



# SINGAPORE:

## AN INTELLIGENT NATION, A GLOBAL CITY, POWERED BY INFOCOMM

In May 2005, a high-level steering committee convened to spearhead the development of Singapore's 10-year masterplan; to grow the infocomm sector and to use infocomm technologies to enhance the competitiveness of key economic sectors and build a well-connected society. iN2015 is a living blueprint, jointly developed with the people and the private sectors, to navigate Singapore's exhilarating transition into a global city that is internationally recognised.

iN2015 will fuel creativity and enable innovation among businesses and individuals by providing an infocomm platform that supports enterprise and talent. It will connect businesses, individuals and communities, giving them the ability to harness resources and capabilities across geographies. iN2015 will be the conduit to enable access to the world's resources and for Singapore to export her ideas, products and services to the global marketplace.

### Singapore's Strategy with iN2015

- To establish an ultra-high speed, pervasive, intelligent and trusted infocomm infrastructure
- To develop a globally competitive infocomm industry
- To develop an infocomm-savvy workforce and globally competitive infocomm manpower
- To spearhead the transformation of key economic sectors, government and society through more sophisticated and innovative use of infocomm

### Desired Outcomes

- Enriched lives through infocomm
- Enhanced economic competitiveness and innovation through infocomm
- Increased growth and competitiveness of the infocomm industry

### Goals with iN2015

To be **#1** in the world in harnessing infocomm to add value to the economy and society

To realise a **2-fold** increase in the value-add of the infocomm industry to S\$26 billion

To realise a **3-fold** increase in infocomm export revenue to S\$60 billion

To create **80,000** additional jobs

To achieve **90** per cent broadband usage in all homes

To achieve **100** per cent computer ownership in homes with school-going children



# FOREWORD

Over the past four years alone, we have seen rapid advances in infocomm technologies, and the introduction of many innovative infocomm products, services and solutions, whether in Singapore or globally. They have transformed the way we work, live, learn and interact.

We have made good progress in implementing the Intelligent Nation (iN2015) Masterplan that was launched in 2006 - in establishing an ultra-high speed, pervasive, intelligent and trusted infocomm infrastructure, developing a globally competitive infocomm industry, developing an infocomm-savvy workforce and globally competitive infocomm manpower, and spearheading the transformation of key economic sectors, government and society.

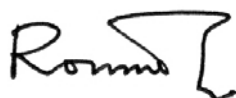
Today, Singapore has an established infocomm industry. Its annual revenue grew 38 per cent from 2006 to reach S\$62.74 billion in 2009. Correspondingly, with a thriving infocomm industry, the infocomm manpower employed has also grown to reach 140,800 in 2009, an increase of 17.6 per cent from 2006.

Infocomm adoption rates in Singapore also continued their steady rise as infocomm has become an integral part of the lives of our population. In 2009, about 83 per cent of households in Singapore had access to at least one computer at home, up from the 74 per cent in 2005. The proportion of households with Internet access increased to 81 per cent in 2009, up from the 66 per cent in 2005. The proportion of households having broadband access has also increased to 80 per cent in 2009 from 54 per cent in 2005. Mobile phone penetration remains strong at over 137 per cent, or more than 6.8 million mobile subscriptions.

Singapore has consistently performed well in international infocomm and e-Government rankings. Most recently, the World Economic Forum ranked Singapore second in its Global Information Technology Report 2009-2010 which measured the impact of ICT on the development process and the competitiveness of nations. For the second year running, Singapore also topped the Waseda University World e-Government Ranking, which monitors and analyses the development of e-Government worldwide.

As we continue to work towards the goals set out under the iN2015 Masterplan, we are mindful that the infocomm landscape will continue to evolve. IDA will therefore continue to work closely with the industry and end-user organisations in the various sectors to keep pace with their evolving strategies and needs, and ensure that our initiatives and plans remain useful and relevant.

Finally, I would like to take this opportunity to thank all our partners in the people, private and public sectors for their strong support and contribution to our endeavours to realise the iN2015 vision of being **An Intelligent Nation, A Global City, Powered by Infocomm.**



**RADM(NS) Ronnie Tay**  
**Chief Executive Officer**  
**Infocomm Development Authority of Singapore**

# IMAGINATION TAKES FLIGHT

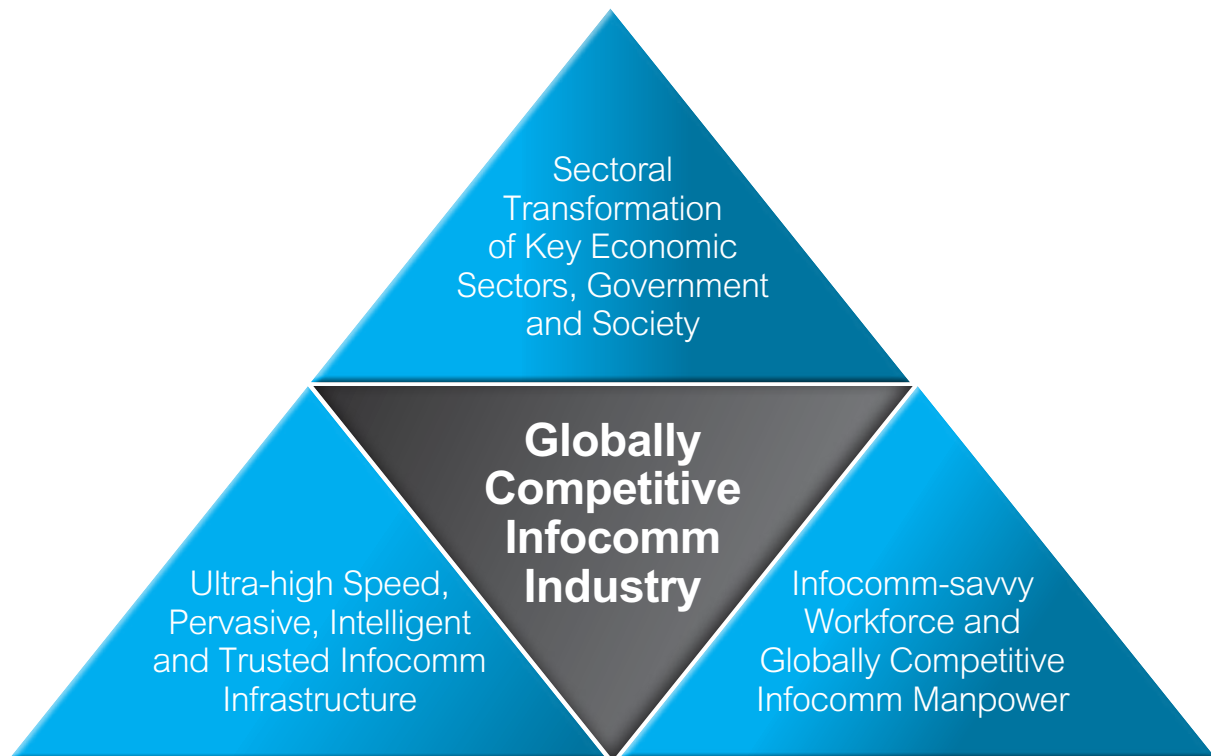


In 2006, Singapore embarked on her sixth infocomm masterplan to enrich lives, enhance the nation's economic competitiveness and ability to innovate through infocomm. The Intelligent Nation 2015 (iN2015) is a 10-year masterplan with the vision to build Singapore into An Intelligent Nation, A Global City, Powered by Infocomm.

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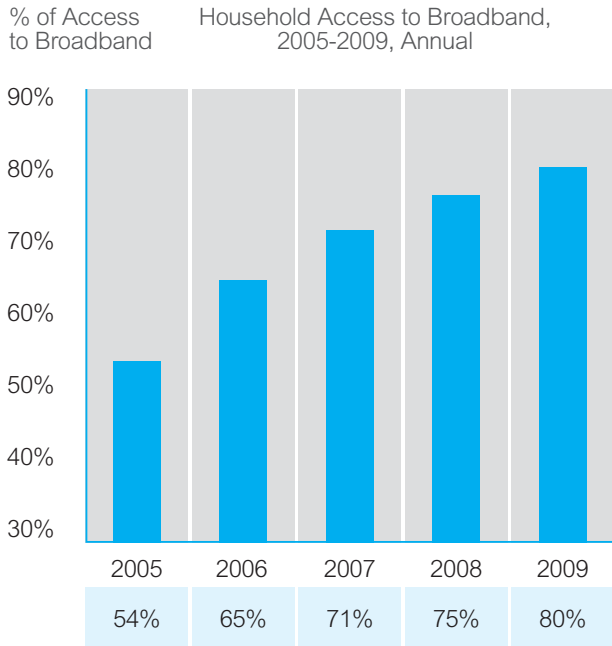
## BUILDING BLOCKS OF iN2015

To achieve the goals, IDA together with the industry, identified programmes and initiatives categorised under four building blocks:

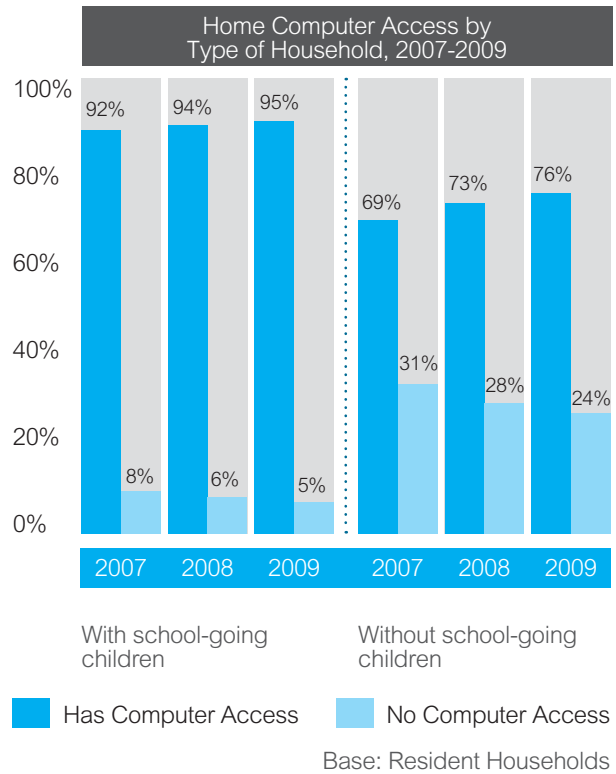


## INFOCOMM IN SINGAPORE TODAY

Infocomm technology has become an integral part of the lives of Singaporeans. In 2009, about 83 per cent of households had access to a computer at home and household access to broadband is at 80 per cent. 95 per cent of households with school-going children have access to computers. Mobile phone penetration is at 137 per cent, or more than 6.8 million mobile subscriptions.



Base: Resident Households in Singapore  
Source: IDA's Annual Surveys on Infocomm Usage in Households and by Individuals



## INTERNATIONAL RANKINGS

Singapore has consistently been highly placed in global and regional rankings for infocomm developments and usage of infocomm. In particular, Singapore has performed well in the e-government area, topping the Waseda University World e-Government Ranking two years in a row, in 2009 and 2010. The World Economic Forum ranked Singapore second in its Global Information Technology Report 2009-2010 which measured the impact of ICT on the development process and the competitiveness of nations.

Ranking	2006 rank	2007 rank	2008 rank	2009 rank	2010 rank
WEF Global IT Report	2	3	5	4	2
EIU e-Readiness	13	6	6	7	NA
EIU Benchmarking IT Industry Competitiveness Report	NA	11	9	9	NA
Waseda University World e-Government Ranking	3	2	2	1	1
WEF Global Competitiveness Report	5	7	5	3	NA
IMD World Competitiveness Yearbook	3	2	2	3	1

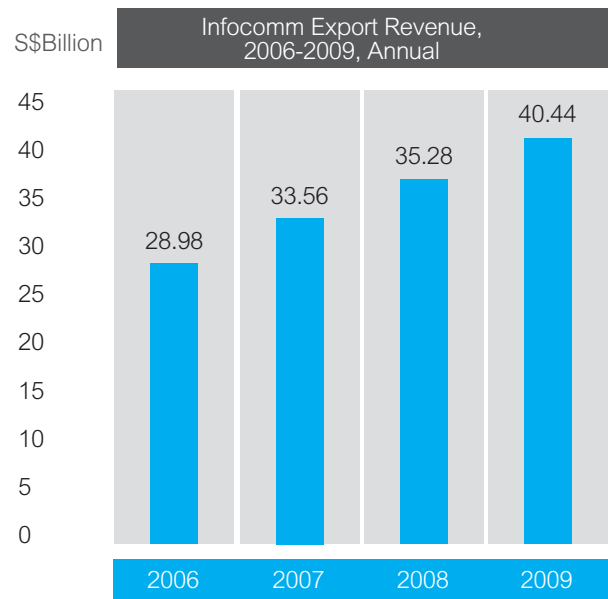
## INFOCOMM INDUSTRY

The infocomm sector is one of the engines of growth of the Singapore economy, and a vibrant infocomm industry fuels the growth of other economic activities. Under the iN2015 Masterplan, there are programmes and initiatives to promote innovation, strengthen capabilities of Singapore infocomm enterprises and anchor high-value ICT activities of MNCs in Singapore. These efforts have borne fruits - the industry revenue has grown by 38 per cent since 2006 to reach S\$62.74 billion in 2009.

In line with the growth of the total infocomm industry revenue, infocomm export revenue has also grown steadily, rising to S\$40.44 billion in 2009, an increase of 39.5 per cent from 2006's S\$28.98 billion.

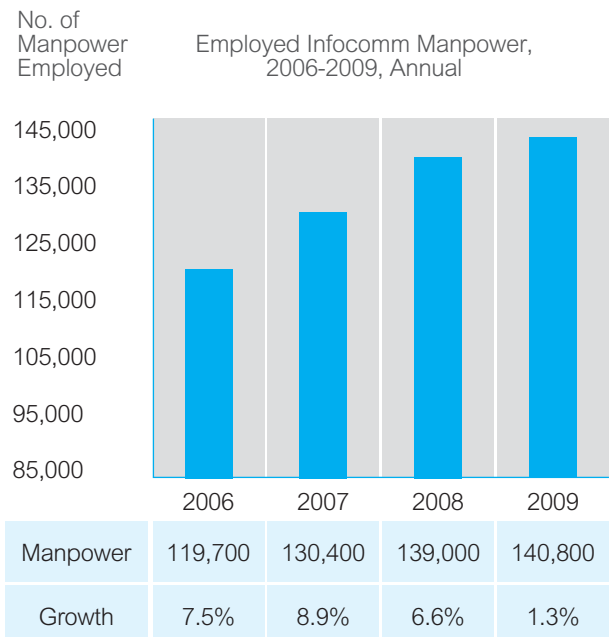


Source: IDA's Annual Survey on Infocomm Industry



Source: IDA's Annual Survey on Infocomm Industry

To support a fast growing infocomm sector, Singapore will need a rich pool of globally competitive infocomm manpower. The demand for infocomm manpower is strong as infocomm employment has grown by 21,100 since 2006 to reach 140,800 in 2009. IDA works closely with the industry and institutes of higher learning to ensure that our infocomm manpower have the relevant capabilities to keep pace with technological changes.



Source: IDA's Annual Survey on Infocomm Manpower

# SPEEDING INTO THE FUTURE





Singapore needs an ultra-high speed, pervasive, intelligent and trusted infocomm infrastructure to serve as the foundation for its activities in the digital economy. The goal was to establish a Next Generation infrastructure that will support bandwidth-intensive activities as Singapore grows in sophistication of infocomm usage.



## NEXT GENERATION INFOCOMM INFRASTRUCTURE TO SUPPORT NATIONAL DEVELOPMENT

The Next Generation National Infocomm Infrastructure, comprising both wireless (Wireless@SG) and wired components (Next Generation Nationwide Broadband Network), will connect all homes, schools and businesses.

### Next Generation Nationwide Broadband Network (Next Gen NBN)

The Next Gen NBN will offer broadband speeds of up to one Gigabit per second and beyond. The roll-out is on track to reach 60 per cent of households by the end of the year and achieve nationwide coverage by mid-2012.



### Wireless@SG

Singaporeans got to enjoy free Wi-Fi in public areas around the island as early as December 2006. As of April 2010, there are some 1.6 million subscribers, far exceeding the target of 250,000 subscribers by December 2008. Usage has been high with users clocking an average of 10.1 hours per user per month. This free service has been extended to March 2013.

To meet the increased demand, the access speeds were doubled from 512 kbps to 1 Mbps in early 2010. An automatic log-in feature known as Seamless and Secure Access was also introduced to enable an “always on” experience.



### Grid Computing

Singapore was one of the first countries in the world to embark on a national effort to draw together commercial Grid Service Providers (GSPs) to offer industry and government consumers on-demand and pay-as-you-use access to high performance computing capabilities, software, and immense data storage capacity. In 2008, IDA appointed three consortia to be the first National GSPs. Grid services which are based on a pay-per-use model are now available. By 2011, more than 3,000 Small and Medium Enterprises (SMEs) are expected to leverage the National Grid for on-demand, pay-per-use compute, storage and software resources. By 2013, Singapore envisions a Grid Market Hub, an infocomm-enabled marketplace of GSPs offering the global community a platform to share, buy and sell infocomm resources.



### Cloud Computing

IDA sees cloud computing as the next important paradigm in computing that will sharpen the competitiveness of Singapore through its adoption. IDA's cloud computing collaborations with the industry to grow capabilities in Singapore include the following: Singapore Centre of Excellence for Open Cirrus Cloud Computing Testbed set up by HP, Intel and Yahoo! (launched in July 2008), a SaaS Incubation Centre established by AkSaaS (launched in September 2008), Platform Computing Inc's Cloud Innovation Centre (established in April 2009) and IBM's Cloud Lab in Singapore (launched in May 2010).

### Singapore Internet Exchange (SGIX)

To provide an efficient central point of Internet traffic exchange, a neutral, not-for-profit SGIX has been established to offer interconnection services on a fair and non-discriminatory basis for domestic and international telecoms carriers, Internet service providers and content providers. SGIX was incorporated in September 2009 and commenced commercial services in June 2010.

### National Authentication Framework (NAF)

With the proliferation of online services, IDA is working towards establishing the NAF which will enhance the security of online transactions, through the deployment of a nationwide strong authentication platform. Businesses can achieve cost savings when they leverage on NAF for strong authentication services instead of implementing their own systems. Consumers can enjoy the convenience of using a single authentication device to access multiple online services using the NAF. IDA will be incorporating a wholly-owned subsidiary to own the NAF infrastructure and offer strong authentication services.



### Infocomm Security

To enhance the resilience of the Singapore economy against cyber threats, the Infocomm Security Masterplan 2 (MP2) was launched in 2008. The five-year roadmap was developed through a multi-agency effort under the guidance of the National Infocomm Security Committee. MP2 aims to achieve high availability and resilience of national infocomm infrastructure and services through the introduction of various programmes and initiatives, involving collaboration between the people, private and public sectors. These include the Cyber Watch Centre, Code of Practice for Internet Service Providers, Enhancing Government Infocomm Security Situational Awareness, Cyber Security Awareness Alliance and Association of Information Security Professionals.





- 1 Next Gen NBN to the first homes
- 2 Free Wi-Fi in public areas islandwide
- 3 NAF securing online transactions
- 4 On-demand, pay-per-use compute, storage and software resources
- 5 Building resilience against cyber threats

## CREATING AN ENVIRONMENT FOR THE INNOVATION AND COMMERCIALISATION OF NEW APPLICATIONS AND SERVICES

Beyond faster download and upload speeds, the availability of pervasive, cost-effective and ultra-high speed broadband will lead to greater opportunities for consumers and businesses. Consumers can look forward to innovative services such as interactive IPTV, remote office and hi-definition video conferencing. Businesses will find it more cost-effective to access Next Generation services such as cloud computing, Software-as-a-Service (SaaS) and other bandwidth-intensive applications that will serve to increase their operational efficiency.

### Next Gen Services Innovation Programme (NGSIP)

In February 2010, IDA selected seven proposals under the NGSIP to develop Next Generation broadband services and applications. These innovative Next Gen services will be commercially available by end 2010.

### iExperience: Discovering New Possibilities

To let Singaporeans experience Next Generation services that will be available over the Next Gen NBN, the Infocomm Experience Centre (iExperience) was set up in June 2010. Located at the Esplanade Xchange, iExperience is a showcase of interactive and engaging exhibits designed to educate and excite visitors through a hands-on experience.

# FUELLING THE ENGINE OF GROWTH





The infocomm industry is a key contributor to Singapore's economy, fuelling the growth of other economic activities and adding jobs to the economy.

To ensure that the infocomm industry remains globally competitive, the iN2015 programmes and initiatives aim to promote innovation, strengthen capabilities of Singapore infocomm enterprises (iLEs) and anchor high-value ICT activities of Multinational Corporations (MNCs) in Singapore. Besides creating diversity within the industry, they will also enhance the technology depth of the industry.

## SPURRING INNOVATION & STRENGTHENING CAPABILITIES

### **Anchoring Infocomm MNCs' Strategic Functions**

MNCs are important players in the industry as they perform high-value work, engage in R&D activities, and develop many innovative services for enterprises and consumers. Infocomm MNCs are not only substantial revenue contributors to our economy, but also providers of innovative platforms, and market connectors for our iLEs. Besides the many infocomm MNCs which have been in Singapore for years, we have continued to attract and anchor more infocomm MNCs, such as Equinix with its Global Development Centre here, Salesforce.com with its first International Data Centre outside the US, and Amazon Web Services, which launched its first Asia Pacific regional base in Singapore recently.

### **Anchoring MNCs' Shared IT Services**

Singapore's excellent infocomm infrastructure has made it a preferred destination for MNCs to anchor their shared IT services at. Global infocomm-user MNCs like Citibank, BNP Paribas International Private Bank, Deutsche Bank, Crédit Agricole Corporate and Investment Bank, UOB and Daimler have chosen Singapore as the location to set up their IT hubs at, to support their worldwide business operations. These infocomm investments generate sophisticated demand for infocomm services, and create many high-value ICT jobs and business opportunities for iLEs.

### **Anchoring Innovation Centres**

To drive the development of more innovative infocomm solutions, IDA collaborates with MNCs like Cisco, IBM and Oracle to set up Next Generation Innovation Centres (NGICs) in strategic and emerging technology areas. Today there are seven such innovation centres with a total investment of almost S\$80 million that will create some 100 infocomm jobs.

### **Creating Intellectual Property (IP)**

One key focus of the industry development efforts is to help iLEs create IP that are commercialisable. There are programmes to help iLEs establish "reference sites" that demonstrate innovative sector-wide solutions. Examples of such programmes are:

- **infocomm Local Industry Upgrading Programme (iLIUP)**

iLIUP promotes strategic and mutually beneficial partnerships to enhance the capabilities and competitiveness of iLEs as they tap on the expertise and network of the MNC partners. Since 2006, iLIUP has helped 165 iLEs to develop more than 230 new or enhanced products/solutions and trained close to 1,100 infocomm professionals.

- **Technology Innovation Programme (TIP)**

This partnership with SPRING Singapore aims to encourage Singapore-based infocomm enterprises to use technology to develop or improve products, processes or business models as part of their overall business strategy. Since 2007, IDA and SPRING have supported more than 30 enterprises, generating infocomm investments of over S\$20 million.

## INTERNATIONALISATION

Singapore infocomm companies can tap into the abundant opportunities in the global marketplace. To help more companies make inroads into overseas markets, IDA has in place various internationalisation programmes.

### **Infocomm Singapore**

"Made-by-Singapore" infocomm solutions have earned a good reputation for being of high quality. To extend this mindshare internationally, an

overarching brand identity was created to help iLEs market their products and solutions overseas.



The brand has seen good take-up by iLEs and it is used extensively at international trade events such as GITEX, Mobile World Congress and imbX.

### Government-to-Government International Linkages

Generating better awareness and mindshare of made-by-Singapore solutions through thought leadership speaking engagements, G2G forums and our interactions with government and business leaders also help to connect our companies to markets. More than 10 infocomm-related MOUs have been signed with foreign government agencies to date. Companies which are in the “traditional” markets of China and the Middle East continue to gain traction and enjoy decent growth in export revenues there.

### IDA International

IDA International was established as a wholly-owned subsidiary of IDA in February 2009 to provide infocomm masterplanning and support the implementation of infocomm solutions for foreign governments. An example of IDA International’s efforts is its project with the Republic of Trinidad and Tobago to help develop the country’s infocomm technology capabilities and drive the



implementation of its government e-Services.

### Global Business Development Centre of Excellence (GBD COE)

The GBD COE is a tripartite effort by IDA, IDA International and IE Singapore to help the Singapore infocomm industry to scale up global business development and increase business opportunities in overseas markets. The GBD COE activities in the coming years will serve to develop more promising new markets, provide advice on in-market knowledge and possible business structure models, and enable more effective go-to-market activities.

### Overseas Development Programme (ODP)

ODP serves as a platform for iLEs to team up with leading infocomm MNCs to establish an international presence. Tapping on the business networks, products and services of Lead Partners, iLEs can reach a bigger market. Since 2006, 126 iLEs have been in partnership with six Lead Partners under this programme, achieving over S\$100 million in infocomm export revenue.



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- 1 Re-affirming warm G2G linkages with foreign partners
- 2 Infocomm Singapore solutions take on the world
- 3 iLEs and MNCs - mutually beneficial partnerships
- 4 Singapore, a choice location for infocomm start-ups







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## TECHNOPRENEURS & START-UPS ATTRACTION

Start-ups add to the diversity and vibrancy of the infocomm ecosystem. Under the iN2015 Masterplan programmes, a continual influx of infocomm technopreneurs and start-ups that engage in high-end activities have been attracted to Singapore. Besides adding vibrancy to the industry, the broader mix of enterprises and activities create diversity in the infocomm ecosystem.

### Technology Enterprise Commercialisation Scheme (TECS)

In partnership with SPRING, TECS has supported 16 start-ups based on their strong technology IP and scalable business models, generating S\$12 million in investments.

### i-Start Programme

The programme aims to make Singapore a vibrant hub for entrepreneurship in Asia by building a strong start-up community here. In addition to technology innovation, the programme helps start-ups to focus on business and market viability.

### Infusing new business models and capabilities

It is essential to continue to infuse innovation, new business models and capabilities, and vibrancy into our infocomm start-up ecosystem. To this end, IDA works with our wholly owned subsidiary, Infocomm Investments Pte Ltd, to attract world-class global infocomm start-ups and entrepreneurs to use Singapore as a development and engineering base. Since the launch of this initiative in 2008, about 40 foreign start-ups have committed projects in Singapore. These start-ups come from diverse countries, such as the United States, Israel, Sweden, China, Germany and Finland, bringing more than S\$50 million in project investment.



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# GROOMING INFOCOMM TALENT





To support the fast growing infocomm industry, Singapore will need a rich pool of globally competitive infocomm manpower. To achieve this, the manpower development programmes under iN2015 are focused on developing infocomm competencies in key economic sectors, developing globally competitive infocomm professionals, and attracting, developing and retaining infocomm talent.

We set ourselves the target to create 80,000 additional jobs by 2015, comprising 55,000 infocomm jobs and 25,000 non-infocomm jobs in the infocomm industry. As of 2009, we have reached the half-way mark, with more than 41,000 additional jobs created.

## DEVELOPING GLOBALLY COMPETITIVE INFOCOMM PROFESSIONALS

A pool of highly skilled infocomm professionals will support the industry, even as the job demands within it evolve with the rapid developments in technology, business trends and consumer preferences.

### Critical Infocomm Technology Resource Programme (CITREP)

CITREP is a training incentive programme to equip infocomm professionals with critical and emerging skills. In April 2009, the programme was enhanced to provide higher funding for course and examination fees. Training courses are aligned with the National Infocomm Competency Framework and more than 27,800 infocomm professionals have benefited from the programme since 2006.

### National Infocomm Competency Framework (NICF)

The NICF articulates the competency requirements of key infocomm professionals. The NICF is aimed at widening and deepening the capabilities of Singapore's infocomm professionals and guiding their career development and progression. Training courses covering NICF content are delivered through the Continuing Education Training (CET) Centres which are expected to train up to 10,000 infocomm professionals over five years. The framework now offers about 250 job roles, expanded from the 31 job roles when it was first released in March 2009. It includes job roles in areas such as Infocomm Security, Data Centre Management, Channels Management, Quality Assurance and Portfolio Management. The framework will be continually updated to cover new and emerging areas such as Cloud Computing, Business Analytics, Green Computing, Next Generation networking and service science engineering.

### Infocomm Leadership and Development Programme (iLEAD)

The iLEAD programme aims to build a pipeline of infocomm experts in high-end, strategic growth areas such as Business Analytics, Cloud Computing and Green ICT. This is to ensure that Singapore's infocomm manpower capabilities keep pace with technology changes. Organisations can tap on iLEAD to build up the capabilities of their existing employees and take in new trainees. Such capability building can be done via local and overseas work attachments and specialised professional courses.

## DEVELOPING INFOCOMM COMPETENCIES IN KEY ECONOMIC SECTORS

For businesses in the different sectors to harness infocomm to improve productivity and enhance competitiveness, there is a need to build both technical and business domain competencies.

### Techno-Strategists Programme (TSP)

TSP aims to develop professionals with both technical and business domain knowledge of industry sectors such as financial services, healthcare, hospitality and retail, and interactive digital media. Training courses, workshops and certification examinations were launched in five industry domains and more than 1,000 professionals have acquired hybrid skills since April 2008.



## DEVELOPING, ATTRACTING, AND RETAINING INFOCOMM TALENT

To ensure a sustainable pipeline of talent to meet future manpower needs, Singapore adopts a forward-looking perspective in infocomm capability building. Student outreach programmes aim to raise awareness and spur interest in infocomm as a career.



### Scholarships and Talent Development Programmes

As part of the effort to attract some of our best students to pursue a career in the infocomm sector, two scholarships programmes were launched. The **National Infocomm Scholarship (NIS)** provides “A” level students and polytechnic graduates the prestige of a government scholarship and valuable private sector work exposure. Through partnerships with top infocomm and end-user companies such as Accenture Pte Ltd, Barclays Capital, IBM Singapore Pte Ltd and ST Electronics Pte Ltd, scholars get to gain valuable work attachments both locally and overseas. To date, 181 students have been awarded the NIS.

To provide outstanding “O” level students the opportunity to pursue infocomm studies from





- 1 2009 IIS recipients
- 2 Attracting infocomm talent
- 3 Equipping infocomm professionals with critical and emerging skills
- 4 Peer-learning in Infocomm Clubs
- 5 Building a pipeline of infocomm experts in high-end, strategic growth areas
- 6 Generating excitement among students about infocomm

polytechnic through to university, the **Integrated Infocomm Scholarship (IIS)** was launched in 2009. This unique scholarship programme includes opportunity for industry attachments to major infocomm corporations locally and overseas. IIS scholars will have the opportunity to pursue infocomm-related degree courses at the university level. To date, 52 students have been awarded the IIS.

To give university undergraduates the opportunity to gain practical industry exposure, IDA launched the **Enhanced Learning In Information Technology (ELITe)** talent development programme in March 2008. ELITe has the support of industry partners from the infocomm and end-user sectors. More than 160 undergraduates have benefited from this programme.

#### Infocomm Outreach in Schools

The outreach programmes aim to interest our students to take up infocomm courses by introducing them to infocomm in an engaging and meaningful way. **Infocomm Clubs** are part of the Co-Curricular Activity (CCA) in primary and secondary schools and junior colleges. It is one of the fastest-growing CCAs, with 10,500 members in 251 clubs to date. Outstanding Infocomm Club members are nominated to be Infocomm Clubs Ambassadors, where they get an opportunity to be part of the club's student council. National Infocomm Club Awards are given annually to winning projects in recognition of the Infocomm Clubs' creativity and ability in applying infocomm knowledge beyond the classroom.



Another outreach programme is the annual **National Infocomm Competition (NIC)** which aims to generate excitement among students about infocomm. A series of infocomm-themed competitions is held over the course of the year to allow students to hone their skills and showcase their talent in infocomm. Some of the industry partners who participate in NIC include Microsoft Singapore Pte Ltd and Sun Microsystems. Today, there are 16 challenges under NIC and more than 3,100 students took part in the 2009 competition.

# LIVING THE DIGITAL FUTURE





**Infocomm is a key enabler of business innovation and transformation and plays a pivotal role in helping Singapore's economic sectors stay ahead and be globally competitive. The iN2015 programmes and initiatives are collaborative efforts with sectoral champions to enhance the adoption of infocomm for greater productivity and economic benefits and building a digitally inclusive society.**

**The nine sectors under iN2015 are: digital media & entertainment, education, financial services, healthcare, manufacturing & logistics, land & transport, tourism, hospitality & retail, government and society.**

## DIGITAL MEDIA & ENTERTAINMENT

The iN2015 goal for the Digital Media & Entertainment sector is to establish Singapore as a key player on the global stage and to draw high value-added media and entertainment activities here.

### Digital Marketplace Programme (DMP)

The DMP aims to establish Singapore as a trusted digital media management and distribution hub for Asia with a vibrant ecosystem of world class companies in Singapore offering innovative and competitive digital services across the value chain, reaching the fast-growing digital consumers. To date, the implementation includes eight industry projects to develop the Digital Media Ecosystem, as well as accelerator projects such as the world's first content fingerprinting/contextual advertising and iScreener online platform for the Asia Television Forum. The DMP Forum has also been scaled up to include 100 key local and international industry players.

### Connected Games Programme

To establish Singapore as the leading regional centre for developing and distributing Connected Games content and services, IDA works closely with the industry to set up enabling platforms and to strengthen its capabilities. Two Games Resource Centres have been established, at Nanyang Polytechnic with the PlayStation development capability and the Unreal Technology Lab at Singapore Polytechnic. The Singapore Game Box initiative was launched in September 2009 to promote Singapore games titles.

### Virtual World

The Singapore 2010 Odyssey, a unique virtual world platform for the Singapore 2010 Youth Olympic Games, was launched in March 2010. The platform aims to foster Olympic values of excellence, friendship and respect, through e-learning, social networking and entertainment for youth in Singapore and around the world.



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- 1 Singapore as the digital media and entertainment capital
- 2 Enriching the learning experience

## EDUCATION

The goal of the iN2015 Education & Learning plan is to foster an engaging learning experience to meet the diverse needs of learners in Singapore, through the innovative use of infocomm. This is done by creating an enriching and personalised learner-centric environment for educational institutions; building a nation-wide education and learning infrastructure; and positioning Singapore as a centre for innovation in the use of infocomm technologies in education and learning. **EdVantage** is the flagship programme by IDA, aligned to Ministry of Education's (MOE) IT Master Plan, to achieve the goal of iN2015.

Through EdVantage's **FutureSchools@Singapore** programme, six schools have been selected as the pioneer batch to serve as peaks of excellence in enabling school-wide transformation of learning and teaching through infocomm. These six schools are collaborating with 15 industry companies to develop more than 50 innovations to enhance curriculum and pedagogies. Three learning trails were deployed under EdVantage's **Experimentation@Schools** programme to promote authentic learning beyond the classroom.

To provide seamless access to relevant educational digital resources, the MOE **edumall2.0** and **iSHARE (inter-cluster SHaring of Resources)** were developed. **edumall2.0** provides quality learning and teaching resources from MOE and educational industry partners while **iSHARE** allows 30,000 teachers access to quality learning and teaching digital content created by the teachers themselves.

The **Standard ICT Operating Environment (SOE) for Schools** will also be deployed to provide an ICT environment that facilitates teaching and learning in all schools, further standardise the ICT operating environment to achieve operational efficiency and aggregate ICT demand to achieve cost savings for the MOE.

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## FINANCIAL SERVICES

The Next Generation e-Payment Programme aims to promote e-payment adoption and realise the vision of Singapore as a leading e-payment nation, providing convenience to both consumers and merchants and enabling commerce for all. The key strategies of this programme are to accelerate consumer and merchant adoption of e-payment solutions and to support the further development of innovative e-payment solutions, such as mobile payment enabled by Near Field Communication (NFC) technology.

### Contactless e-Purse Application (CEPAS)

Launched in late 2006, CEPAS is the Singapore standard for Multi-Purpose Stored Value Card (MPSVC). It is a significant milestone for Singapore's micro-payment landscape, and is a result of close collaboration with the Land Transport Authority (LTA) and industry to develop a nationwide interoperable micro-payment platform that bridges multiple sectors. The creation of CEPAS is a significant step towards giving consumers the convenience of having a single card for making transit, motoring and retail payments seamlessly, instead of having multiple cards for different purposes.



### Contactless Point-of-Sales (POS) Deployment

To bring convenience of e-payments to more consumers and businesses in cash-based segments such as food courts, provision shops and convenience stores, a Call-for-Collaboration was issued from April-June 2009 to accelerate the deployment of CEPAS-compliant POS terminals beyond the transport sector. With the award of the Call-for-Collaboration in November 2009, the number of contactless POS terminals is expected to more than quadruple from 5,000 to almost 24,000 by 2011, converting an expected 94 million payment transactions from cash to e-payment transactions each year. Retail merchants would benefit from a reduction of up to 50% in transaction fees and consumers would have a highly compelling alternative payment choice to cash for low value purchases.

### Near Field Communication (NFC) Mobile Payments

IDA set up an industry Roundtable in January 2008 to foster industry collaboration towards the establishment of an interoperable infrastructure for NFC services, starting with transit and payment. The Roundtable, which comprised 11 key industry players from telcos, banks and payment providers, agreed to collaborate towards achieving an interoperable commercial deployment of NFC mobile payment through a neutral Trusted Third Party (TTP) infrastructure. Together with the Roundtable members, IDA has also defined the technical and operation requirements for the deployment of the TTP infrastructure.

Through the **Corporate Financial Information eXchange (CFIX)** initiative, IDA is working with a multi-agency team to create a national financial reporting taxonomy which will help streamline corporate financial information flow across government and reduce the burden of multi-agency reporting on businesses. By enabling easy access to CFIX data as a trusted source of financial information, this effort will also seek to



- 1 CEPAS - providing the convenience of a single card for different types of payments
- 2 Infocomm enabling personalised healthcare delivery

catalyse the development of innovative value-added services, such as those leveraging business analytics, to deliver greater insights to businesses.

## HEALTHCARE

The goal of the iN2015 programmes for the healthcare sector is to accelerate its transformation through an infocomm-enabled personalised healthcare delivery system to achieve high quality clinical care, service excellence, cost-effectiveness and strong clinical research.

### National Electronic Health Record (NEHR)

The National Electronic Health Record aims to enable the exchange of health information across the healthcare continuum by allowing secure “real-time” access to patients’ NEHR by authorised clinicians and healthcare providers. A Request for Proposal (RFP) for the NEHR was issued in February 2010 and Phase 1 of the NEHR is expected to be completed by March 2011.

### Integrated Clinical Management System (CMS)

The CMS programme aims to encourage General Practitioner (GP) clinics to adopt and leverage infocomm to facilitate operations and clinical improvements in patient care. Phase 1 of the five-year programme was completed in December 2008 with the following results: two CMS platforms, six e-services linkages to the Ministry of Health, two e-services with

clusters and about 300 clinic subscribers. In 2009, its next strategy - the GP IT-Enablement programme was launched to encourage adoption of Electronic Medical Records (EMRs) in the GP community. Phase 1 of the 5-year programme commenced through the CLEO (Clinic EMR and Operations) project in late 2009, which targeted 50 GPs as pilot users to work through the processes and showcase the benefit of EMR adoption.

### Personal Health Record (PHR) Programme

The PHR Programme seeks to empower individuals to optimally manage their health condition. Phase 1 of the programme was completed in April 2009, with the implementation of the Singapore eHealth Portal. Self-management modules such as the Behavioural Health Intervention Tools are made available on the portal to facilitate the use of the PHR by individuals. Moving forward, the Health Promotion Board (HPB) will continue with Phase 2 of the portal development, which includes the implementation of new functionalities and extending the scope of Personal Health Management by synergising it with the NEHR project.

### Intermediate and Long Term Care

IDA started an initiative in 2008 with six Community Hospitals to implement a common Electronic Medical Record (EMR) among Community Hospitals to better improve clinical care and achieve greater operational efficiency. The platform will also be linked to the NEHR to facilitate care co-ordination and management across care institutions.





## MANUFACTURING & LOGISTICS

The iN2015 goals for the Manufacturing & Logistics sector are for Singapore to be a high-value manufacturing hub and supply chain nerve centre, powered by infocomm.

### Infocomm@SeaPort

Launched in September 2007, this collaboration between IDA and the Maritime and Port Authority of Singapore aims to catalyse business transformation and operational excellence in the port community through the use of innovative infocomm technologies. In March 2008, the **WISEPORT (Wi)reless-broadband-access at (SEa)PORT** project was launched to provide mobile wireless broadband coverage of Singapore's port waters, allowing vessels to access low-cost, high-bandwidth mobile communications. From April 2009 a suite of content and applications were deployed for WISEPORT, enabling the port community to access up-to-date information such as navigational charts, vessel and equipment status, and training materials and entertainment content for crew and passenger welfare. The BunkerNet project aims to connect all parties in the bunker community and supports the world's busiest bunker fuel operations. The pilot was deployed in November 2009.

### TradeXchange

To facilitate the exchange of information within the trade and logistics community, TradeXchange was launched in October 2007. It provides a neutral and secure IT platform to integrate trade and logistics processes. Six value-added services have been deployed since October 2008. These services allow the logistics community to file customs declarations, check schedule and book cargo space, transfer titles securely and purchase cargo insurance online.

In collaboration with Singapore Customs, Singapore Economic Development Board and SPRING Singapore, four consortia involving 22 companies in the trade and logistics sector were awarded a



Call-For-Collaboration in January-February 2010 to integrate key processes in marine cargo insurance, freight management and trade financing through the TradeXchange as a multi-party collaborative platform. Through these projects, companies will enjoy greater operational efficiencies and clearer supply chain visibility. For example, procurement systems providers can enable its users, like buyers and suppliers, to electronically apply for trade finance to the banks by integrating to the banks' systems through TradeXchange. The procurement users will be able to electronically retrieve and submit procurement documents like purchase orders, delivery orders and invoices to the banks and receive electronic finance approval advices without the need for hardcopies. Since April 2010, the consortia have developed interoperable standards that will allow other trade and logistics companies to easily integrate their systems and processes through TradeXchange.

The TradeXchange programme targets to implement seven such integrated processes by end 2011, benefiting more than 100 companies and impacting 20 per cent of the 4 million annual export shipments.

## LAND MANAGEMENT & TRANSPORT

IDA also works closely with other government agencies to use infocomm in the area of land and transport management.







## TOURISM, HOSPITALITY & RETAIL

The iN2015 goal for the Tourism, Hospitality & Retail sector is to use infocomm to help differentiate Singapore as a leading travel and shopping destination and enhance the growth and competitiveness of businesses.

The **Digital Concierge (DC)** programme aims to catalyse the growth of the mobile services ecosystem by encouraging development of transactional, location-based and mobile commerce services for the consumer and enabling businesses to target their customers more effectively through the mobile channel. In April 2010, six companies were selected through a Call-for-Collaboration to jointly invest a total of \$10 million over two years to develop and deploy a set of common mobile shared services and enablers. Services will be available progressively from end 2010 and consumers can look forward to a richer, more personalised and seamless experience, such as location-aware taxi booking and just-in-time purchase of tickets with delivery to one's mobile phone for auto-gate access to cinema or event venues.



- 1 Singapore's port waters are WiMAX-enabled
- 2 Innovative services developed on mashups spatial contents
- 3 Mobile services to enhance the retail experience
- 4 Infocomm adoption to transform SMEs

### i-Singapore Initiative

The aim of the i-Singapore initiative was to catalyse development of innovative services through mashups of people, private and public spatial sector contents. From March 2010, four services were made available for a six month pilot: Dynamic Real Time Navigation, Location Based Commerce, Business Analytics and Location Based Community Events.

### Infocomm@AirHub Programme

In partnership with the Civil Aviation Authority of Singapore, IDA and four trade association signed the e-freight@Singapore Memorandum of Understanding (MoU) in January 2010, to promote Singapore as a leading global air cargo and logistics hub. e-freight@Singapore will improve operational efficiency and end-to-end supply chain visibility, through the use and adoption of information technology, giving our air cargo and logistics sector a strategic competitive edge.

## INFOCOMM@SME PROGRAMME

Launched in June 2007, the Infocomm@SME programme is targeted at accelerating infocomm adoption amongst SMEs. Some 4,000 SMEs now have web presence as a result of the programme. Two SME Infocomm Resource Centres have been established, which have helped more than 7,000 SME participants learn how to harness infocomm technology for their businesses. More than 110 SMEs have benefitted from S\$7 million of funding to transform their businesses in a joint collaboration between IDA and SPRING.

In March 2010, a S\$25 million Increase SME Productivity with Infocomm Adoption & Transformation (iSPRINT) scheme was launched by IDA in collaboration with SPRING Singapore and IRAS. SMEs now have a one-stop contact point to seek assistance for their infocomm adoption projects. iSPRINT is expected to benefit more than 4,500 SMEs.

- 1 Senior citizens connecting in the digital age
- 2 Programmes available to empower people with disabilities to benefit from infocomm
- 3 SOEasy providing public officers a seamless working environment



## SOCIETY

IN2015 aims to build an infocomm-savvy nation where lives are enriched through infocomm. There are programmes to equip needy students, engage the elderly, and empower people with disabilities to gain access to and benefit from infocomm.

### NEU PC Plus Programme and iNSPIRE Fund

IDA's effort in equipping needy households with students with computer ownership started in 1999. To date, the NEU PC programme has benefited close to 29,000 needy households whose gross monthly household income do not exceed \$2,500 or whose per capita monthly income do not exceed \$625. Since June 2009, supplementary Broadband-Only Scheme was launched to provide broadband access to needy households which have computers but cannot afford Internet service.

### Silver Infocomm Initiative (SII)

To help senior citizens get connected in the digital age and lead more fulfilling and enriched lives, the SII aims to train 30,000 senior citizens to adopt infocomm. Under this initiative, programmes such as Silver Infocomm Junctions, Silver Infocomm Day and InterGenerational IT Bootcamps offer infocomm training that is digital lifestyle centric or hobby based. To date, more than 18,800 seniors have benefited from the training. To further enhance infocomm accessibility, 100 Silver Infocomm Hotspots will be set



up islandwide by 2012. A Call-for-Collaboration was also issued in June 2010 to encourage IT learning, and provide PCs at lower prices to our senior citizens.

### Infocomm Accessibility Centre (IAC)

This collaboration with MCYS, NCSS, Tote Board and Microsoft Singapore has funded over 2,800 IT courses for people with disabilities, and helped trainees acquire industry-relevant skills such as PC maintenance, web design, music arrangement and video editing. The IAC is also working with the National Library Board to convert books into the Digital Accessible Information System (DAISY) format for the benefit of people with visual impairment and dyslexia.





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## GOVERNMENT

iGov2010 is Singapore's third e-Government masterplan that was launched in 2006. The vision of this masterplan was to be an Integrated Government (iGov) that delights customers and connects citizens through infocomm.

Singaporeans have indicated a high level of satisfaction with e-Government services from the results of the regular e-Government Customer Perception Surveys. Nine in 10 citizens are satisfied with the quality of government's e-services and will recommend the services to others. Singapore has also been ranked highly in international e-Government studies. These include the recent World Economic Forum Global IT Report 2010 at second position; and the Waseda University World e-Government Ranking 2010 at first position. The government agencies have also won numerous awards and accolades for the delivery of e-Government services.

As part of the continual efforts to enhance public service delivery, various initiatives have been developed to provide greater value and convenience to our customers. Some of these initiatives include:

- **Unique Entity Number (UEN)** – UEN offers a common identification number for all entities, such as businesses and companies, to be used in all their interactions with the Government. Over 400,000 entities are already using UEN to interact with 84 government agencies.
- **Mobile Government (m-Gov)** – To enrich the reach of government e-services, m-Gov was introduced to enable citizens to access government information and services via their mobile devices.
- **Standard ICT Operating Environment (SOEasy)** – The SOEasy programme will enable public officers in government agencies to work in a seamless environment that promotes communication, collaboration and knowledge-sharing. SOEasy is currently being deployed, and when the rollout is completed by next year, 60,000 public officers across 75 agencies at more than 800 locations will be connected within a robust, innovative and flexible infocomm platform that consolidates all IT services and harmonises the desktop, messaging and network environments.
- **Gov.sg** – To create an electronic communication platform of the Singapore Government, gov.sg acts as the gateway for citizens to locate information about the Singapore Government.



# CONTINUING TOWARDS 2015



The global infocomm landscape will continue to evolve and present new opportunities. The iN2015 Masterplan will incorporate emerging technologies and leverage strategic developments to ensure we stay on track to realise the iN2015 vision. Some of these emerging developments include Cloud Computing, Business Analytics and Green ICT. While Singapore has performed well in international e-Government rankings, the next e-Government masterplan is already in the pipeline to ensure that we remain at the forefront of e-Government practice and services.

## CLOUD COMPUTING

Cloud computing allows computing infrastructure, platforms and software resources to be provided to users as services delivered over the network. It is characterised by huge scalability and Internet-scale computing, with businesses fulfilling their infocomm needs by procuring them as services through a “pay-as-you-use” utility model, for instance. Strategically, cloud computing provides new capabilities and business models for companies and users, with resource flexibility to meet changing demands and accessibility across geographies.

IDA is taking a strategic approach to leverage this paradigm shift in computing to sharpen the overall economic competitiveness of businesses in Singapore. This approach will encourage cloud adoption by flagship users, attract major cloud computing providers to Singapore, put in place the necessary enabling infrastructure and policies, raise the competency of the infocomm industry and manpower, and build our R&D knowledge capital with leading researchers and companies.

IDA is looking into these developments in the infocomm landscape and is working with the various economic sectors to create new competitive advantages through leveraging on business analytics.

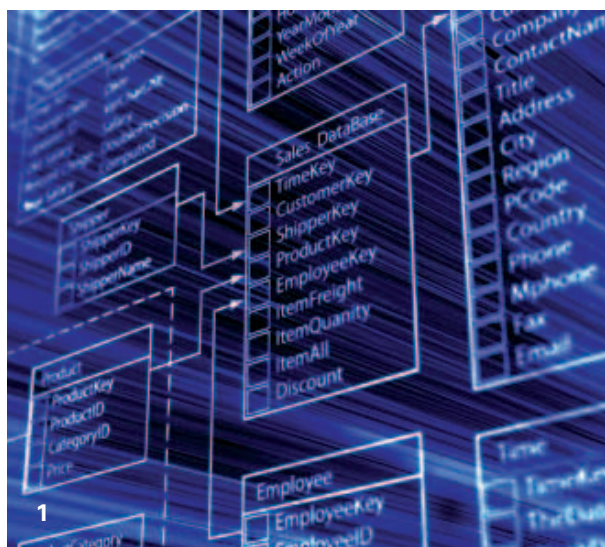
## GREEN ICT

Another important development is Green ICT. The adoption of energy efficient infocomm equipment, greening of data centres and infocomm infrastructure will enable more environmentally friendly usage of ICT. ICT can also be used to enable other economic sectors to better manage resource utilisation, such as through smart buildings and smart power grid. Some of the current initiatives in the area of Green ICT include the implementation of a government-wide infocomm procurement policy to use energy efficient PCs, and developing Green Data Centre standards and best practices.

Moving forward, IDA will continue to work with both private and public sector partners to identify new areas of collaboration and spearhead the adoption of Green ICT technologies in various economic sectors.

## BUSINESS ANALYTICS

Today, enterprises generate huge amounts of data from their daily business operations and processes. Increasingly, large enterprises are beginning to see the value of harvesting data through the exploitation of analytics for better business insights and decision making. In recent years, Oracle, IBM, Microsoft and SAP between them have spent more than \$15 billion on buying software firms specialising in data management and analytics. The data management and analytics industry is estimated to be worth more than \$100 billion and growing at almost 10 per cent a year, roughly twice as fast as the software business as a whole<sup>1</sup>.



<sup>1</sup> Source: Data, Data Everywhere, The Economist, 27 February 2010.

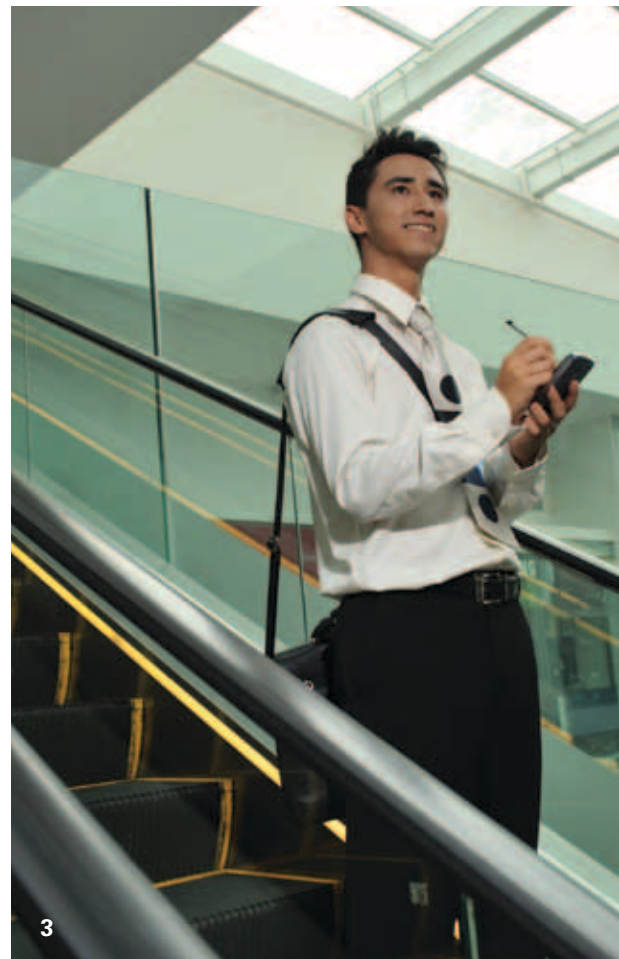


- 1 Leveraging business analytics for better business insights
- 2 Green ICT maximises resource utilisation
- 3 Adopting innovative technologies in public service delivery

## NEXT E-GOVERNMENT MASTERPLAN

We are coming to the completion of the current iGov2010 masterplan which commenced in 2006. As we formulate the next e-Government masterplan, we will continue to leverage on emerging technologies such as cloud computing, business analytics and new media to enhance service delivery and enable new business models for collaboration between government, businesses and citizens.

The strategic thrusts for the next e-Government masterplan are: **co-creating for higher value**, where government will continue to facilitate sharing of data and tapping on capabilities that reside in the private and people sectors to co-develop and deliver higher value services; **connecting for active participation**, where government will continue to establish effective means of interacting with the citizens to draw participation and to engage them on national policies; and **catalysing whole-of-government transformation**, through adoption of innovative and sustainable technologies in government to bring public sector effectiveness and productivity to the next level.





# IN CLOSING

The Singapore infocomm landscape has seen good progress since the launch of the iN2015 Masterplan and we are on track to achieve our desired goals by 2015. The masterplan has four building blocks in terms of infrastructure development, industry development, manpower development, and sectoral transformation.

- **Infrastructure Development.** IDA has put in place programmes to develop our Next Generation nationwide infocomm infrastructure, both wired and wireless, and we will continue to develop more exciting Next Generation services and applications for businesses and consumers. This will enable us to maintain our world class digital infocomm hub status.
- **Industry Development.** Our industry has seen growth in both domestic and export revenues, and we will see more vibrant developments through new opportunities overseas arising from our internationalisation efforts. We will continue to attract high value companies to Singapore, foster innovation in products and services, develop conducive infocomm policies, and help our local infocomm enterprises to expand overseas, so as to develop a vibrant and thriving ICT industry ecosystem.
- **Manpower Development.** Infocomm manpower has seen steady growth despite the recent economic recession. A comprehensive map of programmes target talent seeding in schools, talent attraction to infocomm as a career, talent development in tertiary institutions and talent upgrading and training in industry. We will continue to develop new capabilities in key emerging areas to grow a talented and highly capable force of infocomm professionals.
- **Sectoral Transformation.** IDA has been promoting the transformational use of infocomm in various economic sectors such as education and learning, healthcare, manufacturing and logistics, digital media and entertainment, financial services, tourism, hospitality and retail, as well as SMEs. IDA has been working with the industry and users to create integrated value chain platforms, introduce and deepen the use of innovative technologies and services, as well as create collaborative initiatives with sectoral champions. We will continue to work with existing sectors as well as to identify new sectors to use infocomm for greater productivity and bring about significant economic benefits. To build a digitally inclusive society, we will continue our various programmes to help needy households and the disabled have access to infocomm, as well as to increase the infocomm sophistication of the people sector.

As we continue with the implementation of the iN2015 masterplan, we are cognisant of the importance for iN2015 to remain relevant to the industry and end-users. We will therefore continue to work closely with our partners and stakeholders, in identifying and developing new strategies and initiatives and implementing various programmes. We look forward to collaborating with one another to realise the vision of **Singapore: An Intelligent Nation, A Global City, Powered by Infocomm.**



The Infocomm Development Authority of Singapore (IDA) is committed to growing Singapore into a dynamic global infocomm hub. IDA uses an integrated approach to developing info-communications in Singapore. This involves nurturing a competitive telecoms market as well as a conducive business environment with programmes and schemes for both local and international companies.

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