visited Riyadh Techno Valley (RTV) to make a detailed presentation concerning recent developments at Daedeok Innopolis. Views were exchanged about better management of science parks.

Although there is much talk of Korean cooperation with the Gulf States, the visit of CEO Kang was unusual in the degree of frankness and seriousness of intent expressed by both Koreans and Saudis. Professor Alterkawi of King Saud University is working closely with Daedeok Innopolis on its internationalization and the IASP conference planning.

Daedeok Innopolis, started 1973 as Daedeok Science Town, is the oldest and largest science park in South Korea. Today, Daedeok Innopolis consists of 32 national research institutes, 5 universities and over 900 companies (including 410 corporate research centers) in advance fields of Information Technology, Bio Technology, Nano Technology, Robotics and other advanced technology fields. Daedeok is a world class innovation cluster where creativity flourishes. 

See story on King Saud University — Page 46





# INNOVATION

BY RAJANI BABURAJAN

**T**he long wait is over. On October 22, Microsoft released Windows 7 to retailers worldwide. The latest operating system from Microsoft is meant for all types of users including home and business users, and owners of netbooks, tablet PCs or media center PCs. The server

counterpart, Windows Server 2008 R2, is also released simultaneously.

“Microsoft is too late for the release of an operating system like Windows 7,” think many. Windows XP was launched in 2001 – quite a long time if we take a stock of the dramatic changes happened in the computing world since then (not considering Windows Vista, the real successor of Windows XP that did not get much public acceptance). PCs are becoming inexpensive; new models of netbooks and tablet PCs make news almost every day; rich Internet applications (RIAs) are launched demanding powerful operating systems; and last but not the least, security

threats are rising exponentially as is the number of computer users.

Windows 7 finds greater relevance in such a scenario. Windows 7 is released as a “refined version of Windows Vista.” It is designed to be more user-centric; at the same time, it focuses on performance improvements. Windows 7 is fully compatible with applications and hardware that were compatible with its predecessor Windows Vista, which saw considerably low adoption among users due to multiple issues in application compatibility and driver availability. Windows 7 is likely to address these issues. Bill Veghte, senior vice president, Windows Business, stated that Windows Vista users migrating to Windows 7 would not face the device compatibility issues they encountered while migrating from Windows XP.

## Different Versions of Windows 7

Like Windows XP and Vista, the newly released Windows 7 comes in different versions. In fact, there are six different versions, of which four are going to be more popular among users. The four popular versions of Windows 7 are the following:

**Windows 7 Starter Edition:** Not available for retail purchase. It comes packed with Windows 7 powered netbooks like Asus Eee PC, Dell Mini and MSI Wind and is suit-

cluding Arabic, Chinese, German, Greek and Korean. It also includes features that offer ultimate digital entertainment experience.

Other than the above four versions, Microsoft also offers OEM and Enterprise versions of Windows 7.

## More than Just a Makeover

Windows Vista had marked a black spot on Microsoft’s reputation. Vista’s failure resulted in more hopes about Windows 7. Luckily for Microsoft, Windows 7 has succeeded in meeting user expectations, many think. Windows 7 is stable, refined and secure. It has all the elements required for a home-based user or a professional. The impressive user interface makes computing a leisurely task for them. Above all, it does not demand any hardware upgrade like its predecessor Windows Vista. Microsoft has worked hard to make Windows 7 compatible with popular hardware available today.

Windows 7 supports both 32-bit and 64-bit systems. The minimum requirements for the 32-bit OS include a 1GHz processor, 1GB RAM, 16GB available hard-disk space, and a DirectX 9 graphics device with WDDM 1.0 or higher driver. The 64-bit systems will require at least a 1 GHz processor, 2GB RAM, 20GB of free space on hard drive, and a DirectX 9 graphics device with WDDM 1.0 or higher driver.

Microsoft says Windows 7 is designed to “simplify the things you do every day, work the way you want, and make some exciting new things possible.” Well, let us see what they have in offer for making this happen.

**Quicker access to files and programs:** With the new features like Jump Lists and Pins, you can keep the desired program or file at your fingertips. Right-click or left-click and drag on any program icon pinned to the taskbar and see a list of recently used files in that program. For example, in Internet Explorer, you will see them as recently visited Web sites (as of now, this option does not work in Firefox).

**All-new taskbar:** Besides retaining the translucent style of Aero in Windows Vista, the new taskbar in Windows 7 features pinned programs using larger icons. When you mouse over one icon, you will see all windows associated with that program in preview. Again, when you repeat the process, you will get different options to get the preview the way you want.

**Show-Desktop icon:** This feature lets you see the desktop the moment you want; no need to minimize the active windows.

**Revised theme package:** With the new Theme package, you can change the look of your PC using several theme packages given under Appearance and Personalization option. The changes are made instantly on the screen; no reboot required. You can also create your own themes.

**Easy management of open windows:** With the resize and arrange option, you can change the size of the open windows by simply dragging their borders. This new feature also lets you work with two open windows side by side. All these tasks are possible with the Snap feature included in Windows 7.

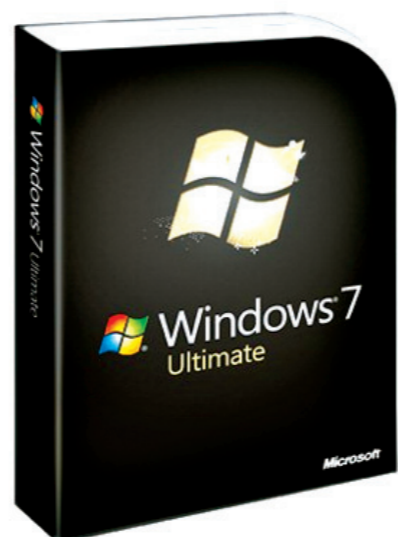
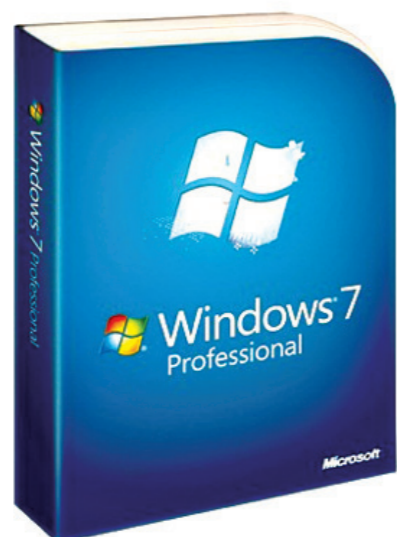
**Search task made easier:** The search process is no more cumbersome. Enjoy the new Windows Search feature resembling the one in Internet browser. You can quickly locate and open virtually any files – be it email, songs, videos, programs or a simple document.

**File sharing among multiple PCs:** Ideal for home users, this option allows them to share files, music, photos, and even printers across their home network. No more worry about shifting printers from one PC to the other in your home or home office.

**Entertainment-rich operating system:** Windows 7

# WINDOWS 7

## A NEW LOOK TO HOME AND BUSINESS PCs



ably designed as light and fast OS. It does not have many features found in other versions.

**Windows 7 Home Premium:** This version of Windows 7 offers improved interface and enhanced desktop search, and includes Internet Explorer 8. It also provides secure home networking and file sharing within the home network. It is suitably designed to cater the digital entertainment needs at home.

**Windows 7 Professional:** Apart from all of the features included in Windows Home Premium, Windows 7 Pro includes advanced compatibility mode called Windows XP Mode. It also provides the ability to join a business network and ability to backup data to a network drive.

**Windows 7 Ultimate:** This is the most comprehensive edition of Windows 7. It includes all the advanced infrastructure features of an enterprise-class operating system, suitably designed to address the needs of mobile computer users. Apart from the features included in Windows 7 Pro, Windows 7 Ultimate features a security add-on named BitLocker. It also provides display in one of 35 languages, in-

is likely to earn reputation as the best entertainment-oriented operating system as it provides loads of features to enable all varieties of entertainment in your home PC. The new Windows Media Center is rich with features that enable you to record TV, watch Internet TV, watch DVD and enjoy all forms of online entertainment – be it playing music, watching videos or playing slideshows.

**More in Windows Live Essentials:** With a collection of free programs added in Windows Live Essentials, you can have quicker access to your favorite Internet applications. There are options to create movies, share them, and send instant messages, mails, and more.

**Networking made easier for on-the-go users:** Well, if you are away from your home or office network, just locate the nearby Wi-Fi, mobile broadband, VPN or dial-up networks with a few clicks and stay connected!

**More intuitive touch-screen:** If you are already using a touchscreen PC, Windows 7 could make it more intuitive and enrich the quality of computing. Just point at what you want using your fingers and move your fingers wherever you want to move those items. It's dead simple!

**Streaming with Media Player:** With Windows 7, you can stream media files from your computer to another one, across the Internet, or out of the network. The Stream option is displayed on the Windows Media Player toolbar, which lets you associate your computer with your free Windows Live ID and stream media across different channels.

**Easier device management features:** With simplified device management features, you can now locate information about your printer, camera, music players – all in one place, and manage them easily.

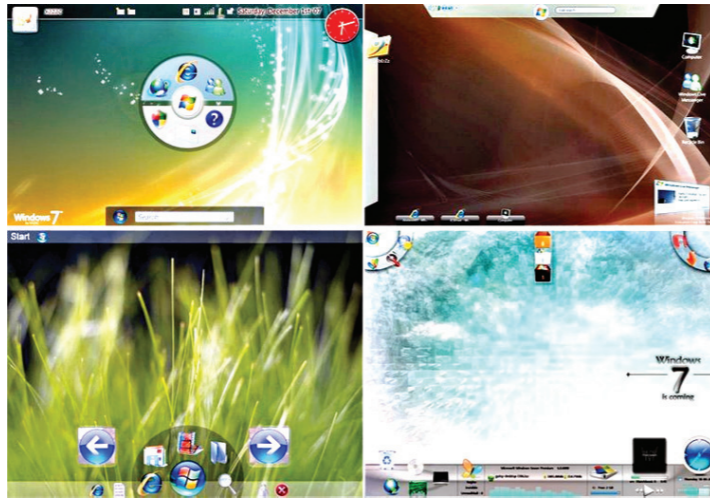
## Installing Windows 7 on Your Computer

There are several ways to get Windows 7 on your PC. You can get a brand new PC that has got Windows 7 already installed. In such cases, you will be paying less for the software compared to what you will be paying at the retailer shops. Upgrading from Windows XP or Vista to Windows 7 is also a cost-effective option than purchasing a fully licensed version of the software from the market. Microsoft has already announced several upgrade packages in different countries offering heavy discounts, encouraging people to move from the old versioned OS to the new one.

The upgrade process depends on what older version of Windows you are using. The job is easier for Vista users as they only have to back up their data before running the upgrade from the installation CD. However, both XP Home and XP Pro users will have to back up their data, then choose Custom from the installation disc. Once you choose Custom, select the partition of the hard drive that contains the Windows XP version, follow the instruction, enter the product key, and finally allow the computer to reboot. The custom installation is like a clean installation. It doesn't preserve your programs, files, or settings.

## Good Time for Microsoft, but Not So for PC Makers

The PC market is buzzing with the success of Windows 7. On November 5, CNET news reported that Microsoft sold 234 percent more boxed editions of Windows 7 than it did with Vista in the initial days after its releases, citing a research released by NPD Group. The report, however, says that "early discounts on pre-sales copies and a lack of a promotional boost behind Windows 7 Ultimate led to revenues only 82 percent greater than those of Vista."



According to NPD's Stephen Baker, most of the promotional campaigns and pre-sales Microsoft launched targeted the Home Premium customers. Baker said, "Ultimate was a much bigger part of what Microsoft did with Vista, whereas this time they not only kept the price very high, but really kept the focus on the Premium product and the Premium three-pack."

Microsoft had launched the pre-sales discount program in July. According to NPD report, Windows 7 Home Premium Upgrade was sold for an average price of USD 76 whereas the Windows 7 Pro Upgrade and Windows 7 Home Premium Family Pack 3 User Upgrade were sold for USD 147 and USD 149 respectively.

Net Applications, a company which tracks the adoption of applications across Internet, found that more than 3 percent of PCs accessing the Web in the first week after the release of Windows 7 have been using the new operating system.

"The early adoption of Windows 7 looks very strong, and I don't believe Vista enjoyed the same early success," said Vince Vizzaccaro, an executive vice president at Net Applications, as reported in CNET news.

Sales of PC hardware reached the highest level for the entire third quarter – a trend partly attributed to Windows 7 release. However, the sales figure shows that it isn't as strong as it was during Vista launch. In fact, there is a 6 percent decrease in sales from the figures corresponding to the sales of PCs immediately after the Vista launch. Moreover, there has been steady increase in the shipment of PCs loaded with older operating systems, even after the launch of Windows 7.

A number of factors have resulted in the slow sales in PCs post Windows 7 launch, notes Baker. Vista was released in January, typically when more sales happen. Baker denies that recession had a negative impact on Windows 7 PC sales. "We've seen pretty strong sales growth on computers all year regardless of the recession," he said. "People have been buying more units of PCs all year than they had in 2008. At least from a unit perspective, we haven't really seen much impact on the consumer PC market from the recession."

Microsoft can relax for a while. Vista will soon become the forgotten page in the company history. But new challenges are emerging to Windows OS in the form of Mac OS X. How will Microsoft deal the war with Apple? Let's see.

## Lenovo ThinkPad for Windows 7

Lenovo announced the new ThinkPad family, the 14-inch ThinkPad SL410 and 15.6-inch SL510, both of which come with Windows 7. They are designed for professional market segment and feature higher-resolution Web cams, clearer microphones, and a microphone mute button for voice and video conferencing. A-P

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# INNOVATION

BY ANURADHA SHUKLA

**A**n eye in the sky to keep track of every asset on earth including people and things: GPS enables safe driving, locating places of interest and tracking goods. All major mobile phone manufacturers highlight the GPS capabilities of their smartphones, describing it as a must-have feature on a mobile device. This technology is used for various purposes from keeping an eye on a school kid to tracking an international consignment of goods.

for civilian purposes with an accuracy of about 8-15 meters. However, the P code used by the U.S. military is much more accurate. High-end civilian receivers known as dual-frequency receivers use parts of the P code, but not the full signal. These are found to be more accurate than single frequency receivers.

Civilians also do not incur any fees for using GPS except that the receiver has to be purchased. If there is need for additional services like differential correction for more accuracy then a subscription fee may be charged. The accuracy of positioning depends on the GPS device used, although an accuracy of within 15 meters can be expected. Devices armed with Differential GPS or D-GPS can ensure more accuracy – less than 3 meters. Satellite augmentation and carrier-phase GPS are technologies that give very high accuracy – within a few centimeters – and are used in surveys.

The Wide Area Augmentation System or WAAS-enabled



# GPS ROADMAP IN INDIA

Iwave Systems Technologies also announced its iw-GPS receiver module based on SiRF III, which is a low power, miniature module used for personal navigation, fleet management, asset tracking, surveying, security and other navigation devices.

It can track weak

satellite signals from anywhere including urban settings according to the company sources. The 20-channel GPS receiver accommodates various RF interference scenarios. Maptell Zorba and several similar companies are ready to offer tracking and positioning services using GPS receivers to track the fleets of transport companies. Such announcements are indicative of the growing demand for GPS solutions in various sectors in the country.

## Understanding GPS

GPS or the Global Positioning System is a technology that provides accurate location details regarding the exact position of the user such as latitude and longitude. A GPS receiver communicates with satellites to provide the necessary information and can be used by anyone who has a receiver. GPS receivers work anywhere on earth as long as these devices can receive signals from the satellites. This necessitates a clear view of the sky, GPS will not work inside buildings, underground or in a thickly foliated forest.

The United States Department of Defense owns and operates the Global Positioning System, but it can be used freely by anyone in the world. The European Union has also developed a similar satellite navigation system called Galileo and Russia has developed a system called GLONASS for the same purpose. Receivers are being designed to pick up signals from all these systems as well.

GPS receivers using C/A code are used



receivers are U.S. specific and GPS receivers in India with WAAS will not be able to leverage the advantages of WAAS presently. But the Indian government is implementing GAGAN, which is a WAAS-compatible augmentation system. This will enable WAAS receivers to work in India.

## GPS in India

The proliferation of GPS survey providers in India and the rest of Asia clearly indicates that GPS and its uses are well known in the region and are in great demand. GPS systems are used in car navigation, fleet monitoring and in ensuring the safety of school-going children in the region.

India-GPS.com launched its Car Dash Navigation and Entertainment system, which features a 7-inch screen, DVD player, rear camera and navigator. The company's GPS Eye 410 comes with Bluetooth capabilities and is also suitable for vehicles.

## GPS Mapping of the Diamond City, Surat

Recent announcements proclaim Surat, India, as the first city to be mapped fully using GPS. The technology will be used to collect and locate physical assets including underground assets. The city advisory committee on climate change under the Rockefeller Foundation's Asian Climate Change Resilience Network (ACCCRN) initiative will take up the GPS mapping of the city. ACCCRN will be supported by Google, according to reports.

The Southern Gujarat Chamber of Commerce and Industry or SGCCI said that GPS mapping of Surat will provide positioning, navigation and timing services continuously in all weather conditions. All areas, properties and roads will have their own GPS numbers, which will help outsiders to navigate the city.

"We are in constant touch with the Google authorities in order to develop the GPS mapping software for the city. We intend to map each and every physical asset lo-

cated in an over 350 sq. km. area coming under the Surat Municipal Corporation,” said Kamlesh Yagnik, a member of the city advisory committee on climate change, when talking about the GPS mapping initiative in Surat at the United Nations Framework Convention on Climate Change in Bangkok, Thailand.

It is expected that GPS mapping will help deal with the aftermath of natural calamities when sending immediate aid to the affected regions. Experience has shown authorities that in the absence of proper GPS mapping of the city, rescue aircraft will find it difficult to reach disaster areas as it happened during the 2006 floods. Also, the GPS mapping will help the city authorities fight challenges posed by climate change.

Surat is one of the 10 Asian and three Indian cities to be selected for such a unique and ambitious project. Surat will be followed by the GPS mapping of Indore and Jabalpur in India. SGCCI office-bearers are members of the city advisory committee, which will supervise the GPS mapping project.

### GPS to Track School Buses

Global Positioning Systems offer several applications for the government, military and industry as well as helping schools track their buses. A Delhi public school, Ruby Park in Kolkata, has provided GPS-enabled smart cards to kids traveling by school buses. Kids have to swipe their smart cards when entering and leaving the bus. This will record the exact time of each entry and exit. The students' particulars are recorded by the computerized system, which will help school authorities track the kids.

Even parents need not worry about their wards traveling in the school buses as the global positioning software device installed in the school system gives text messages or SMS to a parent's mobile phone when the bus reaches one-stop before their own. Information regarding the distance and the time remaining to reach the designated stop are given in the message. Parents and guardians also get to know if there is any delay due to traffic or technical problems in the vehicle.

Max Mobility Private Limited provided this system to Delhi Public Schools, Kolkata. The tracking device provided in the school buses is similar to the devices provided in buses in Delhi and in other countries.

“The advantages of the smart card are many,” said Amit Lakhmani, CEO of Max Mobility Private Limited, in a statement to the press. “It has been adopted keeping the children's safety in mind. The card will register the name and time of the student leaving the bus.”

“We have prepared a route map database. With the help of the global positioning system navigation device we can track the buses, their speed or whether these vehicles are overtaking others. Thus, we can get to know if the bus drivers are careful enough or not,” said retired brigadier Niladri Shankar Mukherjee, administrator of the school.

### Other Applications for GPS

GPS applications in India do not end here. There are



**A Delhi public school, Ruby Park in Kolkata, has provided GPS-enabled smart cards to kids traveling by school buses. Kids have to swipe their smart cards when entering and leaving the bus.**

several companies promoting the use of GPS like Aadhithya Systems, which sells fishing vessel tracking systems. The company's Fishing Vessels Monitoring Systems are used in Marine tracking applications. Another company Aayur Technology Solutions has developed a product that is useful in fleet management, offering real time tracking for transport providers and consignment transporters. This is used in the tracking of employees and the optimization of transportation for Business Process Outsourcing (BPO) companies.

Adhyan Techno Solutions' GPS handset offers a fleet monitoring solution, which helps drivers and dispatchers work together to improve customer response and optimize fleet resources. Another Bangalore-based company offers GPS devices for myriad applications including LAN, WAN or NTP client synchronization using GPS based Network Time server.

The company's Milgrade GPS receiver is useful in Defense and Avionics applications, and it also offers GPS receivers for Ionospheric study, and Integrated GPS receivers for Embedded and Telecom applications. GPS receivers find applications in Time and Frequency synchronization and Navigation Applications too.

Callcomm, a company based in Hyderabad, India, specializes in the provision of location-based solutions and services which track or monitor moving objects like trucks, luxury buses, containers, ambulances and fire brigade trucks. GPS enabled systems can be put to any number of uses.


### What Next?

The Indian government is developing the GPS and Geo Augmented Navigation system or GAGAN. GAGAN also means Sky in Hindi and Sanskrit.

It is a regional satellite-based augmentation system which is expected to improve the accuracy of a GNSS receiver by providing reference signals. The project, comprising of three phases, is being implemented by the Airport Authority of India along with the Indian Space Research Organization's technology and space support division.

The navigation system will assist all phases of flight over Indian airspace to help in safety-to-life operations. The operational phase of GAGAN is expected to be completed by May 2011.

The project will encompass reference stations in Delhi, Guwahati, Kolkata, Ahmedabad, Bangalore, Jammu, Port Blair and Thiruvananthapuram with a master control center at Bangalore. GAGAN is compatible with the WAAS system of the United States, the European Geostationary Navigation Overlay Service (EGNOS) and the Multi-functional Satellite Augmentation System or MAAS. The system will provide seamless air navigation service across regional boundaries.

GPS enables a plethora of applications from keeping track of school kids to highly sophisticated applications like in-air navigation. To meet the growing demands of users, companies from start-ups to major industry leaders are vying for a piece in the great Indian GPS market pie. 

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# INNOVATION

BY ARPAN BANERJEE

**G**lobal product companies or Independent Service Vendors (ISVs) are always under performance pressure as would any of us in our respective jobs. They strive for market expansion, increased product features and new product ideas and face the regular constraints of decreasing profitability, increased competition, dearth of resource and skills and rising costs with simultaneous pressure to upgrade and widen product offerings while using fewer resources.

## PRODUCT DEVELOPMENT CHALLENGES AND GLOBAL RESOURCING AS AN EMERGING OPPORTUNITY

Product-development planning remains crucial to organizations' survival. Some key challenges (and hence success factors) are as follows:

### DEVELOPMENT SPEED:

Faster and faster is the mantra of product development. One way to hasten development speed is through digital design, analysis and collaboration tools to get products to market faster. Using collaboration software, file-sharing software and more, engineers can transform ideas into digitized virtual designs for testing and viewing a new product in three dimensions, in months rather than years.

### PLATFORM FLEXIBILITY:

Every product guru will acknowledge that a key success factor of a product in the market is its platform flexibility. This results from using modular product architecture to provide more product variety to customers. Computer aided design and engineering tools permit easy reuse of already

completed design files. All these files make product design much more efficient, cost effective and accelerated than ever before.

### COMPLEXITY MANAGEMENT:

A product stands apart from an application in its complexity. It involves engineering complex systems through analysis of interaction networks. Research has resulted in network modeling methods to examine a network of interacting elements that are in complex systems being developed. The challenge of engineering complex systems with many components, sometimes called systems engineering, remains a key success factor.

### CUSTOMER INVOLVEMENT:

Involving customers to improve the product features and user experience is an open secret but perhaps pose the biggest myriad of challenges to a product developer. Some companies are using the order information about what features, components or configurations customers are ordering and are interested in, and they use that in real time, or

as quickly as possible, to reconfigure the next generations of the product. Paying attention to these trends can help managers and design engineers plan their product design processes and achieve their goals with higher efficiency, lower cost and less time to market.

### OUTSOURCING AND OFFSHORING:

Finally, the biggest challenge remains as optimizing in-house skills, supplier skills and capacity, international operations and new markets. Sometimes outsourcing saves considerable cost and sometimes a little cost, but more importantly, they're actually taking advantage of global product development networks, largely to access new markets in places and leverage global talent pools. Let us look at the outsourcing opportunities closely.

Modern communication tools and the Internet have reduced the need for product development partners to be geographically close. Indeed, product development is increasingly being divided into parts, created in multiple cen-

ters around the globe, and brought back together for integration and testing. The ability to succeed at global project management is the key challenge in this model.

As the challenges grow in the face of global inflation, strengthening currencies, slowing economies, dried up venture funds so will be the opportunities, to springboard ahead of competition by globalizing. Two immediate channels to bring in the advantages of globalization are building captive centers across the globe and the other being outsourcing. Both have its pros and cons, but given the scale of expansion and flexibility, outsourcing is well acknowledged as the greatest opportunity in the globe for the entire product engineering ecosystem.

The opportunities using outsourcing, leveraging local presence of partners, 24x7 development and support centers, multi-dimensional skills and matured processes and best practices, are fairly known as follows:

At this stage the founder(s) start pondering about their next step. Must they exit? If so how? Should they take the company public or should they sell the company to a larger player. Should they step back from the company and let professional management take over completely? The answers to these questions decide the path which sometimes leads them to the beginning of their journey once again i.e. to start another product company.

- ▶ Skill leverage
- ▶ Speeding up time to market
- ▶ Global market expansion
- ▶ Superior Customer support
- ▶ Enhancing product development processes
- ▶ Localization benefits

The emerging best practice for software development is to decouple product design and development (along with testing and support) elements in the value chain. The life cycle of product development is increasingly being divided into phases that require internal expertise (and value-adding) which is essentially in product definition and design phase where as steps that are highly commoditized include development, testing and support.

The division of responsibilities between IT personnel and outsourcing staff is a critical factor in the success of the project specifically and the outsourcing relationship generally. Moreover, outsourcing vendors have made tremendous advancements in the metrics for quality and investment that drive greater efficiency into the overall process.

Offshore is usually regarded as a tool for labor arbitrage. However, it has its hidden benefits like higher quality and development discipline of the "right partners" which lead to greater efficiency and productivity levels that are sometimes superior to the in-house engineering organizations of ISVs. Moreover, during the coming years, outsourcing vendors will expand further into the value chain of product development. Additional expertise are emerging to dominate emerging technologies (e.g., Web2.0) and develop deep vertical expertise.

Let me use a brief Innominds case study here to bring out a product engineering story using the global resourcing model.

### AN INNOMINDS CASE STUDY

A Bay Area company develops and sells a compatibility server, which is an affordable and high-performance relational database that is compatible with popular databases. The Compatibility Server enables applications to run against consolidated databases with minimal to zero rewriting. This compatibility server helps customers who are looking for reduced operational expenses on licensing, maintenance and hardware, reduced complexity by consolidating multiple database and single/simple data access and ease of migration.

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**Innominds created long term value to the customer in mitigating maintenance and QA risks and reducing costs by remote management of the server regression beds by more than 45%.**

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With its flagship product of a database server, the company was getting into a high level competition zone. The business situation demanded aggressive scale-up and a high performance next generation product. In this scenario, the need of the hour was a product engineering partner to design, build and test the features of its compatibility server, leveraging the economies of scale and global talent pools. The requirement was to build an extended offsite engineering and QA team with the expertise of building database kernel and drivers, which will co-develop, test and release the product for multiple platform certifications.

In Innominds, the company found that competent partner and an expert in building complex database servers and applications. Further more, utilizing its brand pull, Innominds attracted the best available talent from the industry and technology schools that was one of the primary success factors of the outsourcing engagement.

Innominds started building high performance development and QA teams for database compatibility, database server internals development and quality engineering for the customer in early 2007. Agile ramp up of the team and executing the knowledge transfer flawlessly using innovative training methodologies in a blended offsite-onsite model was the key factor to begin the engagement with quick wins. Innominds brought in leadership in database internals and cross experience in multiple RDBMS and connectors that created the new features in the compatibility server.

Innominds created long term value to the customer in mitigating maintenance and QA risks and reducing costs by remote management of the server regression beds by more than 45%. The team that Innominds created utilizing a global pool (there are talents from outside the country as well, namely from Vietnam!) is a pillar of the customer's engineering success and market growth today.

To conclude, today's nextgen software products are evolving with a distinct global flavor. The products are developed with the globalization model already deployed by large companies like Microsofts and IBMs, but are extending down to regional and specialty players — enabled by offshore outsourcing. Offshore vendors are increasingly being involved in architecture, development, and deployment, ranging from embedded products to software and hardware design. Products that are not born out of the Global Sourcing model will lose its competitiveness in the coming years. **A-P**

# KING SAUD UNIVERSITY: ON A MISSION

BY DR. MEZYAD ALTERKAWI, CEO - RTIC, KING SAUD UNIVERSITY  
WWW.DRMEZYAD.COM - WWW.KSU.EDU.SA

**K**ing Saud University is the premier university in the Kingdom of Saudi Arabia and is highly respected in Arab and Muslim countries, along with receiving several international recognitions. It is the oldest university in Saudi Arabia and has educated many members of the national business, political and academic elite, including the royal family. The university offers a broad range of undergraduate courses in the natural sciences, the social sciences, the humanities and professional studies as well as generous scholarships which are available for Saudi and international students.

**PROFESSOR DR. ABDULLAH AL-OTHMAN**  
President, KSU

The university is admirably led by its president, Professor Dr. Abdullah Al-Othman. Since his inception as the rector of KSU, the university has grown both in quality and regard. His unwavering leadership and vision has helped the university achieve unprecedented development never seen before in its 50 year history. His efforts have promoted KSU to the best university within the Islamic world and the No. 1 ranked in the Middle East. He now has his sights on the international arena as well, with numerous collaborations and development programs within the global education and research community. He is fortunate to be aided by the Vice Rector for Graduate Studies and Scientific Research, Dr. Ali Saeed Al-Ghamdi. Dr. Ali, who earned a doctorate in civil engineering from Ohio State University, is committed to the cause of taking education and research to a whole new level, never before seen in the Middle East. He has relentlessly pursued and been successful in creating several successful programs for education and research development and now also heads the knowledge exchange and technology transfer (KETT) office in the university.



**PROFESSOR DR. ALI SAEED AL-GHAMDI**  
Vice Rector - Graduate Studies  
and Scientific Research, KSU

King Saud University has recently begun a massive program of investment and development to create a truly world class research university. Among the many initiatives to realize this aspiration are the recruitment of many distinguished international researchers, the Riyadh Knowledge Corridor, the Nobel Laureates Program and the establishment of several centers of research excellence. Recent appointments include Louis Ignarro, winner of the 1996 Nobel Award for medicine. Along with this the university has started its project to build its own science and technology park, Riyadh Techno Valley. The STP will be a key investment vehicle and is sure to attract major global organizations to ply their trade in the Kingdom.




**DR. MEZYAD ALTERKAWI**  
CEO - Riyadh Technology Incubation Center, KSU

Riyadh Technology Incubation Center (RTIC), under the leadership of its CEO, Dr. Mezyad Alterkawi, is now one of the major technology incubators in the Middle East, and is the first within the Kingdom to become a member of the National Business Incubation Association. Other major programs include building one of the largest university campuses in the world for women, King Abdullah institute for NANO Technology, Prince Sultan International Program for Research Scholarships, the Entrepreneurship Center, the National Diabetes Center and several more.

According to the 2009 rankings for best international universities, King Saud University ranked 1st position in the Middle east and 247th globally. The university is located in a large, modern state-of-the-art campus equipped with the latest instructional technology. There are no tuition fees at the university and generous scholarships are available for Saudi and



international postgraduate students. Research and library facilities are of international standards. The university offers postgraduate courses in civil, electrical, mechanical, petroleum and chemical engineering, business administration, psychology, economics, accounting, law, political science, archaeology, European and Asian languages, education, social studies, Islamic studies and history and has special strengths in biology, chemistry, medicine and environmental sciences.

KSU strives towards achieving His Highness King Abdullah's vision of creating a knowledge based economy for Saudi Arabia. This is in sharp contrast with what the oil rich country has been dependent on so far. The pioneering vision is sure to enable the Kingdom to achieve more self sustainability in the future. His Royal Highness has approved of several projects within the university that promote research, education and self sustainability which the coming generations are sure to benefit from. KSU is on a mission, a mission to achieve what not many people thought possible: a well educated population with its economy based on knowledge and not oil. Skeptics may think there's no light at the end of the tunnel, but that hasn't stopped KSU from digging. 



# Q & A with William Choi

Asia-Pacific B&T Report recently caught up with William Choi, CEO of the exciting venture company, CB Williams Energy Group in Seoul. The young entrepreneur is leading an international team in South Korea and Canada in the development and commercialization of Catalate™ - a breakthrough clean technology proven in early testing to make fuel, water and other liquid energy sources more efficient and reduce harmful emissions. Choi and his team are confident that Catalate is the “next big thing” on the clean-tech horizon.



Here's our brief Q&A with Choi; a more comprehensive article on CB Williams and Catalate™ will appear in an upcoming edition.

## In a nutshell, what does CB Williams Energy Group do?

Our primary focus is the development and commercialization of Catalate™, a treatment process for all forms of liquid energy. Our most recent testing on fuel resulted in increased efficiencies of up to 5 percent, and decreased emissions of up to 35 percent, depending on the application.

These early results are extremely promising. At a time when energy efficiency and emissions reductions are not only environmentally essential, but business imperatives, Catalate™ could help to alleviate the impacts of fuel consumption. It's very exciting.

## What exactly is the Catalate™ treatment process?

Catalate™ is a disruptive photocatalytic laser technology. While we're focusing right now on fuel since it requires more immediate care, testing has demonstrated very positive outcomes for water, where we have had some cutting edge discoveries. When applied to liquid energy used by large industrial users of water and fuel, we see increased efficiencies and decreased emissions.

Our first product release, the Catalate Amplifier™, is a versatile, non-invasive 100 percent chemical-free inline treatment system, developed in May 2008. We believe the Catalate Amplifier™ is the next big clean-tech innovation on the horizon. Because the Amplifier can be installed alongside existing infrastructure, it will provide a low-cost solution for industrial users faced with legislative pressures to decrease emissions and increase efficiencies. The efficiencies increase and emissions reductions for large final emitters could be huge.

## This sounds too good to be true.... What makes you so confident this technology works?

I've seen it work for decades in my family's seafood processing business.

My parents started a seafood processing company in

Vancouver in the early 1980s. My mother, who is Korean-Japanese, was a pioneer in exporting shellfish to Japan. She was introduced to Saito-san, the inventor of a revolutionary technology that could improve the quality of our urchins (now known as Catalate™), and she decided to give it a try.

Working with Saito-san, my mother would apply the “Catalate concentrate” in the process where fish were ‘bathed’ midway through production. The end result was superior taste, longer shelf life and overall better product integrity. Slowly but surely, we became the largest processor in North America and the highest-demand Canadian product in Japan. My parents would refer to the concentrate as ‘our secret weapon.’ As a result, the company's success was due to its overall superior product quality, which is largely attributable to Catalate.

So I've seen it work wonders over the years, and our early tests indicate we can expect the same results for fuel and other applications. Everyone who joins our team, even those who are highly skilled and skeptical, quickly become convinced of Catalate's promise. That's the power of CB Williams technology.

## CB Williams Energy Group is still in its infancy. Where exactly are you with technology development?

Well, we have proof of concept, and have developed two prototypes, which we are using for testing in Seoul, Korea and Ontario, Canada. Presently, we are focused on pre-commercialization validation and testing in both countries and are exploring government partnership and funding opportunities for this development stage, with a view to going to market in late 2011.

## Can you give us a glimpse of CB Williams' implementation strategy?

Without giving too much away, our fundamental principle is to do good in the world, as contrived as that may sound. We have a product that can create significant environmental gains in the consumption of fuel – and that's just for starters. Once we complete our final testing and validation, our core strategy is to save the world one business at a time. Catalate™ offers a simple and straightforward sustainability solution for companies that are otherwise facing enormous costs – not to mention social pressures – to meeting environmental and emissions requirements. And of course, along the way we are looking for investors who share our values.

## In closing, a few personal questions. What do you like best about what you do?

First, I love our people. We are like family and that runs deep in the CB Williams culture. Secondly, the Catalate™ technology is so versatile, and the potential so vast. It spans all industries that are users of water and fuel. Above all, I love that we are working on something that could have an incredibly positive impact on the future. For me, that's incredible and humbling, and very motivating.

## Can you share with us your guiding principle in everyday life?

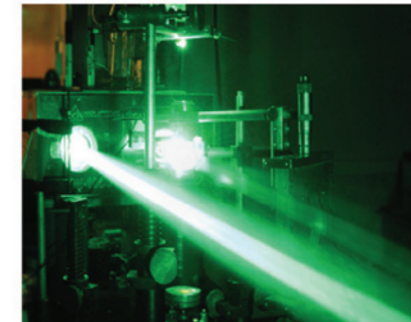
Give hope to people and everyone around you.

## What is your yardstick of personal success?

As long as you are moving forward with action, you are always succeeding. There is no such thing as failure, mistakes or delays, they are only events. (A-P)



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# Now is your Opportunity to Invest in Bangladesh



**DR. S.A. SAMAD**

Recently, the government of Bangladesh appointed Dr. S.A. Samad as the Executive Chairman of BOI in the rank and status of minister. With more than 35 years of experience as a civil servant, economist, academic and development consultant, Dr. Samad brings a great wealth of experience and expertise to the post. He has held various positions, including Principal Secretary, Economic Advisor to the Honorable President of Bangladesh, Secretary, Energy & Mineral Resources, Secretary, Post & Telecommunications and Program Director / Coordinator (Economic Management & Information Technology) of the United Nations Asia Pacific Development Centre. He was professor of economics, business administration Division, at the Hankuk University of Foreign Studies, Korea, for the period 2007-2009. Here are the excerpts of his interview with Asia-Pacific Business and Technology Report.

**Question: Congratulations on becoming the Chairman of the board of investment! First of all can you please introduce us your organization. What kind of role can it play in promoting investment in Bangladesh? Currently, what is on its radar in terms of expansion and promoting investment in Bangladesh?**

**Answer:** The board of investment is the main agency for attracting and promoting foreign direct investment in Bangladesh. It was created in 1989 and is a part of the Prime Minister's Office. To give it the necessary high profile and effectiveness the current chairman has been accorded the rank and status of a full cabinet minister of Bangladesh. Global Foreign Direct Investment (FDI) has been severely affected by the economic and financial crisis of 2008. Inflows are expected to fall from 1.7 trillion to 1.2 trillion in 2009. Against this backdrop, it is not easy to mobilize FDI on a vastly augmented scale, but attempts would be made to increase the flow. Attractive package of incentives have been put in place for this purpose

**With a population of over 150 million, Bangladesh has one of the largest labor pools to draw from. How can that labor pool play an important role in attracting foreign investment?**

The labor pool is one of the main attractions for potential foreign investors. Bangladesh has one of the lowest effective wage rates in the world and the labour force is trainable.

**What is the current status of Investment in Bangladesh? Can you please provide us with some latest statistics about investment in Bangladesh?**

In 2008, net inflows of FDI stood at US \$ 1.087 billion, which was the highest ever single year total for Bangladesh. The economic meltdown of 2008 did not allow this trend to continue and we have posted a 9 per cent decline in FDI flows for the first 8 months of 2009. We expect this to reverse. I am optimistic about mobilizing FDI flows of between \$3 to \$5 billion per annum on a sustained basis.

**What is the latest policy incentives provided by the**

**Bangladesh Government? What are the potential areas where you are looking for investment? So far what have been the main hindrances in attracting foreign investment? Is the government of Bangladesh making efforts to make it easier for foreign companies to operate and invest in the country?**

Sectors that are our top priority are energy, telecommunications, industry, information and communication technology, food and allied products and biotechnology. We try to attract investment from the U.S., Japan, Korea, Malaysia, China and some European countries. India is a favored source as well. Currently, Egypt, the U.S., Japan and Korea are among the major investors. Major hindrances include infrastructure, utilities, land and port facilities. Attempts are on to improve each of them. Bangladesh has a large middle class, larger in size than the total population of Thailand, Singapore, Brunei, Fiji and Timor. Online registration, e-commerce, simplified procedures and policies, fiscal and repatriation incentives are among the components of the package of attractions. Visa on arrival, liberal allowances for the family and an open door policy on employment of personnel are also attractive features of the current investment policy.

**What are your country's relations with Asia-Pacific countries? What are some possible areas of cooperation between Bangladesh and Asia-Pacific?**

The investment and trade links with Asia-Pacific is rather weak at the moment. The South Asian Alliance for Regional Cooperation (SAARC) has not been effective as a regional forum for economic cooperation within the region. Most of the countries of South Asia, in particular, prefer to trade with and or invest in America or Europe. Cooperation with South Asia has not grown. This needs to be addressed.

**Korea has been one of the biggest investors in Bangladesh. What are the important sectors where Korea has invested? What are the future potential areas of Korean investment in the country? Is there is any special policy incentives for Korean Investors.**

Korea invests in special economic zones, garments, leather, shoes and electronics. It also does many major construction projects. Korea can be a major investor in Bangladesh and that is widely recognized. Korean investors have been allotted a special economic zone only for the Koreans. I believe high-tech and green tech investment can flourish in that zone.

**What will be your message to potential investors in Bangladesh?**

My message is: A new democratically elected popular government is now in charge. It is market, trade and investment friendly. The Prime Minister of Bangladesh Ms. Sheikh Hasina is a strong and charismatic leader. She leads the economic and social programs from the front. Now is your opportunity to knock on our doors and you are certain to find very friendly and responsive chords. Bangladesh is an open and transparent economy and has a large modern sector, trained human resources, a vibrant middle class, free press and high-class universities.

For more information about investment opportunities in Bangladesh please visit [www.boi.gov.bd](http://www.boi.gov.bd)



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CMAI, is an apex business and trade promotion body, based in India with MOU partners and representatives spread across over 22 countries with branch offices in Japan, Taiwan, Singapore. CMAI is bringing in harmony between manufacturing divisions of all sectors including ICT, Communications and Environmental Management policies. Mr. NK Goyal is the President of CMAI. More information is available at [www.cmai.asia](http://www.cmai.asia) and [www.nkgoyals.com](http://www.nkgoyals.com)

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## Innominds

### **US Address**

2055 Junction Avenue, Suite 122,  
San Jose, CA 95131  
Phone: 408-434-MIND  
Fax: 408-904-5820

### **India Address**

#8-2-334, SDE Serene Chambers  
1st Floor, Road No. 7  
Banjara Hills  
Hyderabad - 500 034  
Phone: +91-40-66126300  
Fax: +91-40-66126330