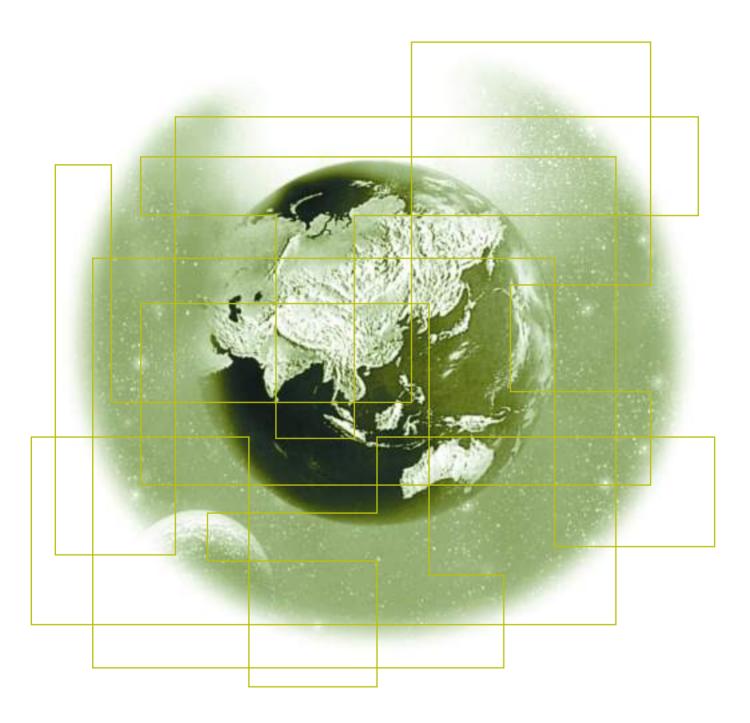# Infocomm 21

Singapore Where the Digital Future Is

To develop Singapore into a vibrant and dynamic global Infocomm Capital
with a thriving and prosperous e-Economy and a pervasive
and infocomm-savvy e-Society.

SINGAPORE WHERE THE DIGITAL FUTURE IS

C o n t e n t s   Page

SINGAPORE AS PREMIER INFOCOMM HUB

Help companies regionalise/globalise

Foster strategic partnerships & investments for business development & networks

Attract foreign investments in new growth areas; RHQs & OHQs

Develop cluster capabilities through strategic alliances & local industry upgrading programme

Build reputation as happening place for new-economy innovations

Nurture new high-tech enterprises

The Infocomm Value Chain

| Content Creators | Aggregators | Hosters Data Centres ASPs | Comms Infrastructure | Equipment |

Exploit new technologies & applications:
• Singapore as testbed

BRANDING (building the Singapore brand)

Links with related industries:
• Venture capital
• Legal services
• Financial services

Building The Whole Cluster

infocomm hub
building capabilities to take on the world

IBBMM programme (S-ONE)

Wireless programme

Software & services industry programme

Invest in newfibre

Build reputation as reliable & trusted place to do business

Create IPR hub

Building The Market: Demand & Supply

Create full competition in NII:
• Fixed line
• Wireless
• Broadband
• New: LMDS, 3G

Increase connectivity & traffic:
• New cables & linkages
• Global players in Singapore
• Local players go global

Restructure GLCs to become global players

EDB, NSTB, TDB

Industry

Alliance Partners

Industry associations

SBA MPA

VISION

We envision Singapore as the premier global infocomm hub in Asia-Pacific, with strong links to other key infocomm technology centres, development centres and marketplaces around the world. It will be a preferred location for infocomm companies' operations and regional headquarters, a magnet for infocomm talents, a hub for online content and new media, a centre for infocomm R&D and creation of intellectual capital, a place with 'buzz' for new start-ups and enterprises, and a real-life testbed and implementation environment for innovative infocomm systems, products and services.

DESIRED OUTCOMES

The desired outcomes (by 2005) are:

• Singapore as one of the two top infocomm hubs in Asia-Pacific
• Total infocomm sector revenue doubled from S$20 billion to S$40 billion
• Infocomm sector's contribution to GDP increased from 6% to 8-10%
• Export component of the infocomm sector increased from 50% to 70%

KEY STRATEGIES AND INITIATIVES

Strategy 1: **Developing a Globally Competitive Telecommunications Industry Cluster**

To be competitive in the New Economy, Singapore believes that we must have a strong national information infrastructure, with excellent connectivity to the region and the world. Our telecommunications cost must be globally competitive. We believe that the key strategy is to have global players anchored in Singapore, and to have our own domestic players go global.

Liberalising the Telecommunications Sector

Recognising the need for a free, open market for telecommunications services, Singapore announced in Jan 2000 the full liberalisation of its telecommunications sector on 1st April 2000, two years ahead of schedule. All foreign equity limits on telecommunications infrastructure providers were lifted.

Within months of liberalisation, a substantial number of new facilities-based operators and services-based operators were issued licences by IDA. They are bringing in substantial investments and creating jobs. Singapore has also witnessed substantial reductions in IDD rates.

Increasing Regional and Global Connectivity

With liberalisation, Singapore has begun to attract new submarine

cable landings into Singapore. Aggregate bandwidth will increase to more than 15 terabits per second based on the projected submarine cable landings in Singapore over the next 18-36 months. The local telecommunications companies are also restructuring to compete globally.

Exploiting the Latest Telecommunications Technologies

Singapore aims to be quick in embracing the latest technologies. The licensing frameworks for new wireless technologies such as third-generation (3G) mobile communications and Local Multipoint Distribution Service (LMDS) are being finalised for issue by early 2001.

Setting in Place a Pro-Competition Regulatory Framework

The Government has implemented a new regulatory framework that will facilitate open and fair competition in Singapore's fully liberalised telecommunications marketplace. Details can be found in a later chapter.

Strategy 2: Creating an IBBMM Industry Cluster

With the island-wide broadband infrastructure -- Singapore ONE (One Network for Everyone) -- approximately 99% of homes can choose between two means of access: Asymmetric Digital Subscriber Line (ADSL) or cable. A number of commercial buildings are also Singapore ONE-ready.

Stimulating Broadband Supply and Demand

Singapore recognises that compelling and relevant content and applications are the key to broadband growth. A S$150 million package aimed at stimulating demand for and supply of Interactive Broadband Multimedia (IBBMM) content and services includes an IBBMM Content Hosting Programme to attract content providers to host or hub their content in Singapore. With Government co-sharing the initial risk in new markets, companies are encouraged to develop and test innovative IBBMM content and business models in Singapore and extend their use throughout the region. Funding also covers co-sharing with industry the cost of international leased circuits, until full competition generates more competitive pricing. Broadband access is also being made more attractive to early adopters through reduced cost of equipment.

The Government's new regulation to open access for broadband will enable new infrastructure providers to offer broadband services via interconnection to the incumbents' infrastructure. Consumers will thus have more choices and more affordable services. A new Quality of Service (QoS) framework will further ensure higher quality services and hence encourage broadband adoption.

Creating Broadband Development Facilities and Testbeds

IDA is working with the industry to create development facilities and testbeds for field trials of integrated broadband products and services. Some of the new initiatives encourage industry cooperation to build ecosystems for broadband lifestyles at home, work, school and play. Real-estate developers and building owners are being encouraged to broadband-enable commercial buildings and industrial parks to create cyber-precincts. Hotels are exploring offering broadband services and facilities to infocomm-savvy travellers.

Strategy 3: Spearheading the Development of a Wireless Industry Cluster

The goal in developing a wireless industry cluster is to offer businesses and consumers a compelling conduit for the delivery and receipt of online content and services. Asia is expected to be one of the strongest regions of growth for mobile services. In September 2000, the number of cellular phone subscribers in Singapore (2.16 million) exceeded the number of fixed line subscribers (1.92 million) for the first time.

IDA's four-pronged strategy is:

Developing Wireless Infrastructure

IDA will issue fixed wireless (LMDS) and 3G broadband wireless licences in early 2001 so that the industry can develop new and innovative services early.

Accelerating the Buildup of Wireless Capabilities

It is timely to enhance the core of wireless research institutes and R&D facilities to have a critical mass of wireless capabilities. One tangible initiative is to set up Singapore's Wireless Technopark. The Wireless Technopark will provide infrastructure and facilities for R&D in wireless technologies and pilot test innovative wireless applications. It will be a 'meeting place' for leading edge companies to collaborate and jointly develop products and services. It will incubate start-ups and entrepreneurs in the wireless arena. Competency centres will develop capabilities in critical areas such as interoperability across info appliances and wireless networking and communications (for example Bluetooth).

Proliferating Wireless Content and Applications

Wireless adoption depends on the availability of compelling wireless content and applications. 2.5G applications using platforms like General Packet Radio Service (GPRS), Enhanced Data Rates for Global Evolution (EDGE) and others, will be offered by end-2000. To support content and application development, the Government will extend its existing incentive schemes into the wireless arena. IDA's manpower development and funding schemes will also support training in emerging technology areas. We will also facilitate mobile-commerce solutions with digital payment, security, identification and certification.

Developing Markets for Wireless Content and Applications

IDA will collaborate with the industry to showcase the wireless networking and wireless lifestyle. Government's own services are likely to be accessible over wireless appliances, such as Wireless Application Protocol (WAP) phones.

Strategy 4: **Positioning Singapore as an IPR Hub**

To support technology and innovation development, we need a conducive environment for the creation and patenting of technology and intellectual capital. It is important to strengthen our Intellectual Property Rights (IPR) framework, with a view to becoming a centre for IPR management.

IDA, in collaboration with key industry leaders, academia and research institutes (RIs), is developing a series of Infocomm Technology Roadmaps to guide local industry. These roadmaps provide the RIs and industry with scenarios, trends and insights to help them shape their business plans and make decisions about new technologies.

IDA will work with the National Science and Technology Board (NSTB) to bring together academia, research institutes and industry to work in areas identified by the technology roadmaps, to set up competency centres and to embark on collaborative projects in cutting-edge technologies.

IDA will support the development of national-level standards, through the Secretariat for the Infocomm

Standards Council of Singapore. IDA also leads the National Cable Standards Council, which oversees the deployment of cable standards and recommends emerging cable technologies for use in Singapore.

Building New Competitive Capabilities and Nurturing New Local Enterprises

Upgrading Capabilities of Local Enterprises
For Singapore's infocomm industry to become world-class, local enterprises (LEs) must not only be technically competent and able to exploit new technologies, they must also have capabilities in global marketing, operations and business development.

IDA, in concert with other Government agencies, has enhanced the Infocomm Local Industry Upgrading Programme (I-LIUP) to ensure its relevancy. LEs will be able to work with infocomm MNCs on capability development and upgrading, and consult with venture capitalists, patent lawyers, and financial and business consultants.

IDA will also provide customised support to local companies with the capability to go global. These include technopreneurial companies, which may grow to international importance in just months from start-up.

Nurturing Growth of New Enterprises
As the New Economy is constantly changing, IDA is taking a flexible approach towards nurturing LEs. IDA will continue to support the Government's Technopreneurship 21 initiative. We will also continue to fund certain activities through grants but will consider a broader menu of assistance including low-interest loans or equity stakes. IDA will take care to complement and partner with the private sector. In all cases involving funding, the following strategic objectives must be met:

• Jump-start developments in an emerging business area to create a more attractive commercial environment;
• Stimulate private sector investment in strategic areas, in particular in infrastructure that can be shared by others or benefit others beyond the investing company;
• Develop businesses and activities that may not get started otherwise, or at the pace necessary for Singapore to become a premier infocomm hub.

Fostering Strategic Partnerships and Alliances Overseas

Helping Companies to Regionalise and Globalise
In this era of globalisation, companies must regionalise and globalise. IDA, together with other Government agencies, will facilitate strategic partnerships and alliances between local and overseas companies. LEs can tap on foreign resources and talent in China and India for example, and expand their markets beyond Singapore.

Foreign MNCs will also be encouraged to form joint ventures or invest in promising local companies to develop infocomm products and services for the regional markets. Foreign countries are also important

sources for original content. Singapore, with its multi-lingual and multi-cultural population, is well positioned to play a key role in re-packaging and re-purposing content for regional and global consumption.

Providing Market Intelligence and Market Outreach Services

IDA, in collaboration with other Government agencies, is establishing representative offices in key markets around the world. These will provide market intelligence to local companies and help facilitate partnership opportunities.

Targeting New Investments

To be a global node, Singapore must be attractive to global companies looking for operational centres in Asia. IDA supports the Economic Development Board (EDB), the Singapore Government's lead agency for the promotion of inward investments, in its efforts to attract new infocomm investments. IDA will also promote Singapore as a cyber-gateway to the region, and as a nation-wide testbed for innovative infocomm applications and services.

iDA
INFOCOMM
DEVELOPMENT
AUTHORITY OF
SINGAPORE

Head Office

8 Temasek Boulevard,
#14-00 Suntec Tower Three
Singapore 038988
Tel: (65) 211 0888
Fax: (65) 211 2222

US Office

333, Twin Dolphin Drive,
Suite 145 Redwood Shores
San Francisco CA94065
USA
Tel: (650) 654 1185
Fax (650) 654 8889

www.ida.gov.sg

The INFOCOMM DEVELOPMENT AUTHORITY OF SINGAPORE (IDA) is a dynamic organisation with an integrated perspective to developing, promoting and regulating info-communications in Singapore. In the fast-changing and converging spheres of telecommunications, information and media technologies, IDA will be the catalyst for change and growth in Singapore's evolution into a vibrant and dynamic global Infocomm Capital.