



Chicago, Illinois - USA
29 May – 2 June 2006

SOURCE : TIA

TITLE : TIA 2006 Industry Playbook

AGENDA ITEM : OPEN 4.8

DOCUMENT FOR :

Decision	
Discussion	
Information	x

1 DECISION/ACTION REQUESTED

N/A

2 REFERENCES

Released May, 2006

URL: <http://www.tiaonline.org/business/media/documents/PolicyPlaybook2006.pdf>

3 RATIONALE

To make this 2006 TIA Industry Playbook report available to PSOs, facilitating information sharing and coordination, with regard to the communications technology market and the policies needed to drive innovation.

4 CONSEQUENCES AND IMPLICATIONS

Potentially improved coordination and less duplication of effort.

5 ISSUES FOR DISCUSSION

**Telecommunications Industry
Association**

2500 Wilson Blvd. Suite 300
Arlington, VA 22201-3834 USA

Phone: + 1 (703) 907-7700
Fax: + 1 (703) 907-7727
www.tiaonline.org

AFFILIATE OFFICE

United States Information
Technology Office (USITO)
Room 516, Beijing Fortune Plaza
Office Tower
No. 7 Dongsanhuan Zhong Lu
Chaoyang District, Beijing, 100020
China

Phone: + 86 (10) 6530-9368/69/70
Fax: + 86 (10) 6530-9367

www.usito.org
usito@usito.org



TIA represents the communications sector
of the Electronic Industries Alliance



Industry Playbook



ADVANCING GLOBAL COMMUNICATIONS

TELECOMMUNICATIONS INDUSTRY ASSOCIATION

An overview of
the communications
technology market
and the policies needed
to drive innovation

2006

www.tiaonline.org

3M Com. Mkts Div. Enterprise Bus. • A.C. Data Systems, Inc. • Accenture • ACE*COMM Corporation • Acme Packet • ACS (Atlanta Cable Sales) • Acterna • Aculab • Adax, Inc. • ADC • ADTRAN • ADVA Optical Networking Inc. • Advantest Amer. Measuring Sol., Inc. • Advent Instruments, Inc. • Adventis • AdventNet Inc. • Aeras Networks • Aeris.net • Aeroflex • Agilent Technologies, Inc. • Airpax Corporation • Airvana, Inc. • Albercorp • Alcatel USA • Alcon Technologies • Allen Tel Products • Allied Telephone and Data Corp. • Allied Telesyn • Allied Tower Company • Alloptic • Amedia Networks • America's Network • American Access Technologies • American Power Conversion • Americas Generators • Amino Communications • Analog Devices, Inc. • Anda Networks, Inc. • Anritsu Company • APCON, Inc. • Aperto Networks • Apple Computer, Inc. • Applied Voice & Speech Tech., Inc. • APX Enclosures, Inc. • Argent Associates, Inc. • Argus Technologies • ARNCO Corporation • ArrayComm, Inc. • Artdio Company Inc. • AST Technology Labs, Inc. • ATLINKS USA • Atreus Systems • AudioCodes Inc. • Augmentix Corporation • Austin Wireless • Avaya • Avici Systems Inc. • Award Solutions Inc. • Aware, Inc. • Axalto, Mobile Communication Div. • Axerra Networks • B & B Battery (USA) Inc. • Bacik Karpinski Associates, Inc. • Baxter Enterprises • Bay Microsystems • BayPackets • bcgi • Bechtel Telecom • Beehive Telephone Company, Inc. • Benner-Nawman, Inc. • Benning Power Electronics, Inc. • Berkeley Varitronics Sys., Inc. • Bermuda Technologies Limited • BI Technologies Limited • Big Bear Networks • BigBand Networks • BigBangwidth • Bizphyx, Inc. • Bourns Limited • Bowman • Bridgeport Networks • Bridgewater Systems Inc. • BroadSoft, Inc. • BTECH, Inc. • BTI Communications Group, Ltd. • Business-To-Business Mktng Services Inc. • C & C Power, Inc. • C&D Technologies, Inc. • C-COR • CABA • CABLCON • Cablofil, Inc. • Calient Networks • Cam Communications, Inc. • Camelot Communications Group • Canoga Perkins Corp. • Canon USA, Broadcast & Comm. Div. • Capitol Technology Affairs, LLC • Carling Technologies, Inc. • Carlon, Lamson & Sessions • Carlson Wireless Technologies, Inc. • Carrius Technologies, Inc. • Casco Manufacturing • Caterpillar Inc. • CDMA Development Group • CEECO • Celite Systems • Cellular Networking Perspectives • CelPlan Technologies • Centech, Inc. • Centillium Communications Inc. • Central Steel Fabricators, Inc. • Central Valley Internet Project • Ceragon Networks, Inc. • Ceterus Networks • Charles Industries, LTD. • Chorus Call, Inc. • CIBERNET Corporation • CIENA Corporation • Circadiant Systems • Cirronet, Inc. • Cisco Systems, Inc. • CITEL, Inc. • CML Microcircuits (USA) Inc. • Cobra Wire & Cable, Inc. • Coding Technologies • Cognitronics Corporation • Commercial Electric Products • CommFlow Resources Inc. • CommScope Network Division • Communications Products Inc. • Communications Test Design Inc. • Computer Connection • Comstructure LLC • Condumex, Inc. • Condux International, Inc. • Conklin Intracom • Connecticut Technology Products • Connection Technology Systems Inc. • Connectivity Technologies, Inc. • Consultronics • Continuous Computing Corp. • Convidia Corporation • Corcom Inc., A Div. of Tyco Electronics • Cordell Inc. • Corning Incorporated • Corrigent Systems • Coscomm Aerospace International • Covaro Networks, Inc. • Coyote Point Systems • CP Technologies •

Telecommunications Industry Association (TIA)



ADVANCING GLOBAL COMMUNICATIONS

A leading trade organization serving the Information and Communications Technology (ICT) industry

- Representing manufacturers and suppliers of high-tech equipment, products and services used in global communications.
- Demonstrating proven strengths in domestic and international public policy, global standards development, and trade shows.
- Facilitating business development opportunities and a competitive market environment worldwide.

Credit Suisse First Boston • CSB Battery Technologies Inc. • CSI Telecommunications • Cubic Defense Applications • Custom Cable Industries, Assembly • Custom Computer Services • Dan-Chief Enterprise Co., Ltd. • Data Connection Corp. MetaSwitch • Dataflow Management LLC • Dataradio Inc. • Datron World Comm. Division • Dayton T. Brown, Inc. • De Lage Landen • Device Technologies Inc. • DiagnoSYS Systems, Inc. • Dialexia Communications, Inc. • Diamond USA, Inc. • Dietrich Lockard Group, Inc. • Digital Fountain • Digital Lightwave, Inc. • Digital Voice Systems, Inc. • Direct Impact Enterprises • DK Technology, Inc. • Dorado Software • Douglas Battery Mfg. Co. • DPS Telecom • Draka Fibre Technology • DSET Corporation • E-T-A Circuit Breakers • E.F. Johnson • eAccess Ltd. • Eagle Teleconferencing • East Penn Manufacturing Co. Inc. • Eastern Research, Inc. • ECG Consulting Group Inc. • ECI Telecom, Inc. • EDI Enterprises, Inc. • Efore (USA), Inc. • Electriphy • Electrodata, Inc. • Electronic Tele-Communications • Elite Electronic Engineering Co. • Elma Electronic Inc. • Eltek, Power Conversion Products • EmCom Technology Inc. • EMKA Inc. • Encore Networks • EnerSys Inc. • ENTEL Corporation • Entrisphere, Inc. • Erico, Inc. Caddy Fastener Div. • Ericsson Inc. • Ernst & Young • ESPRE Solutions • ESRI Inc. • Essex Corporation • Etherstack • Ethertronics, Inc. • ETI Connect • Excel Switching Corporation • Executive Conferencing • Exporior Photonics, Inc. • EZchip Technologies inc. • FAL Associates • Falcon Solutions • Fiber Connect, Inc. • Fiberoptic Product News • FiberSource Inc. • Fibrebond Resources, Inc. • Fine Point Technologies, Inc. • Flarion Technologies • Fluke Networks • FTR&D LLC • Fujitsu Network Communications, Inc. • Fulcrum Technologies • Fultec Semiconductor Inc. • Gallery IP Telephony • GarrettCom • Gaston Battery Industrial LTD • Gemplus Corp. • General Bandwidth • General Cable • Global Consultants, Inc. • Global Locate • Globalstar • Globenet Telecommunications Inc. • GNB Industrial Power • GNP Computers • GoDigital Networks Corporation • Grandstream Networks, Inc. • Graybar • Grayson Wireless • Greenlee, a Textron Co. • Greyfox Systems, Inc. • GS Battery (U.S.A.) Inc. • Gus Berthold Electric Co. • Hammerhead Systems, Inc. • Hargis Engineers Inc. • Harmonic Inc. • Harris Corporation • HARTING, Inc. of North America • Hatteras Networks • HAZE Battery (USA), Inc. • HellermannTyton • Hendry Telephone Products • Henkels & McCoy Inc. • Hewlett-Packard • Hirschmann-USA • Hitachi Telecom (USA) Inc. • Homaco • Hostopia Inc. • Hughes Network Systems • HyperEdge Corporation • I'M Technologies Ltd. • IBM • ICBS • ICC • Icom America Inc. • Ideal Industries, Inc. • Independent Technologies Inc. • Indesign, LLC • Ingersoll-Rand Energy Systems • Innocor Ltd. • Inquam (UK) Limited • Insight Management Group, Inc. • Institute of Telecom Resellers, The • Integral Access, Inc. • Intel Corporation • InterDigital Communications Corporation • Internet Commerce Group, Inc. • Interoperable Wireless • Intersect, Inc. • Interstate Powercare • Intertek Testing Services • Intrado • IP Unity • IPC Info Sys/Command & Cont. Div. • ITT Industries Net. Sys. & Srvs. • ITW Chemtronics • ITW Linx • Iwatsu Voice Networks • IXIA Communications • J&M Consultants, Inc. • Jenne Distributors • John Galt Communications • JPMorgan Chase & Co. • Jungo Software Technologies • Juniper Networks, Inc. • Kawajiri & Associates • Kenwood USA Corp.

U.S. Market Overview: **New Trends**



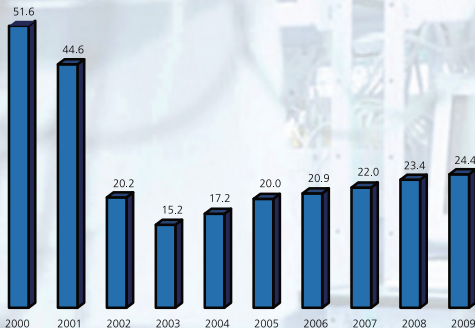
- Converged IP-based multimedia services from all industry players
- Next-generation wired and wireless broadband deployments
- Voice from traditional video providers, video (such as IPTV) from traditional voice providers
- Bundle of services, flat-rate pricing, distance insensitivity
- Global markets, customers and production cycles





U.S. Market Overview: Network Equipment

U.S. Spending by Carriers
on Network Equipment (\$ Billions)



Source: TIA's 2006 Telecommunications Market Review and Forecast

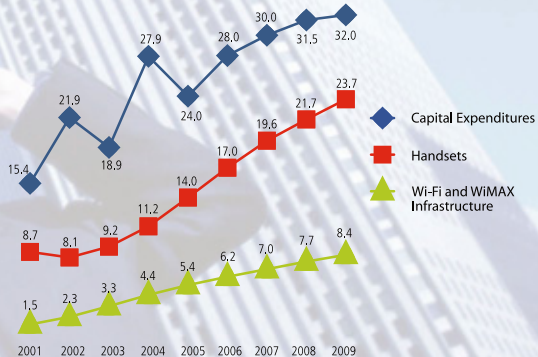
- After falling 71% between 2000 and 2003, spending rose 31% between 2003 and 2005.
- Rebound in fiber spurred by Regional Bell Operating Company (RBOC) entrance into TV.
- Increased traffic will stimulate further investment in network equipment.
- Growth will average 5.2% compounded annually to \$24 billion in 2009. This is still less than half the total in 2000, but 61% higher than in 2003.

U.S. Market Overview: Wireless Equipment



- 3G/Wi-Fi®/WiMAX will fuel growth in 2006-2009.
- New models and features are driving mobile phone purchases.
- Revenue expected to reach \$64 billion in 2009, a 11% compound annual growth rate (CAGR).

U.S. Wireless Equipment Revenue (\$ Billions)

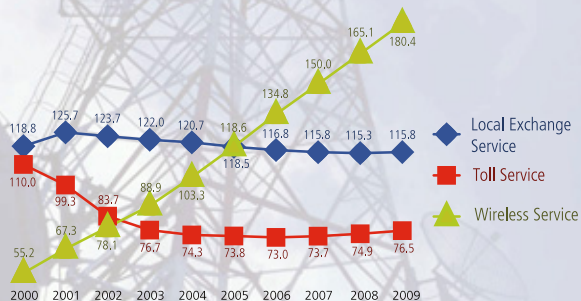


Source: TIA's 2006 Telecommunications Market Review and Forecast



U.S. Market Overview: Services

U.S. Revenue from Transport Services (\$ Billions)



Source: TIA's 2006 Telecommunications Market Review and Forecast

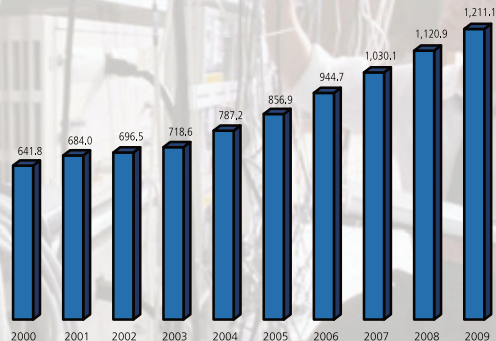
- Revenue from landline services (local exchange and toll services) continued to fall in 2005 and wireless services continued double-digit gains.
- SMS, photos, music, games, and wireless Internet access are growing rapidly.
- VoIP and flat-rate bundling will stabilize the landline services market.
- Revenue from wireless services will pass local landline revenue in 2006.

U.S. Market Overview: Telecommunications



- Marked improvement in 2005 for equipment and services buoyed by a second consecutive yearly increase in equipment revenue.
- Overall market grew 8.9% between 2004 and 2005, with a 10.2% increase projected for 2006.
- Revenue will reach \$1.2 trillion by 2009 from \$857 billion in 2005, a 9.0% CAGR.

**U.S. Revenue from Telecommunications
(\$ Billions)**



Source: TIA's 2006 Telecommunications Market Review and Forecast

• KRONE, Inc. • Kyocera Telecomm. Research Corp. • L.E.K. Consulting • La Marche Manufacturing Co. • Laurel Networks • LEC Services, Inc. • Leoch Battery Technology Co. • Leviton Manuf. Voice & Data Div. • Lexcom Telecommunications Co. • LG InfoComm U.S.A., Inc. • Liebert Corporation • LightPointe • Lightsurf Technologies, Inc. • Lightwave Magazine • LinkAir Communications (USA) Inc. • Littelfuse Inc. • Lockheed Martin Corporation • LogicaCMG • Loop Telecommunications Int'l • Lucent Technologies Inc. • LumenVox • Luminous Networks, Inc. • Lynx Photonic Networks • M/A-Com, Inc. • Magnetek Telecom Power Group • Magnolia Broadband, Inc. • Mahi Networks • Management Network Group, Inc., The • Management Resources International • Mangrove Systems Inc. • MapInfo Corporation • Marconi • Marks Mobile Consulting, LLC • Marlin Leasing Corp. • Matsushita Electric Works, R&D Lab. Inc. • Max Global Ventures • Maxtech (USA) Co., Ltd. • MegaSys Computer Technologies • Megger • MemoryLink • MentorGen LLC • Mecom Systems Inc. • Meriton Networks Inc. • MeshNetworks • MET Laboratories, Inc. • Metallic Power • MetaSolv Software, Inc. • METRObility Optical Systems • Metropolitan Telephone Co., Inc. • MICROSENS Inc. • Microsoft TV Division • Microtronix Systems Ltd. • Microwave Networks • Midland Radio Corp. • Mikom Switzerland • Mitel Networks, Inc. • Moreng Telecom Products • Moroney & Company, LLC • Motorola Inc. • Movaz Networks, Inc. • Myrio Corporation • National Technical Systems (NTS) • Natural Wireless, LLC • Navini Networks • NDS • NEC America, Inc. • Nello Corporation • NeoPhotonics • Net AC • Net Intent, LLC • Net to Net Technologies • net.com • NetDevices • NetFabric Corporation • Netrake Corporation • NetTest • New Paradigm Resources Grp, Inc. • Newmar • Newport Networks • NEWS IQ Inc. • Nexans DBA Berk-Tek • NexTone Communication • Nokia Inc. • Noran Tel Communications • Nortel • Northern Technologies, Inc. • Northwest Information Services • Nova Electric • Novatel Wireless, Inc. • Numerex Corp. • Occam Networks, Inc. • Odin TeleSystems Inc. • OFS • Oki Network Technologies • Omnilux • OmniOSS Inc. • Omnitron Systems Technology, Inc. • Optek Technology • Optimum Data, Inc. • Optoway Technology Inc. • Ortronics, Inc. • Outside Plant Magazine • Overture Networks, Inc. • PacketFront • PacketHop • Panasonic Digital Comm. & Security Co. • Panduit Corp. • Pannaway Technologies • Parama Networks • PenCell Plastics • Personeta, Inc. • Phoenix Contact • Photon Kinetics, Inc. • Photonic Bridges, Inc. • PIKA Technologies Inc. • Pioneer Magnetics, Inc. • Pirelli CCNS North America • Plasticomm Industries Inc. • Pleiades Communications • Plug Power Inc. • Polycom, Inc. • PolyPhaser Corporation • Power & Telephone Supply Co. • PowerWare Corp Small Systems Group • PreTel Solutions • ProQuent Systems • ProsoftTraining • Public Safety Broadband Res. Ctr. • Purcell Systems, Inc. • Pylon Electronics, Inc. • QENEX, Div. of Eller Industries, Inc. • Quabbin Wire & Cable Co., Inc. • Qualcomm Incorporated • Quarry Technologies • R.J. Enterprises • RackFrame • RAD Data Communications • Radian Heatsinks, Div. Intricast Co. • RadioFrame Networks, Inc. • RCC Consultants, Inc. • RedBack Networks Inc. • REDCOM Laboratories, Inc. • Redknee Inc. • Redline Communications Inc. • ReliOn • RELM Wireless • Remeo Products Corp. • Remote Switch Systems, Inc.

U.S. Market Overview: Technology Convergence



- Product and service “silos” are disappearing as a wide range of technology platforms compete to offer integrated communications capabilities.
- Consumers expect connectivity and access to voice, video and data services any time, any place, with any device, over any network.
- Next-generation networks that enable services like VoIP and broadband video are revolutionizing the way we communicate.





ADVANCING GLOBAL COMMUNICATIONS



Technology Convergence: **TIA Mission**

Achieve a national and global market-driven policy framework that:

- Fosters the diffusion of innovative communications technologies into and across all markets
- Encourages investment in next-generation network facilities
- Promotes competition in the provision of multimedia applications and services
- Spurs the proliferation of end-user devices



■ **Wide variety of broadband platforms:**

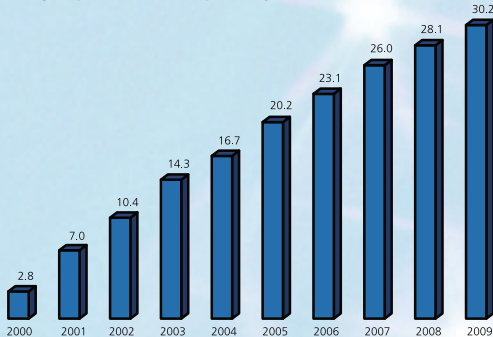
- ▶ xDSL/fiber to the premises (FTTP)
- ▶ Cable modems
- ▶ Mobile wireless networks
- ▶ Fixed wireless networks
- ▶ Satellites
- ▶ Powerline technologies
- ▶ What's next?





Broadband: Sector Snapshot

U.S. High-Speed Services Spending (\$ Billions)



Source: TIA's 2006 Telecommunications Market Review and Forecast

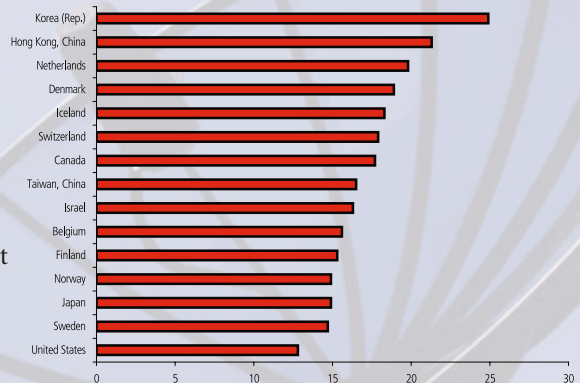
- Broadband connections passed dial-up in 2005.
- RBOC-Multiple System Operator (MSO) competition driving broadband prices down.
- Demand for high-volume applications – music, video games, movies – fueling growth.



U.S. lags in broadband deployment.

- The U.S. slipped from 13th to 15th in broadband deployment between 2004 and 2005.
- Other countries, led by Korea and Canada, have strategic visions for broadband deployment.
- U.S. must not be outpaced by major trading partners in deployment of cutting-edge technologies and networks.
- Lack of broadband connectivity inhibits job creation in the U.S.

Broadband Penetration January 2005 (Percent)



Source: ITU Internet Reports 2005: The Portable Internet



Broadband networks and applications accelerate social and economic development by:

- Connecting communities with the essential infrastructure of the 21st Century
- Sustaining, reinventing, creating and multiplying jobs
- Enhancing productivity, enabling teleworking
- Boosting manufacturing
- Offering new tools for public safety and homeland security
- Improving public health facilities through telemedicine and digital hospitals
- Facilitating e-government
- Fostering powerful educational tools in the classroom and for distance learning
- Making the power of communications accessible to all

Broadband: TIA Broadband Principles



- The United States needs a well-defined, aggressive national broadband policy to drive widespread deployment.
- Affordable, highly advanced and secure communications services should be available to all Americans.
- Competitive market forces, not regulations, should be the principal means of achieving this goal.
- Governments should intervene only where such intervention (1) is necessary to effectively address a specific, critical problem and (2) is targeted and otherwise designed to minimize disruption of competitive market forces.
- Governments should implement policies that encourage investment in new and diverse communications technologies.
- Governments should make the necessary radio spectrum available for the deployment of advanced communications services.
- All players – government, private sector and consumers – should participate in the formulation of broadband policy.



Broadband: **TIA Broadband Mission**

Promote ubiquitous broadband deployment in the U.S. and around the globe.

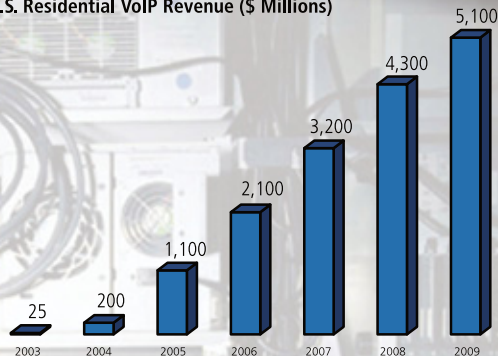
- Achieve President Bush's goal of universal, affordable access for broadband technology by the year 2007.
- Advocate for minimal regulation of broadband networks.
- Work for removal of barriers to broadband deployment, including rights-of-way impediments, franchise fees and excessive taxes.
- Support fiscal incentives, such as tax credits, grants, pilot-project funding and low-interest loans.
- Assist international organizations to realize the economic and social benefits of broadband.
- Encourage deployment of all broadband access technologies.
- Seek additional globally harmonized spectrum allocations.



Voice over Internet Protocol

- Market driven by expanding broadband universe, low prices and range of features.
- E911 issue implementation being addressed.
- VoIP will help slow the decline of the landline services market.
- U.S. Residential VoIP Revenue rose from \$25 million in 2003 to \$1.1 billion in 2005.
- Residential subscribers more than tripled to 4.2 million in 2005 and are expected to grow at a compound annual rate of 43.9% from 2006 to 2009.

U.S. Residential VoIP Revenue (\$ Millions)



Source: TIA's 2006 Telecommunications Market Review and Forecast



Broadband: TIA VoIP Policy Principles for the U.S.

- Regulation should not be applied to VoIP without thorough justification that it is necessary as a matter of public policy.
- A single, exclusive federal policy for VoIP regulation is a must because of the nature of the technology.
- All communications technologies should play a part in advancing core public interest issues such as emergency response needs and universal service.
- VoIP offerings should be marketed in a manner that allows consumers to make informed choices.

Broadband-Enabled Services: TIA Broadband Video Policy Principles



- Regulatory barriers can discourage and/or impede investment in networks, while deregulation leads to increased investment, competition and innovation.
- The local franchise process is a regulatory barrier to entry into the video market that impedes timely investment in new facilities and capabilities, slowing delivery of competitive and innovative services to consumers.
- The local franchise process should be replaced with a uniform, federal system that will be managed by the FCC with limited input by existing local franchise authorities.





Broadband: TIA U.S. Broadband-Enabled Services Mission

- Promote the growth of next-generation networks and applications unfettered by economic regulation.
- Ensure the deployment of, and competition among, diverse broadband platforms and the voice, video and data applications and services they enable.
- Seek industry-driven solutions for core public interest issues.



Broadband: Broadband Internet Access Connectivity



- TIA believes the FCC has jurisdiction to vigilantly monitor the broadband Internet access service market and expeditiously review any complaint of anticompetitive activity. Without significant evidence of problems, the FCC should avoid detailed rules and address any issues that arise on a case-by-case basis.
- A competitive broadband Internet access market offers consumers the ability to:
 - ▶ Receive meaningful information regarding service plans.
 - ▶ Have access to their choice of legal Internet content, be able to run applications and use devices of their choice, and attach any devices they choose to their broadband Internet access connection, as long as they operate within the bandwidth limits and quality of service of their service plans and do not harm the provider's network or enable theft of services.



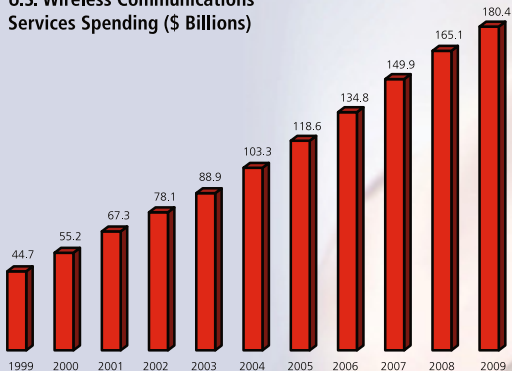
Broadband: Broadband Internet Access Connectivity

- A competitive market also gives facilities-based broadband Internet access providers incentives to make risky investments while precluding anticompetitive behavior against unaffiliated businesses. Providers should remain free to:
 - ▶ Engage in pro-competitive network management techniques to alleviate congestion, ameliorate capacity constraints, and enable new services, consistent with the technical characteristics and requirements of the broadband platform.
 - ▶ Offer additional services to supplement broadband Internet access, including speed tiers, quality of service tiers, security and spam services, and network management services, as well as enter into commercially negotiated agreements with unaffiliated parties for the provision of such services.
 - ▶ Continue to optimize network efficiency, enable new services and create incentives for continued build-out to meet increasing capacity demands.
 - ▶ Innovate in deploying managed services, such as packaged video programming, that utilize the same networks but are distinct from public Internet access.

Wireless: Sector Snapshot

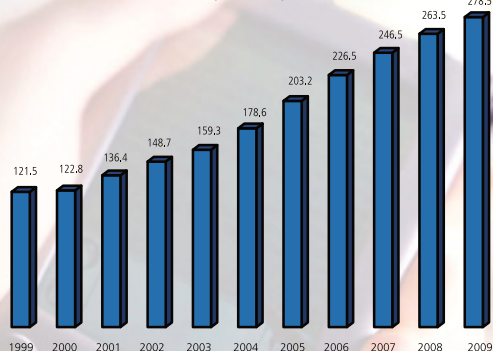


U.S. Wireless Communications Services Spending (\$ Billions)



Source: TIA's 2006 Telecommunications Market Review and Forecast

U.S. Wireless Subscribers (Millions)



Source: TIA's 2006 Telecommunications Market Review and Forecast



Wireless: TIA Spectrum Policy Principles

- Spectrum policy should maximize public benefits of spectrum use by controlling harmful interference, fostering competition and eliminating artificial spectrum scarcity.
- Responsible government agencies should coordinate to ensure that additional spectrum for advanced wireless services is made available in a timely manner.
- Global harmonization and coordination of spectrum should be a priority.
- Spectrum allocations and assignments should be made by open and transparent processes that are market-driven and provide for government/industry consultation.

Wireless:
TIA Spectrum Mission



- Advocate forward-looking, market-oriented spectrum management policies and seek additional spectrum allocations for advanced wireless services and interoperable public safety systems.
- Encourage global harmonization and coordination of spectrum allocations.
- Promote technology neutrality, the principle that service providers must be given the flexibility to independently choose technologies and platforms based on commercial and competitive considerations.





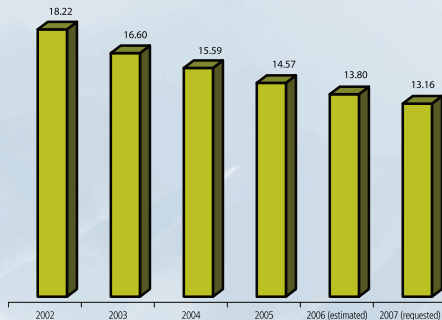
Federal Funding: **Communications Research**

- TIA created its Communications Research Division (CRD) in 2005, an outgrowth from its Chief Technology Officer (CTO) Council. The purpose of the CRD is to advocate for more federal funding for communications-specific, pre-competitive, basic research.
- The CRD strongly believes:
 - ▶ Research is the foundation of the communications industry — a building block for the future development of advanced communications products and services.
 - ▶ Developing leading-edge communications applications is complex, requiring time, money and long-term vision. U.S. industry can no longer afford to self-fund long-term, basic research at necessary levels.
 - ▶ The U.S. government is not spending enough money on long-term, communications-specific, basic research. As a result, U.S. leadership in this vital area is waning.
 - ▶ Other regions and countries, including the EU, Japan, China and Canada, have well-supported national basic research programs in communications.



- Communications is a critical infrastructure, and it is the backbone for every other industry in America.
- However, total U.S. federal spending on large scale networking (LSN) R&D, as a percentage of total federal IT R&D, has fallen steadily since 2002.
- LSN includes communications and high-performance networking R&D in leading-edge technologies and services.

Federal Spending on Large Scale Networking (LSN) R&D as a Percentage of Total Federal IT R&D



Source: National Coordination Office for Networking and Information
Technology Research and Development
www.nitrd.gov



Federal Funding: **TIA Research Mission**

- Increase U.S. federal funding for communications-specific, pre-competitive, basic research.
- Mechanisms to address the funding problem:
 - ▶ Increase funding for the National Institute of Standards and Technology.
 - ▶ Increase funding for National Science Foundation research programs.
 - ▶ Increase funding for Department of Defense 6.1 Basic Research Programs.
 - ▶ Establish a National Technology Advisory Board for Communications, chartered to plan and coordinate federally funded, communications-specific, basic research funding. The Board should include representatives from government, industry and academia.



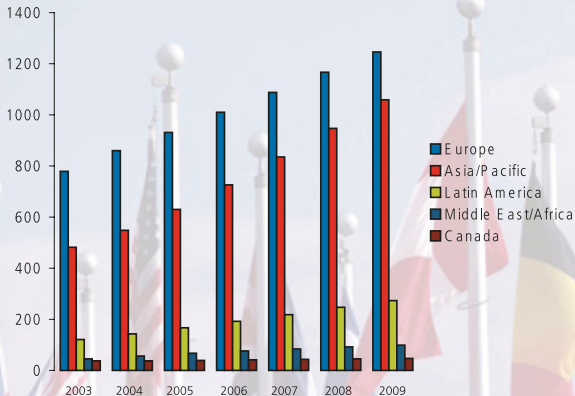
■ Technical areas requiring additional and/or targeted funding:

- ▶ *Universal Broadband* – Affordable broadband access and connectivity, using all available media and carrying all services.
- ▶ *Security* – New authentication, encryption and monitoring capability for all public broadband networks to protect against attacks.
- ▶ *Interoperable Mobility* – Accessing commercial mobile and emergency services over any mobile network from any mobile instrument.
- ▶ *Telecommunications Research for Homeland Security* – Interoperability, security, survivability and encryption of networks.
- ▶ *Networking Architectures* – Research on hardware, software and tools that provide the communication, analysis and sharing of very large amounts of information.
- ▶ *Communications-specific Nanotechnologies* – Discoveries of nanoscale-level materials used in communication networks and devices.



International Market Overview

International Telecommunications Revenue (\$ Billions)



Source: TIA's 2006 Telecommunications Market Review and Forecast

- Europe spent the most in the world on telecommunications equipment and services in 2005, at \$931 billion.
- Asia-Pacific, Latin America, and Middle East/Africa will be the fastest growing international markets.
- Asia-Pacific will pass the \$1 trillion level in 2009 and Europe will exceed \$1.2 trillion.

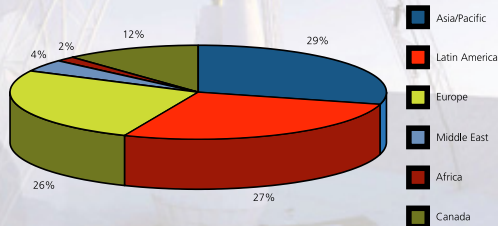
International Market Overview

U.S. Trade



- Overseas markets represent an ever-increasing source of revenue for the communications industry.
- Tracking with overall regional telecommunications expenditures, the Asia Pacific region represents the largest export market for TIA member companies (followed closely by Latin America).
- Two of the largest and fastest growing markets in Asia are China and India, though other large developed and developing markets in the region include Japan, Korea, Malaysia, Thailand and Vietnam.

U.S. Exports of Telecommunications Equipment by Region

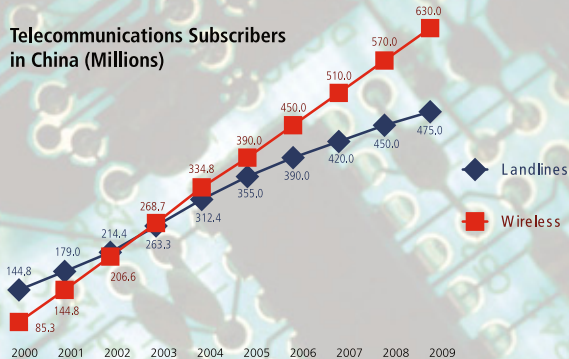


Source: TIA's 2006 Telecommunications Market Review and Forecast



International Market Overview China - Sector Snapshot

**Telecommunications Subscribers
in China (Millions)**



Source: TIA's 2006 Telecommunications Market Review and Forecast

- China is the world's largest telecom market in both fixed and wireless subscribers.
- China will continue to be a critical market for global communications companies, and bilateral industry and government engagement will be essential to ensure market access and fair competition.

International Market Overview: India - Sector Snapshot



- India is an attractive market for U.S. companies because of its burgeoning economy and market potential.
- Indian government policy is focused on ICT deployment and investment.
- India has significant geopolitical importance in areas of security and trade.

Telecommunications Subscribers in India (Millions)



Source: TIA's 2006 Telecommunications Market Review and Forecast



- Enforce existing commitments by signatories to the World Trade Organization (WTO) Agreement on Basic Telecommunications Services (BTA), Information Technology Agreement (ITA), Government Procurement Agreement (GPA) and Agreement on Technical Barriers to Trade (TBT).
- Ensure that communications services are liberalized on a technology-neutral basis.
- Bilateral and multilateral telecom agreements should include transparency, independent regulatory authorities, non-discrimination against foreign suppliers and technology neutrality.

International Market Overview: **TIA Trade Mission**



Facilitate business development opportunities for U.S. suppliers by promoting full, fair and open competition in international markets.

- Promote bilateral free trade agreements that include substantive telecom chapters.
- Encourage countries to make and adhere to commitments in the WTO Basic Telecom Agreement and other WTO agreements.
- Work with member companies to eliminate or reduce traditional market access barriers and technical barriers to trade.
- Develop and monitor opportunities in key markets.
- Advocate on behalf of TIA members in China through the U.S. Information Technology Office (USITO) in Beijing. TIA is a founding organization of USITO.
- Organize policy and business development events such as GLOBALCOMM™ INDIA (New Delhi, February 7-9, 2007) and technology and policy summits in China and other key markets.



TIA Standards Program: **Overview**

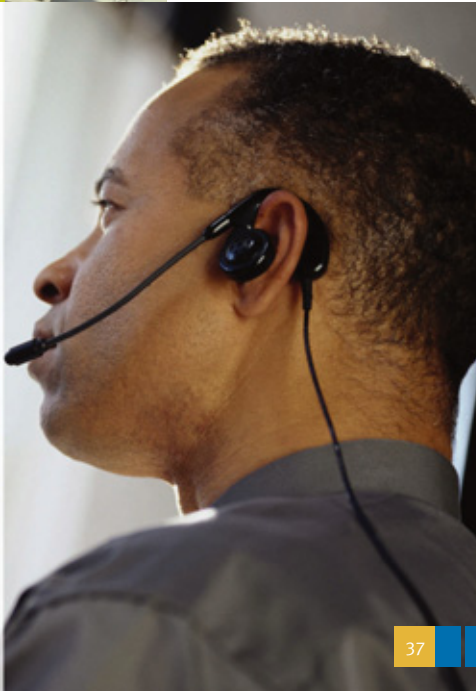
Accredited by the American National Standards Institute (ANSI) to develop voluntary, consensus, industry standards for a wide variety of telecommunications products and systems.

- Supports nine product-oriented Engineering Committees, which consist of:
 - ▶ 70-plus subcommittees and working groups
 - ▶ More than 1,000 individuals from nearly 20 countries
 - ▶ Representatives from manufacturers, service providers and end users, including the government.
- Provides secretariat services to groups such as Third Generation Partnership Project 2 (3GPP2) and Technical Advisory Groups for IEC, ISO and JTC-1.
- Active in CITELE, ITU-T, ITU-R and other fora developing global standards.

TIA Standards Program: **TIA Standards Mission**



- Support standards development processes that are timely, cost-effective, open, transparent, fair and nondiscriminatory and that are driven by commercial interests.
- Promote private-sector led and commercially oriented decisions for technology deployment.
- Urge government regulators to:
 - ▶ Follow NTTAA* and use consensus standards
 - ▶ Participate in standards process as a user
 - ▶ Procure equipment based on industry-developed standards
- Work with Congress and executive branch agencies to ensure a level playing field for all standards worldwide.
- Work with trade officials to resolve standards-related and other technical barriers to trade.



*National Technology Transfer and Advancement Act



TIA Standards Program: **Public Safety**



- The problem: Lack of interoperability among public safety agencies' radio communications systems.

- Key reasons first responders can't talk to each other*:
 - ▶ Incompatible/aging communications equipment
 - ▶ Limited/fragmented funding
 - ▶ Limited/fragmented planning
 - ▶ Lack of coordination/cooperation
 - ▶ Limited/fragmented radio spectrum

* February 2003 National Task Force on Interoperability report

TIA Standards Program: Public Safety



Project 25 www.project25.org

A suite of standards for interoperable, secure, spectrum-efficient, digital, two-way wireless communications products and systems.

- ▶ Developed under local, state and federal government guidance.
- ▶ Administered by TIA in its Mobile and Personal Private Radio Standards Committee (TR-8).



4.9 GHz Band

- ▶ Initiation of project for suite of standards for broadband data in the 4.9 GHz band for public safety.

Project MESA www.projectmesa.org

- ▶ Initiated by TIA and the European Telecommunications Standards Institute (ETSI) to facilitate next-generation, mobile broadband, public safety communications specifications and capabilities.
- ▶ Based on user input, it will enable the development of ad hoc, self-establishing, self-healing broadband technologies and services operating in excess of 2 Mbps.





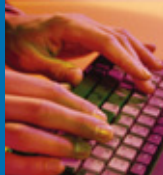
TIA Standards Program: **TIA Public Safety Mission**

Increase visibility, educate legislators and others, and gain funding for systems that meet the needs of public safety officials.

- Promote TIA as the “forum of choice” for public safety interoperable communications standards development.
- Monitor and respond to appropriations measures, amendments and supplementals to maximize all possible funding opportunities.
- Focus on activities within TIA’s Engineering Committee TR-8, Project 25, Project MESA and TIA’s Wireless Communications Division Private Radio Section.
- Work to globalize Project 25 and Project MESA standards and equipment as well as systems built to resulting standards.



TIA's Communications Marketplace



- GLOBALCOMM™ INDIA
February 20-22, 2006, New Delhi, India
- 7th Annual Spring Policy Summit
Connectivity, Convergence, and Consumer Choice
April 28-30, 2006
Cambridge, Maryland
- GLOBALCOMM™ 2006
June 4-8, 2006, McCormick Place
Chicago, Illinois
- ITU TELECOM WORLD 2006
December 4-8, 2006, Official USA Pavilion
Hong Kong, China
- GLOBALCOMM™ INDIA
February 7-9, 2007, New Delhi, India



• Research In Motion Corporation • RHK Inc. • Rincon Research Corporation • RIT Technologies Inc. • Rittal Corporation • Riverstone Networks
• RJP Consulting • Rock Communications, Inc. • Rodopi Software • Rohde & Schwarz, America • Roundbox • RP Wireless, LLC • RPM • RSM
EquiCo • RTKL Associates Inc. • Safetran Systems • Sage Instruments, Inc. • Sagitta Inc. • Samsung Telecom. America • San-O Industrial Corp.
• Sandvine Incorporated • Sanyo Fisher Company • Sarvega • SeaChange International • Sencore, Inc. • SENKO Advanced Components, Inc.
• sentitO Networks • Seranoa Networks • Server Technology • Sharp Electronics Corp. • Shindengen America • Show Management & Services
• Sidoti & Company • Siemens Communications Inc. • Simpler Networks, Inc. • SIPquest • SiRF Technology Inc. • SiteSafe • SmartLink Radio
Networks, Inc. • SNC Manufacturing Co. Inc. • Solace Systems • SolarFlare Communications, Inc. • Sonus Networks • SONY WTD • Sorrento
Networks • Sparkle Power Inc. • Spediant Systems, Inc. • Spirent Communications • S58 Networks, Inc. • SSH Communications Security, Inc.
• STAG International, Ltd. • Star Microwave Service Corp. • Starent Networks Corporation • Steelcase Inc. • Steven J. Crowley, P.E. • Sumitomo
Electric Lightwave Corporation • Summit Container Corporation • Sunbelt Telecommunications • Sunrise Telecom, Inc. • Surf Communication
Solutions Inc. • Surtec America • Suttle • Sycamore Networks • Sylanro Systems Corp. • SysMaster Corporation • T'Elaim, LLC • Tait North
America • TANDBERG Television Inc. • Target Distributing • TechNet International • Technisonic Industries Ltd. • Tecnomen Corporation •
Tekelec • Tekno Telecom, LLC • Teknovus, Inc. • Telamon IMS Corp. • Telchemy, Incorporated • Telco Systems Inc. • TelcoBridges Inc. •
Telcordia Technologies • Telecom Trends International • TeleCommunication Systems, Inc. • Telecommunications Industry Association (UK) •
Telect • Telephony Magazine • Tellabs, Inc. • TelTech Communications, LLC • Terawave Communications • Test-Um Inc. • Texas Instruments,
Inc. • Thales Communications, Inc. • Dow Chemical Co./EL • Fiber Optic Association • Siemon Company, The • Wiremold Company, The •
Thermo Bond Buildings • ThinkEngine Networks • Thomas & Company, Inc. • Timbercon, Inc. • TippingPoint • TMC Radio Pty Ltd • TNS
Telecoms • Toshiba America Information Systems • TPM, Inc. • TRA - Wireless Division • TraceSpan Communication • Transition Networks •
Trompeter Electronics • TruePosition • TTI Telecom, Inc. • TTM Development Co. • Turin Networks • TWI Group, Inc. • TX RX Systems, Inc. •
Tyco • U.S. Department of Defense • U.S. International Trade Commission • Ubiquity Software Corporation • UL (Underwriters Laboratories
Inc.) • Ulticom • Unicom Electric, Inc. • Uniden America Corporation • Unipower • US Conec LTD • UTStarcom, Inc. • Valere Power, Inc. •
Verilink Corporation • VeriSign Communication Services • Verizon Wireless • Vertex Standard • VIA Telecom • Visions Telecommunications,
Inc. • Voiceware Systems • VTech Communications • Walker and Associates • Waterford Consultants • Westell Technologies, Inc. • Western
Telematic, Inc. • Westronic Systems, Inc. • White Rock Networks • Wilhagan Ventures, LLC • Wilkofsky Gruen Associates • Wiltec Technologies
• Wintegra, Inc. • Wireless Test Systems • WITI Unlimited • Works Systems, LLC • WRAY CASTLE USA • Wyle Laboratories, Inc. • Yazaki NA
Inc., Y-Connect Oper. • Ygomi LLC • Zetron, Inc. • Zhong Technologies •

Key Contacts



For more information on TIA's public policy positions and activities, please contact one of the TIA staff members below or visit www.tiaonline.org

Matthew J. Flanigan
President
(703) 907-7701
mflanigan@tiaonline.org

Grant Seiffert
Executive Vice President
(703) 907-7722
gseiffert@tiaonline.org

Dan Bart
Sr. Vice President, Standards and Special Projects
(703) 907-7703
dbart@tiaonline.org

Bill Belt
Senior Director,
Engineering and Technology Policy
(703) 907-7790
bbelt@tiaonline.org

John Derr
Staff Director, Technical Regulatory Affairs
(703) 907-7791
jderr@tiaonline.org

Neil Gaffney
Director, Communications
(703) 907-7721
ngaffney@tiaonline.org

Danielle Jafari
Director and Legal Counsel,
Government Affairs
(703) 907-7734
djafari@tiaonline.org

Jason Leuck
Vice President, Government Relations and Global Policy
(703) 907-7725
jleuck@tiaonline.org

Michaela Muranova
Coordinator, International and Government Affairs
(703) 907-7710
mmuranova@tiaonline.org

Brian Regan
Coordinator, Government Affairs
(703) 907-7482
bregan@tiaonline.org

Meredith Singer
Director, Government Relations and Global Policy
(703) 907-7724
msinger@tiaonline.org

Jeanette Tom
Manager, International Affairs
(703) 907-7477
jtom@tiaonline.org