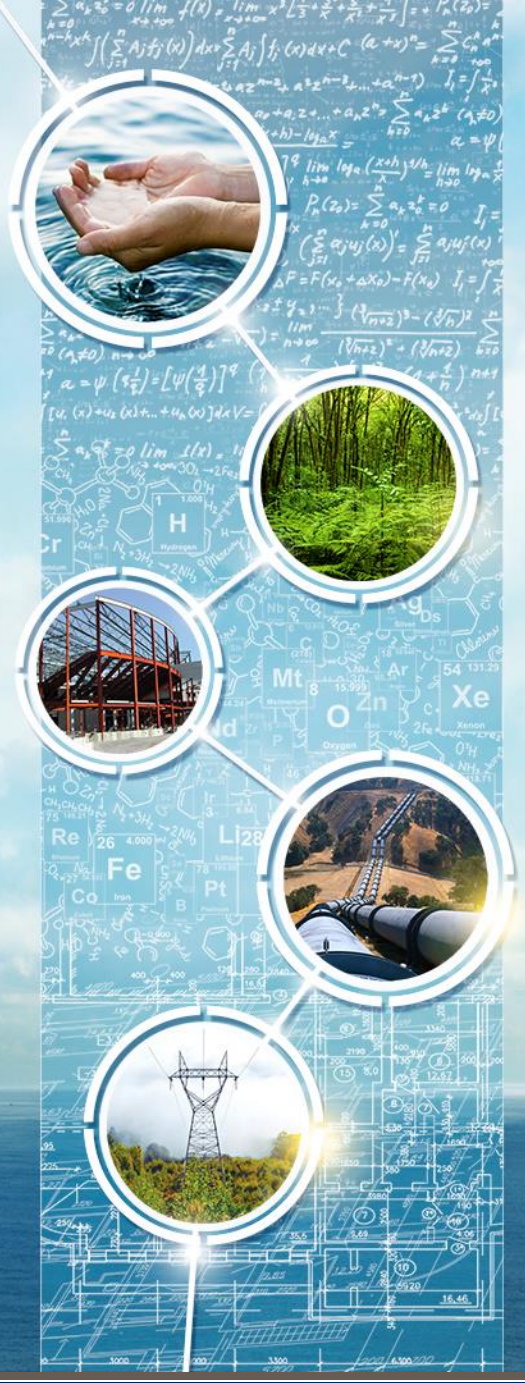

Convergence

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Agenda

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- Convergence Definition
- Impact on Regulatory Frameworks
- Intermodal Convergence
- Connected Devices
- Public Policy Implications
- Digital Platforms and the Sharing Economy
- Conclusion

Convergence

Convergence: Definition

- Convergence is the coming together of two different entities, and in the context of computing and technology, is the integration of two or more different technologies in a single device or system.
  - It can also be defined as the ability of one or different networks to carry different services. Or the bringing together of industries in the communications area, which were previously viewed as separate and distinct in both the commercial and the technological sense.
  - The simple concept of convergence allows multiple tasks to be performed on a single device, which effectively conserves space and power
    - Examples are the provision of Internet access and TV to smart phones, carrying separate devices – like a cell phone, camera, TV and digital organizer, or the triple or quad play services offered by ISPs or Cable TV Operators.

Convergence Benefits

- Convergence creates possibilities for companies to develop and deliver services across technology platforms, increases economic growth, and allows for users to gain access to new kinds of communication and media services
  - Many different applications allow people to create multiple effects using simply their phone as the camera instead of carrying a separate device. There are even full length movies that have been created using only cell phones instead of a video camera
- Convergence promotes the expansion of competition, allowing the introduction of inter-modal competition where networks and technologies compete with each other with no technological or regulatory restrictions;
  - Innovation happens at the edges and has led to immense change
    - Mobile money
    - Tokens can be used to purchase airtime in any location
    - Cryptocurrencies to pay for services

Convergence: Benefits (continued)

- Technology convergence provides the possibility for new competitors to enter the markets.
  - Telephony can be offered by cable TV operators, TV to telephony providers. Amazon and Netflix have become the largest TV providers.
    - Their shows are not weekly but the entire season is released at one time allowing consumers to watch as they would like.
    - Time shifting allows programs to be saved and then watched whenever and wherever the consumer wants.
  - Mobile money providers are taking on Banks and other financial institutions
  - Companies using tokens or other forms of crypto currency are brining innovation to all parts of the telco.
- Other benefits of Convergence are that it reduces costs of telecommunications services;
  - Fosters the development of more efficient technologies and services;
  - Opens the door for new ways for people to obtain Internet access

Impact on Regulatory Frameworks

- As convergence takes a firm hold in the communications industry, the process raises specific regulatory challenges given the merging of firms, and facilities.
- Adapting regulatory frameworks to convergence is not an easy task.
- Traditional frameworks were designed for an era when clear functional differences existed between services and infrastructure and were not designed for the this new environment of converged networks and services where functional differences no longer exist.
- Governments cannot and should not favor one technology, one network, or one service over another, nor should any operator restrict the use of any technology, network or service.
  - This is true for operators, banks, mobile money, or any other innovative idea
- Countries around the global have taken vastly different approaches to convergences starting with how they regulate Internet communications or even financial services.

Regulatory Framework Checklist

- Regulators in any sector, not just telco or ICT regulators need to ask certain questions to make sure their frameworks are up-to-date.
- Does the regulatory framework facilitate the provision of different services over different platforms?
- Does the regulatory framework support full competition?
- Does the regulatory framework allow service providers to offer multiple services?
- What are the regulatory policies for these new technologies and services with regard to numbering, spectrum, universal service, emergency services, interconnection, or financial or transport services?
- Does the country's legal framework contain the necessary legislation to support an ICT environment (*e.g.*, intellectual property laws, computer crime, electronic transactions, data privacy and security)?

Effective Regulatory Framework

- Implement a well-defined and consistent regulatory framework for telecommunications, broadcasting, ICT, and other sectors such as Postal or Transport.
- Regulatory framework must give regulator the authority and means to effectively define and apply regulations in a market.
  - These characteristics are important, especially in markets where incumbent operators have extensive political and financial power.
  - Framework must provide for regulatory flexibility to adapt to the unanticipated needs and use of new technologies and services

Involve Stakeholders in the Regulatory Process

- Regulators need to involve all stakeholders in the regulatory process
- Consultation is an essential part of the decision-making process.
  - Enhances confidence in the regulator.
  - Increases consensus and support for regulatory decisions.
  - Provides a mechanism for input and feedback from stakeholders.
  - Reinforces regulatory autonomy and accountability

Neutrality Guidelines

- Need to create clear definitions for Technology, Service, and Network neutrality.
- Technology neutrality is basically the principle that rules should not discriminate in favor of any technology.
- Service neutrality is that rules should not discriminate in favor of any particular service.
- Network neutrality is the principle that Internet users should be in control of what content they view and what applications they use on the Internet.
  - It is about equal access to the Internet.
  - Broadband carriers should not be permitted to use their market power to discriminate against competing applications or content.

Challenges to the Existing Regulatory Framework

- Many Policymakers and regulators around the world are already responding to these challenges though with varying degrees of success, depending on the scope and depth of their changes, i.e, the EU, the US and Canada.
- They have done this by evaluating policy goals and regulations in the context of converged communications
- What type of regulation is needed
  - The role of the regulator is **not** to promote or 'accelerate' convergence, but **to** establish an environment for fair competition, i.e. a 'level playing field' so that if there is a demand for convergent services, such services can develop in the market and compete fairly with one another, bringing consumers the benefits of innovation, convenience and choice.
  - Examples are what's app, mobile money, microloans, IoT, Tokens for purchasing airtime

Problems with Regulatory Frameworks

- Often times, countries have adopted new regulatory frameworks that have attempted to take convergence into account, but these new regulations that end up stifling competition and halting the spread of innovations and new uses of technology
  - As an example, the US Regulator recently gutted the Net Neutrality provisions which provided rules on technology, service, and net neutrality guidelines.
  - Uganda with its social media tax

Regulatory Frameworks

- Internet-enabled communications, such as IP Voice, can increase competition, provide a platform for innovation, drive broadband deployment, and enable economic growth.
  - IP telephony is not a new kind of telephone service.
    - IP Telephony is much more than a substitute for traditional circuit switched telephone service.
    - It permits the integration of voice, data, and other IP applications enabling a host of breakthrough applications and services not possible with traditional circuit-switched networks
- Mobile money is similarly a innovative service that rides along the telecom network and requires the banking and telcom/ICT regulators to work together to come up with regulations.
- The same is true for any disruptive technology such as Blockchain, crypto currency,

Regulatory Frameworks (Continued)

- The Regulator needs to work hard to bring all aspects of the telecommunications system into the new age.
- Emergency Communications are being upgraded as well allowing people to text or email photos and videos to the 911 Operator (the unit in charge of emergencies) or to the Police.
- Regulations have also been adopted to use the location services in smart phones, tablets or other electronic device to give Emergency services an address of where you are located in case of emergency

Updating Regulations

- Buttons or functions on gaming consoles or other similar products that add voice to the game were never conceived to be substitutes for telephony services nor would people assume or think that they would be and that they should be able to connect to emergency services.
- Similarly, Click to call buttons on website, blogs, Facebook messenger, Google, WhatsApp, Signal, Telegram, or other integrated communications services were never intended to be substitute for telephony service.
  - They were meant for communications and did not have emergency services in mind

Updating Regulations (continued)

- In several recent incidents, these mediums were used to notify others about emergencies but in all these cases a person picked up a phone (landine, mobile, fixed wireless) and called in the emergency.
- As such these services saved lives and without these services lives would be lost, but the point is that they were not the vehicle to call in the emergency
- Phones, however, were meant for calling despite their hundreds of other uses
  - This is why regulations were adopted to ensure that location services could easily tell where a person is located, an approximate address

Country Examples

- VOIP calls do not work in the following countries:
- Azerbaijan, Belize, China, Egypt, Iran, Jordan, Kuwait, Morocco, Oman, Pakistan, Paraguay, Saudi Arabia, United Arab Emirates
- However, Pre-recorded messages sent via these platforms do work
- Also various VPN systems can get through these blocks.
- Some blocks are not made by the country itself, but may be a result of a block by the ISP itself.

Institutional Design

- Three primary institutional designs for Regulatory entities:
  - Single-sector regulator: sole function is to oversee the telecommunication sector.
  - "Converged" regulator: tend to have oversight for all aspects of the ICT sector
  - Multi-sector regulatory authority: usually encompasses various industry sectors considered to be public utilities, *e.g.*, telecom, water, electricity, and transportation.

Institutional Design (continued)

- Countries with converged regulators include Australia, Finland, Iraq, Italy, Japan, Kenya, Mali, Malaysia, South Africa, Singapore, Uganda, United States and United Kingdom
- Despite this trend, most countries still have separate regulators for broadcasting and for telecommunications content regulation is typically addressed by a separate ministry or government authority (e.g., in India and Saudi Arabia) or by the broadcasting authority (e.g., in Botswana, Chile and Colombia).

MSRAs: Strengths

- Is the MSRA model the appropriate model for developing countries? In theory, the model seems to provide a solution to address many of the constraints faced by regulators in developing countries. But even after many years, it is still too early to assess the effectiveness of the model.
- MSRAs allow developing countries the potential to achieve greater efficiencies in regulation, by benefiting from shared knowledge and resources, including a common infrastructure, administrative set-ups, and specialized human resource skills, such as those of accountants, economists, engineers, and other professionals across sectors.
- Regulatory performance & efficiency is highly dependent on the regulator's ability to understand its priorities & follow a plan of action that is coherent within the context of the country & its sector's development goals.

MSRAs: Weaknesses

- The research on multi-sector regulation is mixed on whether the MSRA model indeed provides the expected gains, such as increased efficiency, effective regulation and eventually tangible contribution to network and economic development in a country.
- MSRAs may optimize scarce resources, such as human resources, public finances, and technical knowledge or expertise.
  - But when staff resources are limited, the need to operate in different and complex sectors simultaneously increases demands on qualified staff and may also compromise the ability to develop sector-specific knowledge at an adequate pace and contribute to delays in appropriate regulatory interventions

Broadcasting

- The ITU defines Broadcasting as a radio-communication service whose transmissions are intended for direct reception by the general public.
- Broadcasting often has substantial content regulation because it is perceived as playing a special role in the cultural life of a country and in developing a national identity.
  - As such, it was often regulated differently than telecom and sometimes even by a different regulatory entity
- Convergence has resulted in new technologies and services that often are not encompassed in existing service definitions and regulation. As such it requires changes to be made in broadcasting and Audio Visual regulations to ensure consistency in policy and regulation with telecom regulation

Postal Convergence

- In recent years with the growth of e-Commerce the postal offices in developing countries have been key parts of a broadband strategy as such an ICT regulator needs to take into account how postal regulations fit into its system.
- The Postal network has become an important partner in developing strategies for Broadband in many different countries
- As such Regulators must take into consideration how Postal regulations and protections integrate and protect consumers using “telecom” services within their offices

Financial Convergence

- A multitude of uncoordinated state and federal statutes, regulations, agency "guidance," and court decisions covers mobile payments providers and their products and services, which results in an incomplete and uncertain regulatory environment
- For example, in the US, although many laws are applicable to mobile payments and cover a variety of issues, the overall legal framework is neither comprehensive nor consistent.
  - The current laws are filled with gaps, ambiguities, and overlap that undermine important consumer protections.
- There is a need for the Telecom/ICT/Consumer protection regulator to sign Memorandum's of Understanding with the financial regulator to 1) establish procedures for coordinating their activities and 2) to ensure that consumers are protected against fraud, data misuse, and data protection or cyber intrusion.
- Additionally if another regulator is responsible for consumer protection than an MOU needs to be also signed with that agency as well.
  - In the US, the FTC is responsible for consumer protection and has signed an MOU with the CFPB.
  - However the FTC lacks authority to take action on many consumer and privacy issues unless it is given more power

Financial Convergence (continued)

- In the US, current state and federal laws have not kept pace with technological developments that have enabled new products and services
  - No law dictates whether a mobile device should be treated as legally equivalent to a credit card or, instead, as an “access device” (such as a debit card), which carry different consumer protections
  - Software licenses used by mobile apps are not explicitly included in banking regulations and laws.
    - Mobile users are not aware that key consumer protections are not available to them as they would be if they were using a more traditional form of banking.
  - Consumers have no guarantee that they will receive clear and noticeable disclosures for mobile payments terms and conditions.
  - The same is true for any Crypto currencies, like bit coin, etherium.
  - Facebook is trying to gain traction for its Crypto currency—Libra but has not been successful as of yet

Intermodal Convergence

- With the acceleration of technological developments in network industries and, in particular, in infrastructures, there is a constant need to review the current regulatory regime.
- The growth of Smart Cities through out the world poses many questions to regulators in the transport, telecoms, water, transportation, and energy on how how to ensure all citizens are protected
- Just as in the financial section, there is a need for the Telecom/ICT/ Consumer Protection regulator to sign Memorandum's of Understanding with the Transportation Regulator, the Energy Regulator, the Water Regulator to 1) establish procedures for coordinating their activities and 2) to ensure that consumers are protected against data misuse, data protection, privacy, or cyber intrusion.
  - Additional questions are: How should the sharing economy be regulated for regulators to invest in the infrastructure that supports it?
  - How should public goods and services including transportation, telecommunications, water and energy be managed and distributed?

Intermodal Convergence (Continued)

- While the possibilities are exciting and innovation continues to gain momentum at an accelerated pace, challenges are inevitable especially when it comes to infrastructure financing and the general management of smart cities
- Data is being gathered in virtually every mode of transportation.
  - That means data breaches and misuse happen—in transit systems, airlines, ride-hailing services, and even walking, biking and jogging.
  - The risks are perhaps especially great with “connected vehicle” technology.
- “Widespread concerns have been raised about the lack of security controls in many IoT devices. Cybersecurity threats on IoT devices, sensors or other electronics pose a real threat not only to our core infrastructure but to all people’s security.
- Todays toys can be used to spy on family and be turned as weapons against them.

Connected Devices

Connected Devices

- Connected devices are everywhere. Many people own connected devices, such as smart meters, fitness monitors, connected toys, home assistants, or gaming consoles.
- However, testing by multiple consumers organizations has found a range of products are rushed to market with little consideration for basic security and privacy protections.
- While Internet-connected toys are particularly appealing to a generation of tech-obsessed kids, security experts warn against the potential dangers of these devices.
- These toys typically contain sensors, microphones, cameras, data storage components, and other multimedia capabilities—including speech recognition and GPS options and these features could put the privacy and safety of children at risk.
- Hackers could easily access the doll via Bluetooth, listen in on conversations and even directly hold a conversation with the child playing with it.

Connected Devices (continued)

- The same is true for Personal assistants such as the ones offered by Google, Amazon, and Apple
- Survey results show that 77% of consumers across markets said information about privacy and security are important considerations in their buying decisions, but too often consumers are purchasing these items without regards to the security issues they raise.
- Security should not be an afterthought.
- It is clear that manufacturers and retailers need to do more to protect consumers and ensure that everyone is protected not just from hacking or identity fraud but also to regain consumers trust in their IoT devices.

Is Regulation the Answer and by whom?

- Many consumers want Regulators, manufacturers and retails to be held accountable for connected device concerns.
- In a recent survey 88% percent of survey respondents said that regulators should ensure IoT privacy and security standards, while 81% of people said manufacturers need to provide that assurance, and 80% said retailers must address privacy and security. 60% of participants across markets think consumers to be mainly responsible for the security and privacy of their connected devices.
- The world's standards bodies are working to harden these devices and also insist that manufactures follow particular standards when creating these devices

Network & Data Security

- The increasing use and reliance of Big Data and its integration within innovative and new technologies throughout the world is another reason why it is important to have strong data protection and privacy laws.
- Innovative companies starting out need to put much energy and cash into ways of making their site safe for consumers.
- These new innovations are based on data and technology and network and data security need to be a primary focus of all creators and operators.
- The rapid increase of new devices that can be connected to each other and the lack of attention being paid to the network security of these devices, software or other components sold in the marketplace potentially can cause great harm to consumers.
- Regulation needs to be in place to protect consumer's and their data from hacking, intrusion, or ransomware.

Network Security

- Network Security
  - Governments consider that providers of publicly available communications services should take appropriate measures to safeguard both the security of their services and the Private and personal data they have collected of their users .
    - For VOIP services, this could include measures to protect against viruses. Phising, denial-of-service attacks, Intrusion, and ransomware.
- Law Enforcement
  - The ability for law enforcement authorities to access communications networks (often referred to as Lawful Intercept) is an issue of great concern to governments, especially as terrorism threats grow and multiply.
  - Governments have adopted different regulations to enable them to have access to all types of networks, mobile, Internet, and Cable TV.

- All of this shows that Self Regulation is not the answer, but it is unclear what other type of regulation is needed and will it be effective

Public Policy Implications

Public Policy Implications

- As convergence takes a firm hold in the communications industry, the process raises specific regulatory challenges
  - Interconnection
  - Public Policy Issues
  - Universal Service
  - Licensing and Authorization
  - Spectrum Management
  - Numbering and Portability
  - Network Reliability/Network Security
  - Law Enforcement
  - Media Ownership
  - Accessibility
  - Access to Emergency Services
  - Service & Content Regulation
  - Consumer Protection

Next Generation Networks

- Next Generation Network is a broad term that describes key architectural evolutions in core and access IP based networks.
  - It refers to the future networks that support fixed, mobile and nomadic users and able to carry voice, data and multimedia services.
  - It is based on IPV6 and MPLS technologies and protocols.
- The Telecom network is evolving toward a future in which IP-based networks replace circuit-switched networks, both for fixed and mobile (3G, 4G, and 5G) services.
  - Legacy interconnection regulations will not disappear– indeed, the complex interconnection environment calls for greater oversight.
- Convergence has forced a reassessment of Interconnection policies
  - Effective interconnection arrangements are crucial in fostering the development of integrated ICT markets
- IP networks will coexist with older legacy networks, including 3G mobile and PSTN networks.

Next Generation Networks (continued)

- The technological innovations that have resulted in the convergence of telecom, information and broadcasting have raised numerous regulatory issues regarding interconnection.
- Effective interconnection arrangements are crucial in fostering the development of integrated ICT markets
- Convergence has forced a reassessment of this policy taking into account the interconnection of different types of networks and service providers (*e.g.*, cable television/content providers and IP networks/ISPs)

Interconnection in an IP World

- Traditional interconnection regulation was established for telecom operators with interconnection rates generally based on time (*i.e.*, per minute).
- Services based on IP protocol, however, do not fit within the traditional schemes of switched voice interconnection, e.g., IP interconnection separate out transport from service, while legacy networks combine them.
- Countries are addressing these needs by introducing: (i) both symmetrical & asymmetrical interconnection, (ii) new kinds of "access" through interconnection regulation and (iii) a technology-neutral interconnection charging system based on capacity, instead of time and distance

Interconnection

- Traditionally interconnection regulation was established for switched voice services, where rates were generally based on a per minute charge
- Converged Services, most notably those based on the IP protocol, require interconnection rights and new interconnection schemes with different types of access and charges to ensure that everyone can interconnect regardless of the type of network they are using.
- Newer interconnection pricing involved symmetrical interconnection costs, where any operator, regardless of network type, is obliged to interconnect with any other operator.

Interconnection (continued)

- Interconnection pricing is based on access to parts of the infrastructure (e.g., the local loop or directory services databases), or to allow the provision of wholesale services (e.g., wholesale Internet access service or mobile roaming).
- Some have even adopted a technology neutral interconnection charging system based on capacity, instead of the traditional metrics of time and distance.
  - Here operators may request a specific capacity for interconnection and pay a flat-rate charge that reflects the fixed-cost nature of the interconnection capacity

Universal Service

- Universal Service: Convergence challenges the traditional way Universal Service/Access is delivered in several ways:
  - Funding of universal service is usually obtained through extra charges imposed on certain telecom services e.g. access charges or interconnection charges.
- Should all Communications providers pay into the universal service fund or just the ones classified as phone providers
- Should VOIP providers be required to pay into this fund? Should they be required to offer services in all rural or high-cost areas
- What other carriers or operators should pay into the fund?
- Should there be different definitions for broadband access urban as opposed to rural areas of the country
- What is the best way of ensuring that all citizens have access to the Internet and to broadband?

Authorizations and Licenses

- Traditional licenses & authorizations were designed for a circuit switched technology era when clear functional differences existed between services and infrastructure
- Goal of licensing is the allocation of scarce resources, establishing regulatory certainty and a framework for privatization and competition, universal access, etc
- Traditionally the number of licensed voice telephony or broadcasting operators has been limited.
- Authorization and licensing of service providers were based on the type of service (voice, data, and video) or technology (cellular, fixed telephony, terrestrial broadcasting).
- However, in a converged setting, it is difficult to maintain these boundaries because of overlaps, broadcasters are offering telecom services (Internet, voice), while telecom service providers (e.g. phone companies) are offering broadcasting services (IPTV). Further, cellular operators are providing mobile television services

Licensing

- As with licensing regimes, new advanced technologies and converged services that use spectrum are demanding more flexible and service/technology neutral frameworks
- Need to keep in mind that spectrum management is about addressing the problems of potential interference between different licensed users, which is why regulators have created different classes of licenses.
- Consideration should also be given to whether there should be flexibility in spectrum allocation to take full advantage of new services and new technologies for existing services that may evolve with time.
  - A technology- or service-neutral approach to spectrum use might be another good option to consider.

Spectrum Policy

- Regulators need to certain key things:
  - Ensure that spectrum remains open, transparent, fairly allocated and that the licensing mechanism is technology and service neutral.
  - Ensure that there is a harmonization of spectrum to global standards
- Regulators should also create a flexible spectrum policy that allows for innovative usage through unlicensed spectrum and also allows easy ways for people to reuse spectrum that is not being used within rules that avoid harmful interference.
- Making more spectrum available:
  - Spectrum is the lifeblood of wireless Internet access.
  - Spectrum solutions that take advantage of innovative approaches can advance connectivity and help countries roll out broadband to more people in the country

Spectrum Innovation: Increasing Access To Broadband

- Other ways to expand connectivity within the country are:
  - Encouraging the development of license exempt technologies, for example, White spaces, Delay Tolerant Networking, Mesh networks, CubeSats, WiFi, WiMAX and other wireless technologies.
  - Reviewing spectrum use policies that are related to license free spectrum especially for rural applications to facilitate the deployment of technologies that use these frequencies for universal access or other projects.
  - Increasing and encouraging the deployment of and experimentation with local access networks using new wireless and wireline technologies, such as, but not limited to, White Spaces, Mesh Networks, WiFi, WiMAX, SCPC DAMA and PLC
  - Facilitating the use of unlicensed spectrum to reach rural and remote areas and also for deploying applications
  - Creating specific national local access licenses for remote and rural applications to advance connectivity for the un connected, using USF fees

Spectrum Management

- The current trend is to develop new spectrum-efficient technologies that allow new users of spectrum to be accommodated while at the same time reducing the cost per user per hertz by increasing the number of users that can access a given portion of spectrum.
- New technologies are evolving that allow for the sharing of spectrum more efficiently, the leasing of unused spectrum to other companies, and the auctioning of white spaces between spectrum licenses that previously were thought to not be usable.
- New and emerging technologies will spur an increase in demand for spectrum-dependent wireless services, challenging regulators and users alike.

Spectrum Roadmap

- Regulators will need to create a roadmap for how to proceed.
  - Define a clear roadmap for access to spectrum to support current and next generation services on a technology neutral basis;
  - Embrace and define new capabilities and technological change into the management of the radio spectrum;
  - Adapt and modify the telecom regulatory framework to accommodate the flexibility of the new technology in providing telecom goods and services;
  - Enable the introduction of new and different services over existing infrastructure by ensuring a level playing field to all current and future operators; and
  - Enable and encourage deployment of broadband wireless access

Accessibility in a Converged World

- Accessibility
  - In a converged environment, where some sectors are no longer regulated, e.g., VOIP or IPTV services, are not subject to obligations such as, closed captioning or other services for people with disabilities and specific needs, how do you ensure that everyone can equivalent access to these services?
  - Regulations need to be adapted so that these same services delivered over another platform are also accessible to people with disabilities and specific needs
  - In a sharing economy, how do you create regulations that push for universal design so that citizens can benefit equally?
  - Standards such as those proposed by the World-wide Web Consortium, W3C, on both layout and content need to be adopted by all?

Emergency Services

- Regulators world-wide need to decide how to ensure that IP telephones that are replacements or complete substitutes for voice telephony will work to connect these networks to emergency service operators and display the correct location of the caller.
- Also that these services can accept submissions by text, email, or voice.
  - As discussed earlier, many countries have adopted rules that ensure that all IP phone providers can connect to emergency services.
  - The key here is to identify which IP telephony services are substitutes for telephony and thus subject to regulation, and which are additional new services that people would never consider ever needing to call emergency services

Quality of Service Regulation in a Converged Environment

- Regulatory frameworks need to be modified so as to take full advantage of these new converged services and still maintain a certain level of QoS
  - In the traditional regulatory framework ensuring certain QoS standards has been a main function of the regulator. However in a converged environment, new technologies have blurred the boundaries between the broadcasting and telecommunications sectors.
- Quality of Service Standards
  - New QoS standards must be created for converged services since each of the services has very different QoS requirements. Telecom has more stringent QoS standards because it has to be always available, but broadcasting because it was one to many and not one to one had very different requirements. Traditionally broadcasters have not allocated resources dynamically. Instead, broadcasting towers, satellite networks, serve customers in a static fashion since signal transmission is independent of the usage.

Regulatory Framework: Service & Content

- The main trend in this area has been to split the regulation of the transmission network and technology from the regulation of the content.
  - Success will only occur if regulators and policymakers observe the key principles of service and technology neutrality as well as establishing and insisting upon transparency, and enforce the appropriate licensing rights and obligations.

Consumer Protection

- As mentioned in the section on Intermodal Competition there is a need for the Telecom/ICT/ Consumer Protection regulator to sign Memorandum's of Understanding with the Transportation Regulator, the Energy Regulator, the Water Regulator to 1) establish procedures for coordinating their activities and 2) to ensure that consumers are protected against data misuse, data protection or cyber intrusion.
  - Additional questions are: How should the sharing economy be regulated for regulators to invest in the infrastructure that supports it?
  - How should public goods and services including transportation, telecommunications, water and energy be managed and distributed?

Consumer Protection (Continued)

- Other questions are more basic? How can Consumers be protected against fraudulent or bankrupt communications providers or operators. This is an important new function of today's regulator.
  - How do you provide protection to consumers in an area where neither the services nor the technology are regulated.
  - Consumer protection or Competition Regulator does not protect access to phone service or phone numbers, just a consumer's personal identifiable number

Digital Platforms

Platform Liability

- Digital platforms play a central role in the economy and our everyday lives. Each platform has distinct characteristics, but in recent years specific concerns have grown around their dominance in the marketplace and impact on key parts of daily life.
- Public demands for Internet platforms to intervene more aggressively in online content are steadily mounting.
- First we must define the term “digital platforms”
  - A service accessed via the internet;
  - the service is two-sided or multisided, with at least one side open to the public and allows members of the public to produce content, buy and sell goods or services, or otherwise interact in ways that enable them to be more than simply passive consumers of goods and services; and,
  - The service enjoys Reed- or Metcalf-type network effects

Defining What is a Digital Platform

- The question of defining “digital platforms” is not simply important for market definitions in any antitrust analysis.
- It also relates to what constitutes appropriate standards of conduct and consumer protection.
- The bulk of regulation designed to promote competition generally applies only to dominant firms.
- Traditionally, in Antitrust policy, we have divided activities into lines of business and determine what sort of behaviors harmed consumers, but with digital platforms they potentially perform multiple diverse functions in diverse markets simultaneously. So the traditional way of dividing markets and declaring dominance does not work.

Sharing Economy-Definitions

- The sharing economy is an economic model defined as a peer-to-peer (P2P) based activity of acquiring, providing, or sharing access to goods and services that is often facilitated by a community-based on-line platform.
- The sharing economy involves short-term peer-to-peer transactions to share use of idle assets and services or to facilitate collaboration.
- The sharing economy often involves some type of online platform that connects buyers and seller.
- The sharing economy is rapidly growing and evolving but faces significant challenges in the form of regulatory uncertainty and concerns about abuses.

Impacts of the Sharing Economy

- The sharing economy impacts many different actors in many different platforms.
  - Market actors – These include those who are part of the economic activity around a given platform. From owners who operate the business to investors who fund them, to producers/providers/suppliers who are intermediating the various forms of transactions to consumers.
  - State actors – These include all those stakeholders who are involved in the governing, operation and regulation of platforms. They can include governments and government bodies, regulators and the Judiciary and also local regulatory and legislative actors.
  - Regional/Multilateral institutions such as the WTO, EU, ASEAN policy structures are also implicated in the network of the platform ecosystem. They are instrumental in deliberating and deciding upon global and regional policy regimes of trade, competition, and data protection.
  - Non state actors – These include both industry bodies and consortiums which work to influence policy on behalf of market interests as well as organizations that advocate the cause of public interest

Sharing Economy Example: Transportation

- Ride sharing is one of the most common innovations - the practice in which individuals travel via a private vehicle driven for a fee, arranged via an online app - is today the most recognizable example of the shared economy.
  - The influx of ride-hailing apps such as Uber, Lyft, Grab, Taxify, Didi and Ola have overhauled the transportation sector completely.
  - There are also services where people can rent their own cars out to people
- Here again, the question of regulation beckons. Should they be regulated? How should they be regulated?
- Are the people who work in these industries employees or freelancers?
- What protections do they have?
- What protections do consumers have when using these services?
  - How to ensure that all consumers even those with accessibility challenges can benefit
    - Wheelchair cabs, cabs that allow for service dogs,

Challenges with Regulations

- Different Governments have different rules.
- Some allow for these services to operate, while others do not
- Some state that the people who serve as drivers are employees and are entitled to the same protection as other workers, others do not.
- California just passed a new rules stating that they are employees

Sharing Economy: Hospitality

- Services such as Airbnb, home-away, or other similar companies connect property owners and travelers for short term rentals have revolutionized the hospitality industry.
- Airbnb, without owning any properties, is the largest provider of accommodation in the world. The growing popularity of rental platforms, considered by many to be a cheaper alternative to hotels, has created tensions between the traditional hospitality industry and rental platforms
- Again, Regulators are pressed to act to halt innovation?

OTT

- The phrase 'OTT' (Over the Top Services) originates in the telecom industry.
- It describes any application or service travelling across the telecom infrastructure provided by Internet service providers (ISPs).
- However this definition applies to any and all services running over the Internet, from government services to banking, video streaming sites like YouTube, social media sites like Twitter, and messaging services such as Viber.
- Beyond the creation of platform-specific speech control, some governments are pushing for Over the Top (OTT) regulation—namely, expanding of telecom and broadcasting regulation to speech on platforms, and potentially imposing new taxes.
- What is it about the new service that makes it so attractive?
- What features does it have that others do not?

OTT Regulation?

- But, again, here why Regulation? What are they regulating?
- Are regulators trying to stifle innovation?
- Perhaps the better question to ask is why are the incumbents not innovating and creating new products?
- We then go back to the goals of competition policy
  - The aim of competition policy is to promote sustainable competition.
  - Competition analysis generally asks the question: Will a given practice, transaction, or business acquisition reduces competition or increase market power in a given market?

Digital Platforms: Is Regulation the Answer

- Calls for regulation of search and social media platforms, from both the left and the right, have argued that comprehensive regulation is needed either because of the monopoly power of these companies, or because they constitute “public utilities” and should therefore be regulated like public utilities
- There is a growing public demand for Internet platforms to intervene more aggressively in online content.
- Public demands for Internet platforms to intervene more aggressively are steadily mounting.
- Efforts to impose some sort of regulation or taxes on these providers are heard often in the halls of parliaments all over the world

Digital Platforms: Is Regulation the Answer

- Experience and economics tell us that digital platforms have a strong, perhaps overwhelming, tendency to concentration. But it also tells us that trying to impose regulations that do not make sense will cause economic harm to all
- We need to work with all partners in this digital world to create regulation that will work.
  - This might include creating one agency that has ongoing oversight of the sector and also creating a new regulatory toolkit for competition.

Conclusion

- Governments and regulators play a key role in stimulating demand for ICT services and applications, in the framework of broader strategic goals, such as connecting public institutions, businesses and residential users with broadband, promoting economic development, digital inclusion, social cohesion and equality of opportunity.
- Regulators need to be attentive to the challenges stemming from convergence to pave the way for the establishing a regulatory environment that is transparent, conducive to investment and growth, fosters fair and greater competition and innovation, stimulates the deployment of infrastructure, promotes the development of new services, protects consumers, and is security conscious.
- Regulators should adopt appropriate regulation on interconnection and access, including pricing, taking into account the relevant technological market developments including the roll-out of Next Generation Networks in the core and in the access layer.

Conclusion (continued)

- Governments need to build an adaptive regulatory framework by adopting a technology neutral approach, and a simplified and flexible licensing regime that provides for easy market entry of new players, such as through general authorizations and multiservice/unified licenses.
- Foster competition in converged services over wireless networks through efficient and integrated spectrum management
- Establish appropriate policy goals and refrain from imposing regulatory restrictions except when strictly necessary to promote competition and consumer protection, and that are proportionate to the established policy goals.

Thanks
Questions, Comments, Suggestions

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