

GSR-16 Discussion paper

Building Blocks for Smart Societies in a Connected World: A Regulatory Perspective on Fifth Generation Collaborative Regulation

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Work in progress, for discussion purposes
Comments are welcome!

Please send your comments on this paper at: gsr@itu.int by 30 May 2016



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Contents

1	Introduction.....	4
2	ICTs as Enablers of Smart Connected Societies.....	5
2.1	ICTs as an Enabler for the Achievement of the Sustainable Development Goals.....	6
2.2	ICTS as Enablers across the Sectors.....	7
2.2.1	Administration and ICTs	8
2.2.2	Agriculture and ICTs.....	10
2.2.3	Education and ICTS	10
2.2.4	Health and ICTS.....	11
2.2.5	Energy and ICTs	11
2.2.6	Digital Financial Services.....	12
3	Overview of ICT and Collaborative Regulatory Frameworks.....	14
3.1	Telecommunication/ICT Regulation	14
3.1.1	Evolution of ICT/Telecommunication Regulation.....	14
3.1.2	Mandate of ICT/Telecommunication Regulators	17
3.2	Interaction with Other Authorities.....	18
3.2.1	Broadcasting and Media Authorities.....	19
3.2.2	Competition authorities	20
3.2.3	Consumer Protection Agencies	21
3.2.4	Data Protection Agencies	22
5	Recommendations for Collaboration in a Smart Connected Society	26

1 Introduction

In today's converged digital environment, where ICTs and digital technologies are recognized as the foundation for economic and social development and the growth of smart connected societies, defining broad and innovative collaboration at the policy and regulatory level is a must. Recognition has grown that we need ecosystems that include ICT operators and service providers, but also various stakeholders from the health, education, financial services and other sectors as partners to connect the world and create value for individuals, businesses and communities.

As most sectors of society and the economy are increasingly intertwined, cross-sectoral collaboration is more than ever required along with innovative regulatory approaches such as co-regulation and self-regulation, leading to new forms of collaborative regulation. Essentially, the success of smart connected digital societies and their economy will rest on trust as well as on regulation. The success or failure of collaborative businesses revolves around user trust, and appropriate regulation is a key element in those new models. A plethora of technological developments offer opportunities, but also challenges and regulators and policy makers must be ready to address the issues. Through collaboration, telecommunication/ICTs together with broader technology developments can improve governance outcomes.

Understanding the challenges and needs of all the different stakeholders involved in building smart societies, including the evolution of the policy, regulatory, economic and financial frameworks across the economy, will provide policy makers and regulators with the understanding needed to move forward and develop holistic cross-sectoral legal and policy measures for a connected world.

Common principles that underpin and constitute the foundation of smart societies include innovation, openness, transparency, empowerment, participation, inclusiveness, efficiency, co-creation and sharing, as well as collaboration.

Common issues and barriers faced by stakeholders across the sectors include interoperability, security, data integrity and portability, privacy, reliability, transparency, trust, unequal level playing field, unfair competition (Significant Market Power), Quality of Service, and pricing.

By developing a collaborative approach to regulation, the various sector regulators can contribute to reducing the regulatory conundrum, overlap and duplication across the economy, and provide for greater coherence, predictability and trust in the digital ecosystem.

This paper will:

- Define the role of the ICT sector in achieving smart societies, ICTs being the foundation for the transformation across society and the economy, i.e., in health, education, utilities (transport, railways, roads, electricity, water and sanitation), various industries/manufacturing, e-government services, e-commerce, entertainment, environmental issues, etc.;
- Provide a high-level overview of the different regulatory frameworks in place that stakeholders have to comply with and which provide the framework to protect consumer rights (telecom and broadcasting regulation, competition law, utilities regulation, consumer protection law, etc.) and identify commonalities, differences, areas of regulatory overlap, duplication and potential areas for collaborative regulation;
- Define recommendations for collaboration to enable the deployment of smart societies, in particular on (1) the roles and responsibilities of the different stakeholders and in particular regulatory authorities, and their respective mandate; and (2) the regulatory measures/framework needed to foster the deployment of smart sustainable societies.

2 ICTs as Enablers of Smart Connected Societies

Today, we live in a connected society – a society where mobile, broadband, and cloud computing are transforming the fabric of society and hold the promise of great opportunities for all people. Yet, while the Internet of Everything is a dominant topic of interest to policy makers and regulators, billions are still unconnected, and this affects their ability to participate in the digital economy – socially, financially, and economically.

Technology and Infrastructure development is affecting our lives like never before. Digital services and tools have become an important part of who we are, and the future we once only saw in science fiction movies has already arrived. A truly networked society will lead to even more changes, with new behaviours, opportunities, and challenges. Added to that, it is also clear that the achievement of the 17 Sustainable Development Goals¹ will rely heavily on the digital ecosystem since there is an ever-expanding variety of services and applications to serve our social, business and entertainment needs.

The evolution in the sector has brought about changes – there are new players on the market and discussions as to new and existing business models, new technologies, and new opportunities. Regulators around the world have become more conscious of the changing ecosystem and are aware that they need to adapt to the changing environment. From a time when telecommunication/ICT regulators mainly focused on their creation as independent entities opening monopolistic markets, to one where they became active in promoting investment in infrastructure and services development and overseeing budding competitive markets, they now have many more issues at stake. Today, ICT regulators have become 4th Generation Regulators fostering the development of ICTs for economic and social development. We stand at the edge of 5th generation regulation where collaboration within the ICT sector and across the sectors is a reality.

In building smart connected societies and seeking to achieve the Sustainable Development Goals, policy makers, regulators and indeed all stakeholders are faced with similar concerns requiring common solutions. There is the recognition that there is the need to work together to create an enabling regulatory environment across the sectors and remove the barriers that hinder progress.

With the emergence of smart cities, smart nations, smart societies, ICT/telecommunication networks and services have become more efficient with the use of digital and telecommunication technologies, and this has benefitted people, businesses, and government. There are many opportunities, but this evolution is not without its challenges.

Collaboration within the sector and across sectors has led to the growth of the digital collaborative economy, allowing an even greater level of experimentation, innovation and growth than ever before. A strong digital economy is vital for innovation, growth, jobs and competitiveness. It offers opportunities but also challenges. The digital transformation is structurally changing the labour market and the nature of work. There are concerns that employment conditions, levels and income distribution will be affected by new digital applications and services, Artificial Intelligence, increased use of robots in manufacturing and service industries.

In the telecommunication sector, operators and service providers including carriers, OTTs and MVNOs are already starting to adopt a more collaborative approach, leveraging each other's expertise and resources to offer a wider range of services.

¹ Officially known as *Transforming our world: the 2030 Agenda for Sustainable Development*, the Sustainable Development Goals are contained in paragraph 54 United Nations Resolution A/RES/70/1 of 25 September 2015.

But the effect is wider. There is no doubt today that telecommunication/ICT is cross-cutting and an enabler for growth and development across the board.

The European Union Digital Single Market Strategy²

The European Union's 2015 Digital Single Market Strategy (DSMS) illustrates a cross-sectoral approach where ICTs are recognized as contributing to economic and social development, provided collaboration with other sectors and actors also takes place.

DSMS aims to offer opportunities for new start-ups and existing companies as well as for citizens by providing them with digital skills. DSMS also provides that enhanced use of digital technologies can improve citizens' access to information and culture, improve job opportunities and improve modern open government.

DSMS is built on three pillars:

Access: better access for consumers and businesses to digital goods and services across Europe;

Environment: creating the right conditions and a level playing field for digital networks and innovative services to flourish;

Economy & Society: maximizing the growth potential of the digital economy.

2.1 ICTs as an Enabler for the Achievement of the Sustainable Development Goals

The United Nations General Assembly in its resolution entitled "The Future We Want" provided that "The goal of sustainable development is to ensure the promotion of an economically, socially and environmentally sustainable future for the planet and for present and future generations. Sustainable development emphasizes a holistic, equitable and far-sighted approach in decision-making at all levels. It rests on integration and a balanced consideration of social, economic and environmental goals and objectives in both public and private decision-making. It emphasizes intra-generational and intergenerational equity".³ ICTs are at the core of such development.

ICT regulators and policy makers as well as the wider community of stakeholders recognize that ICTs play an important role in the achievement of the SDGs, and that issues such as affordability and availability as well as in terms of creating incentives for innovation and entrepreneurship must be addressed holistically and comprehensively at the policy level. The issues are complex and multi-faceted, but what is clear is that there is an interdependence of targets and goals and that ICTs have an important role to play in helping to achieve such Goals.

A mapping exercise has been carried out that defines linkages of the World Summit on the Information Society (WSIS) Action Lines with the proposed SDGs to continue strengthening the impact of Information and Communication Technologies (ICTs) for sustainable development. Each UN Action Line Facilitator analyzed the connections and relations of their respective Action Line with the proposed SDGs and their targets. The goal of the mapping was to create a clear and direct link and an explicit connection between the key aim of the WSIS, that of harnessing the potential of ICTs to promote and realize the development goals, and the post 2015 development agenda, so as to contribute to the realization of the latter.⁴

² <http://ec.europa.eu/priorities/digital-single-market/>

³ (E/2013/69, para. 6)

⁴ <https://www.itu.int/net4/wsis/sdg/>

Some examples of how ICTs support the achievement of the SDGs include:

- **Goal No. 1** (No Poverty) for example, can be advanced through basic digital financial services which will lead to the inclusion of the poor in the digital economy. Ending poverty and ensuring that everyone has equal rights in economic resources, as well as access to basic services, is also key to the achievement of this Goal.
- **Goal No. 2** (Ending hunger) can be enhanced through ICTs by supporting countries to develop their e-agriculture strategies.
- **Goal No. 3** (Good Health and Well-Being) has seen great advancement through the evolution of mobile data applications. By mapping best practices on the role that eHealth applications can play in achieving the SDGs and developing national eHealth strategies, ICTs can be even better harnessed for health.
- **Goal No. 4** (Inclusive, equitable and lifelong learning opportunities for all) where integrated policies can play in fostering innovation in the education sector and facilitate the use of mobile technology for learning.
- **Goal No. 5** (Gender equality and empowering all women and girls) girls and young women can be encouraged to effectively use ICTs and consider careers in telecommunications/ICTs.
- **Goal No. 7** (Affordable, reliable, sustainable and modern energy for all) Making the grid more intelligent will require innovations that address legacy communications and the electrical infrastructure. Future grids will need to integrate sensors and smart meters in the distribution segment, distributed energy resources (DER) sites and homes to support demand/response, distributed generation and energy-aware applications. This implies big data as well as reliability and security of infrastructure.
- **Goal No.8** (Economic growth, productive employment, and decent work for all) can be enhanced by measures to empower users, for example through training on ICT-enabled entrepreneurship and promoting the use of new and existing telecommunication technologies for enhanced trade.
- **Goal No. 9** resilient infrastructure can be built, innovation achieved and inclusive and sustainable industrialization can be achieved through holistic and targeted ICT policies, regulations, and strategies as well as by promoting building confidence and security in the use of ICTs.

2.2 ICTS as Enablers across the Sectors

ICT sector players work more and more with non-traditional ICT players because ICTs are increasingly recognized an essential pillar of many areas of life in the converged ecosystem. School, government, health sector connectivity as well as digital financial inclusion require access to ICTs/telecommunications networks and services. The degree of telecommunications liberalization impacts other sectors, since market restrictions result in less competition, higher prices, poor quality of service and fewer connectivity options.

The benefits of market liberalization increase as more service providers enter the market and competition increases. However, not all the countries that have introduced a legal framework for a liberalized ICT market have succeeded in creating true competition. Continuing problems may stem from regulatory barriers to entry, including exclusivity clauses in the licenses held by existing operators, as well as ineffective or incomplete regulations on spectrum management, universal access, interconnection and even numbering.

Access to international infrastructure is also key to lowering the cost of bandwidth and broadband prices for consumers. It is important to establish effective interconnection and gateway regulatory frameworks that introduce new models of sharing and collocation and reduce barriers to existing private, government and international networks. Effective reforms can encourage existing providers and new market entrants to expand into broadband and other services and thus create the enabling environment by which ICTs/telecommunications can be a driver for economic and social development.

2.2.1 Administration and ICTs

E-Government

E-government is “the use of ICT and its application by the government for the provision of information and public services to the people” (Global E-Government Readiness Report 2004). More specifically, a 2014 UNDESA report refers to e-government as “the use and application of information technologies in public administration to streamline and integrate workflows and processes, to effectively manage data and information, enhance public service delivery, as well as expand communication channels for engagement and empowerment of people.”⁵

New technologies and applications such as cloud computing, mobile technologies as well as social media channels and apps have become part of the day-to-day life of people, business and society at local, regional and global level. More open governance through e-government has led to government becoming more transparent and accessible, which has led to more and new forms of public engagement and relationships.

Through the use of ICTs and digital platforms, e-Government increases public sector efficiency by facilitating interactions with public administrations, improving the quality of administrative services and processes and increasing transparency.⁶

Digital government or e-government strategies can bring governments closer to citizens and businesses. However, this requires access and connectivity, as well as digital skills, trust and confidence in the use of ICTs. Technology is not only a strategic driver for improving public sector efficiency, but can also create more open, transparent, innovative, participatory interactions with governments enhancing trustworthiness of governments within a digital connected society.

Ideally, a digital connected society where citizens have the skills to benefit from ICTs will lead to more collaborative and inclusive communications between government and regulators across the sectors, as well as between regulators and policy makers and other stakeholders such as citizens, business and non-governmental organizations.

Some examples include:

- On 18 April 2016 the European Commission published a Communication on Digitizing European Industry.⁷ Recognizing the role of technologies on public sector modernization and on the labour market, the Communication introduces policy measures, and calls for a human capital ready for the digital transformation with the necessary skills.

⁵ <https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2014-Survey/0ExecutiveSummary.pdf>

⁶ <https://ec.europa.eu/digital-single-market/en/news/communication-eu-egovernment-action-plan-2016-2020-accelerating-digital-transformation>

⁷ <https://ec.europa.eu/digital-single-market/en/news/communication-digitising-european-industry-reaping-full-benefits-digital-single-market>

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- The Australian government recognizes that ICTs play a critical role in delivering and transforming the operations of government, and outlines the benefits that are expected to result from a strategic and coordinated approach to developing and use ICT in new, creative and innovative ways to deliver better, easier to use services in ways that best meet people’s needs and expectations. The Australian Public Service (APS) ICT Strategy of 2012 provided that: “The APS will use ICT to increase public sector and national productivity by enabling the delivery of better government services for the Australian people, communities and business, improving the efficiency of APS operations and supporting open engagement to better inform decisions.”⁸

Digitally enabled participation and the use of e-government services is changing people’s expectations about their relationships with governments.

The challenge is not limited to the introduction of digital technologies into public administrations; but also to integrate their use into public sector modernization efforts.

Similar to other sectors, the decision to use technology for public governance requires coherent and strategic planning of policies for the availability of digital technologies in all areas and at all levels of public administration as well as the framework whereby digital skills can be enhanced across the population. Policy makers and regulators should work together to ensure people have access to technologies, have the digital skills to use them, and that there is trust in using e-government services.⁹

Collaborative efforts should lead to strategies to create an enabling environment, including appropriate legal and institutional frameworks, capacity-development for digital media literacy for citizens and a seamless integration of online and offline features for public participation.

What can policy makers do to spur effective and more open, innovative and participatory governments? According to a recent OECD study,¹⁰ policy makers should:

- Set strategic digital government objectives;
- Take steps to address existing “digital divides” and the need to avoid “new digital exclusions”; as well as the creation of a data-driven culture that enables open data for transparency, better service delivery and public participation;
- Ensure the coherent use of technology across policy areas and levels of government;
- Establish organizational and governance frameworks for effective co-ordination and integration of efforts to produce better policy outcomes and services;
- Strengthen capacities to support better implementation of digital government strategies;
- Monitor results of outcomes.

Governments should also adopt clear business cases for the use of resources on identified objectives. The necessary capacities, including regulatory and legal frameworks, need to be put in place to not only capture new digital government opportunities but also to mitigate associated risks (such as security and privacy).

⁸ http://www.finance.gov.au/policy-guides-procurement/ict_strategy_2012_2015/

⁹ <http://www.oecd.org/gov/digital-government/Recommendation-digital-government-strategies.pdf>

¹⁰ <http://www.oecd.org/gov/digital-government/recommendation-on-digital-government-strategies.htm>

2.2.2 Agriculture and ICTs

The Role of National e-Agriculture Strategies

“ National e-Agriculture strategies could offer critical support to rationale the use of resources (financial and human), to better harness ICT opportunities and to address challenges in the agricultural sector. The existence of a comprehensive national e-Agriculture strategy could prevent e-agriculture projects from being implemented in isolation and increase efficiency gains from intra-sector and cross- sector synergies. “

Source: Towards National e-Agriculture Strategies, September 2015, available at: http://www.e-agriculture.org/sites/default/files/uploads/kb/2015/09/policy_brief_e_ag_strategies_sept_2015_0.pdf

Using telecommunication/ICTs to enhance agriculture around the world offers a great opportunity for economic growth and poverty alleviation. Universal access and service programmes, especially for broadband access, can overlap with e-agriculture strategies since they can be used to provide remote populations with ICTs, thus helping to reduce poverty.

“Smart Agriculture” measures and programmes can guide farmers when to plant, fertilize and harvest, based on site-specific weather data, thus improving productivity and efficiency. ICT-enabled systems can help create and spread agricultural knowledge, disseminate up-to-date technology, facilitate training programmes, and connect rural businesses to markets.

However, for this opportunity to materialize, e-agriculture projects should be coordinated and sustainability defined. E-agriculture should be part of a clear and collaborative strategy, with synergies with other sectors and linkages between parallel initiatives defined. ICT development and strategic alliance, including with the financial sector, is key to such thinking.

2.2.3 Education and ICTS

National School Connectivity Plans

Policy goals regarding digital inclusion need to be translated into a practical plan and concrete action points for connecting schools. Developing a plan is critical to bringing a strategy from the conceptual stage to the practical level. A plan should address who is in charge of coordination and implementation, how to identify the schools that will be connected, funding sources, technologies to be used, and how the connectivity will be sustained. A plan also can align education sector targets with national ICT goals. And it can promote mechanisms to involve all key stakeholders.

Source: <http://connectaschool.org/itu-module/21/536/en/schools/connectivity/reg/3.1/>

ICTs contribute to making education more accessible and more universally and equitably available to people around the world. They also enable more efficient delivery of quality teaching, more effective learning, and better educational management, governance and administration.

Many countries are realizing the importance of connecting schools and universities, and research institutes to the Internet and have developed e-learning and m-learning strategies for connecting students and researchers. Educators are also increasingly integrating ICTs in their design of learning materials as well as educational methods.

Connectivity provides many educational benefits including access to information, opportunities for collaboration and digital skills, including in the use of technology and online applications. The benefits are particularly attractive for remote schools where Internet access provides the opportunity for online learning and access to educational content.

Alongside investment in technology, there is a need for governments to define and plan how to invest in capacity building in multidisciplinary digital skills and knowledge.

Although many of the benefits identified are only achievable through broadband connectivity, a myriad of technologies can be used for simpler systems and still create value for users. All forms of connectivity, including fixed and mobile broadband as well as satellite broadband contribute to the goal of providing universal education to all.

2.2.4 Health and ICTS

National e Health Strategies

Establishing the main directions as well as planning the detailed steps needed are key to achieving longer-term goals such as health sector efficiency, reform or more fundamental transformation. Ministries of health play a pivotal role, not only in meeting people's needs for care and protecting public health, but in preserving health systems through uncertain times. Ministries of information technology and telecommunications are key to development in all spheres, and can make a vital contribution to the health sector. Common goals and a predictable ICT environment enable coordinated action: building consensus on policy, facilitating better use of shared resources and involvement of the private sector, and investment in skills and infrastructure to improve health outcomes.¹¹

The World Health Organization defines e-Health as "the cost-effective and secure use of ICTs in support of health and health-related fields, including health-care services, health surveillance, health literature, and health education, knowledge and research...".¹²

In order to effectively leverage telecommunications/ICTs for health, regulators and policy makers need to identify strategic and integrated action at the national level. This will allow existing capacity to be used in both sectors while creating the enabling environment for investment and innovation.

2.2.5 Energy and ICTs

ICTs for Energy

Governments have recognized that ICTs are an important part of their strategies for tackling environmental problems.

The incorporation of ICT-enabled solutions and methodologies across the sectors has enhanced energy efficiency and reduced cost. ICTs also have the potential to play a critical role in addressing challenges related to climate change, including by reducing emissions and the carbon footprint. On the other hand, the steadily increasing use of ICTs and their need for energy and impact on the use of energy is also an important factor to consider when defining policies and regulation.

Regulators and policy makers have adopted a range of ICT and environment policies. Green ICT measures, smart grids are some of the topics under consideration.

More still needs to be done to develop and enhance environmental performance along the ICT value chain and to promote ICT applications that can improve and enhance the use of ICTs across the sectors and make them more resource efficient.

ICT applications and systems can lead to higher levels of economic productivity and energy savings. ICTs also consume energy.

¹¹ <http://www.itu.int/en/ITU-D/ICT-Applications/eHEALTH/Pages/NeHSToolkit.aspx>

¹² Resolution 58/28 of the World Health Assembly, Geneva, 2005

With the growing availability of broadband, electricity consumption of households is increasing. Data centres, too, are large energy consumers.

In the European Union, a Code of Conduct has been created in response to increasing energy consumption in data centres to inform and stimulate data centre operators and owners by improving understanding of energy demand within the data centre, raising awareness, and recommending energy efficient best practice and targets. The aim of this Code is to reduce energy consumption in a cost-effective manner without hampering the mission critical function of data centres.¹³

ICTs have allowed us to measure, share, and control our energy usage and patterns.

- Smart manufacturing, for example, using sensor and information networks to monitor energy and optimize systems can achieve efficiency and thus increase productivity.
- Smart grids - electricity grids that use ICTs to gather and act on information from suppliers and consumers in an automated way - deliver electricity more cost-effectively and with lower greenhouse gas emissions. Through smart grids, energy from intermittent renewable sources can be used to distribute power much more efficiently.
- Smart “transport” can reduce pollution.

2.2.6 Digital Financial Services

Digital Financial Inclusion

The Consultative Group to Assist the Poor (CGAP) defines digital financial services as “financial services that are offered through digital channels”.¹⁴

“Digital financial inclusion” is defined as “digital access to and use of formal financial services by excluded and underserved populations. Such services should be suited to the customers’ needs and delivered responsibly, at a cost both affordable to customers and sustainable for providers.”¹⁵

Today, 2 billion adults have no access to basic financial services, which represents a barrier to reducing poverty and boosting socio-economic development, in particular for developing countries. But with more than 7 billion mobile cellular subscriptions worldwide, access to, and use of ICTs and other innovative technologies provide a promising way to increase access to financial services to the “unbanked”.

A major component in the digital financial service ecosystem consists of mobile phones and point-of-sale devices which can improve and increase the availability of and delivery of basic financial services to the poor. Stakeholders include banks, microfinance institutions, mobile operators, networks of small-scale agents, as well as other providers. CGAP identifies four categories:

- A full-service bank offering a “basic” or “simplified” transactional account for payments, transfers, and value storage via mobile device or payment card plus point-of-sale (POS) terminal;
- a limited-service niche bank offering such an account via mobile device or payment card plus POS terminal;
- a mobile network operator (MNO) e-money issuer; and
- a nonbank non-MNO e-money issuer.¹⁶

¹³ <http://iet.jrc.ec.europa.eu/energyefficiency/ict-codes-conduct/data-centres-energy-efficiency>

¹⁴ <http://www.cgap.org/topics/digital-financial-services>

¹⁵ <http://www.cgap.org/publications/digital-financial-inclusion>

¹⁶ <http://www.cgap.org/publications/digital-financial-inclusion>

Recognizing the importance of digital financial services for inclusion, the digital financial inclusion agenda calls upon strengthened collaboration between the financial and telecom/ICT sectors.

The Global Dialogue on Digital Financial Services Paper on Regulating for Financial Inclusion (GDDFI, 2016) recognizes that while access to financial services is a crucial enabler of economic and social development,¹⁷ digital financial services involve a range of technical and market, and thus regulatory, issues relating to the fields of telecommunications, financial and competition. Between telecommunications and financial regulators and competition authorities, many countries have sufficient legal powers that, if coordinated, can address the regulatory and competition concerns that are arising in mobile financial services. They only require the political will of these institutions to collaborate towards a common goal. As a result, sometimes these fields are tightly interlinked, as is the case where network effects in telecommunications markets and in financial markets reinforce one another and prevent competition.

¹⁷ World Bank, 1989, *World Development Report: Financial systems and development*.

3 Overview of ICT and Collaborative Regulatory Frameworks

3.1 Telecommunication/ICT Regulation

3.1.1 Evolution of ICT/Telecommunication Regulation

History shows that, in the past, telecommunication was considered a public service like many other utilities (e.g., water, roads), and as such constituted part of the mandate of the government, with the Ministries of Post, Telegraph and Telecommunications (MPTTs) being responsible for operation and regulation. They were responsible for setting policies and technical standards, certifying equipment, controlling and managing the radio spectrum, allocating and controlling numbers, and managing other resources and assets. It was the government that made investment decisions and set prices. They were both operator, policy maker and regulator. In some cases, operation was carried out by state-owned enterprises that were granted privileges while being regulated by government.

Technology and business models have evolved and this led to policy and governance changes, starting in the 1980s. In the US, Great Britain and Japan, policy makers realized the need for reform and innovation, partly because the role of telecommunication/ICTs in opening economic and social opportunities was starting to be recognized. This became part of multilateral talks and trade deals, and the momentum started to increase, with countries around the world following the trend. State-owned operators began to be privatized and liberalization became a global trend, supported by regional decisions (e.g. in the European Union), and commitments taken at global, regional and bilateral level – in particular within the Framework of the World Trade Organization.¹⁸

WTO and Telecommunication liberalization

Commitments in telecommunications services were first made during the Uruguay Round (1986-94), which gave momentum to the liberalization of telecommunications services around the world. Commitments in this first round mainly related to value-added services. In post-Uruguay Round negotiations (1994-97), WTO members went further and negotiated on basic telecommunications services. Since then, commitments have been made by new members, upon accession to the WTO, or unilaterally at any time. In addition, WTO members also committed to a number of regulatory principles as contained in the “Reference Paper”, a blueprint for sector reform that largely reflects “best practice” in telecoms regulation.

> [List of all current telecommunications commitments and exemptions](#)

At the Hong Kong Ministerial Conference (December 2005), a new sector-specific negotiating mechanism was mandated by the trade ministers. Negotiating objectives outlined by WTO members in the Chairman's note to the Trade Negotiations Committee include:

- achieving broad coverage in a technology-neutral manner and significant commitments in all modes of supply
- working with least-developed countries and developing countries to find ways to encourage new and improved offers and to provide technical assistance to support this process
- reducing or eliminating exclusive rights, economic needs tests (i.e. a test using economic criteria to decide whether the entry into the market of a new foreign firm is warranted), restrictions on the types of legal entity permitted, and limitations on foreign equity

¹⁸ https://www.wto.org/english/tratop_e/serv_e/telecom_e/telecom_e.htm

- commitment to all provisions of the telecommunications Reference Paper
- the elimination of exemptions to most-favoured nation (MFN) treatment (i.e. non-discrimination).

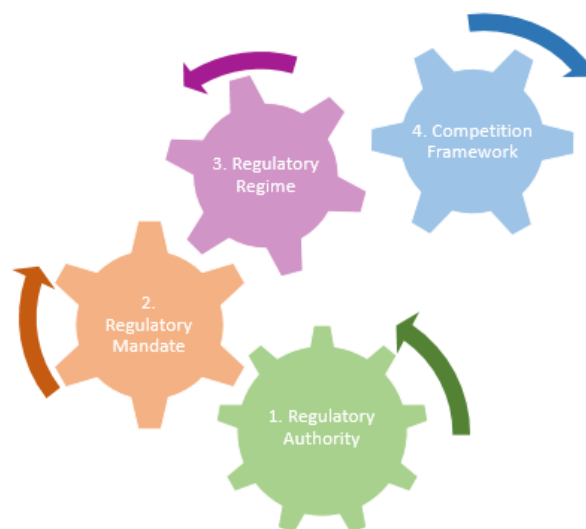
Source: WTO

In some countries, liberalization of certain networks and services was introduced at the same time as privatization, while in others this was a second phase of the reform process. Transition to competitive markets was in many cases introduced in stages with incumbent operators being granted exclusivity periods, often for economic and social reasons and to allow the incumbent to restructure. The next phase of liberalization occurred once the incumbent operator's exclusivity period ended, which led to greater competition in many markets.

The process of privatization and the introduction of competition led to a new governance model, or the 2nd Generation Regulation, according to ITU. Once operation and regulation were separated, and given that many governments still retained some form of ownership of incumbents, independent regulatory authorities were created to oversee and create enabling environments in which effective competition could thrive. These newly created independent entities initially focused on opening the formerly monopolistic markets to competition. Their efforts often related to market entry, consumer protection and interconnection between the new entrants and with the incumbent, as well as access, particularly in areas that were not commercially attractive. Regulators also created processes and procedures in relation to their own functioning, their relationship with other entities directly involved in telecommunication/ICT related issues (e.g., competition authorities, consumer protection agencies, spectrum management agencies) as well as in relation to the oversight of the newly competitive markets (e.g., dispute resolution, sanctions and enforcement, consumer complaints and stakeholder consultation).

Once open markets with fully competitive environments came into being, the role of the independent regulatory authorities evolved from one that focused mainly on ensuring that competition could be introduced to one where regulators focused on fostering an enabling environment for telecommunication/ICT development, addressing in particular market failures. Key to this evolution was the clear definition of the institutional framework, the regulatory mandate, the regulatory regime as well as the competition framework. This is the 3rd Generation Regulation, according to the ITU classification.

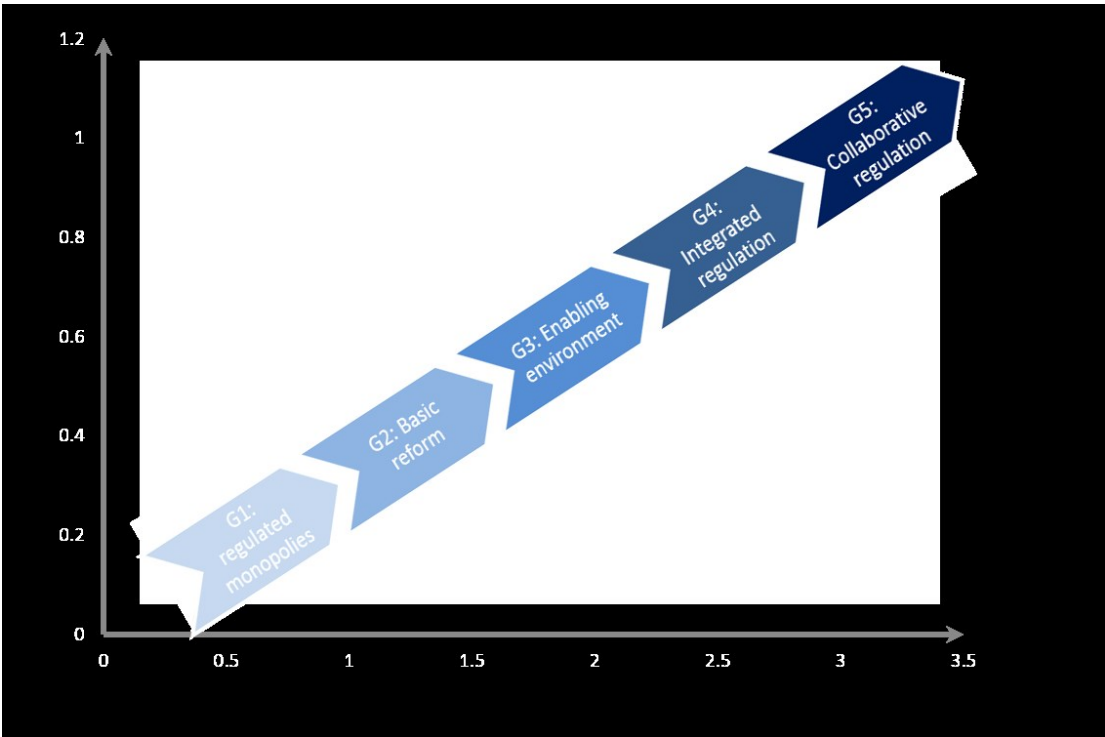
Figure 1: Building Blocks for an Enabling 4th Generation Regulatory Environment



Source: ITU

Greater complexity and a cross-sectoral view, addressing the interaction of the ICT sector to stimulate growth in the broader digital economy has challenged telecommunication/ICT regulators and policy makers. They need to continuously review, adapt and anticipate changes to ensure that their national ICT legal and regulatory framework address how ICTs can help achieve economic and social development goals. This is the 4th Generation Regulation.

Figure 2: Evolution of Regulation



Source: ITU

ITU distinguishes between:

- '1G' or monopolistic regulation without an independent regulator;
- '2G' regulation, including the creation of separate regulatory bodies that introduced basic reforms, partial liberalization and privatization across the layers;
- '3G' regulation with regulators enabling investment, innovation and access, with focus on stimulating competition, and
- '4G' regulation, with an evolving role of the regulator as a partner for development and social inclusion, focusing on economic and social policy goals through ICT policy and regulation. ¹⁹
- '5G' regulation, with the need to define the foundation, platforms and mechanisms for collaborative regulation with other sectors to help achieve the Sustainable Development Goals.

Today, the smart connected society presents regulators and policy makers with a complex networked environment – locally and globally - where collaboration between sectors is key to the success of smart connected societies. The interconnected nature of digital societies across the sectors means that there is a need for collaboration between government and industry operators, as

¹⁹ ITU Trends in telecommunication Reform, 2015.

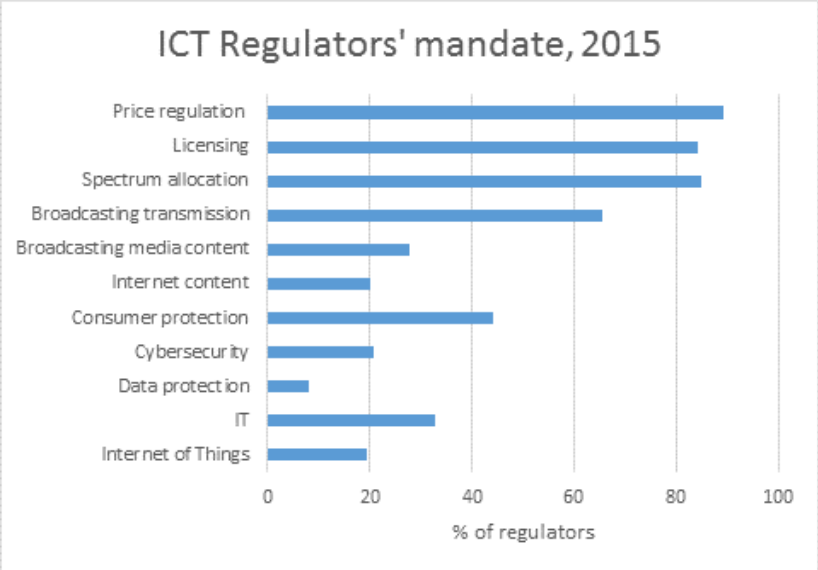
well as between regulators across the sectors to provide effective responses to issues arising in networked communication flows. Today, regulators and policy makers are starting to define the foundation as well as the platforms and mechanisms for collaborative regulation with other sectors such as health, finance, education, energy. Their goal is to define common measures to include and empower citizens so that they can benefit from the opportunities offered by a digital connected society. This is the 5th generation regulation, according to ITU.

3.1.2 Mandate of ICT/Telecommunication Regulators

Today, independent regulatory authorities generally have the responsibility for implementing and administering the regulatory framework, with government ministries responsible for policy-making. Given the widened scope of ICT/telecommunication, policymaking and regulation on issues of relevance to the sector can reside with one ministry or be divided between several government ministries and with one ICT/telecommunications regulator or several (data protection agency, competition authority, spectrum agency, etc.).

In a competitive ICT/telecommunication environment, the mandate of telecommunications regulators generally includes the authority to conduct rulemakings and issue regulations, address various telecommunications issues, including universal service, licensing, interconnection, price regulation, numbering, and spectrum management. Most often, such regulators can also undertake adjudication, sanctions and enforcement. In addition, there are regulatory and policy issues related to technologies and their related services, including spam and consumer concerns regarding privacy, emergency services and quality of service. The range and scope of powers depends on the delegation of powers to such regulators.

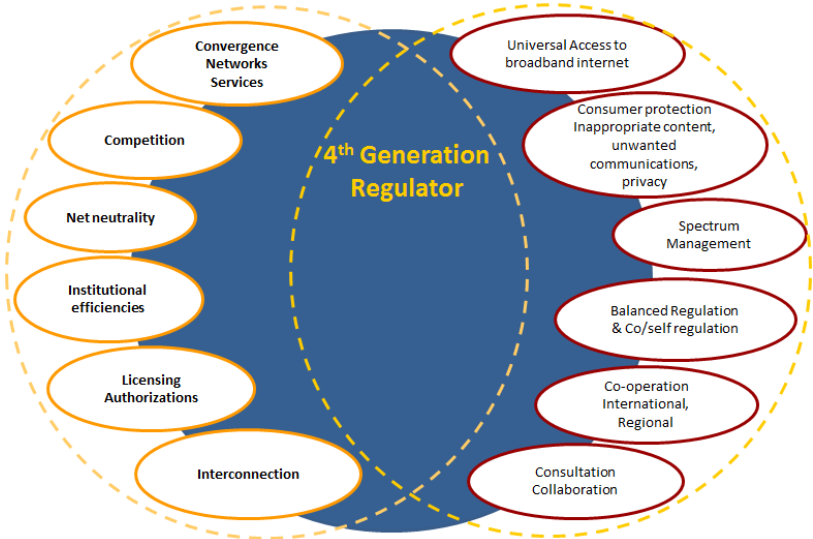
Figure 3: ICT Regulator’s Mandate



Source: ITU ICT Eye.

From a first generation of regulators with highly regulated state-owned monopolies, to a second wave of privatizations, opening up of markets and the creation of separate regulatory bodies, to a third phase with focus on competition and the expansion of mandates, the fourth generation of regulators requires adaptability to an industry that is going through innovation. This has affected the mandate of ICT/telecommunication regulators. An overview of issues addressed by 4th generation regulators is shown in the figure below.

Figure 4: 4th Generation Regulation Issues



Source: ITU

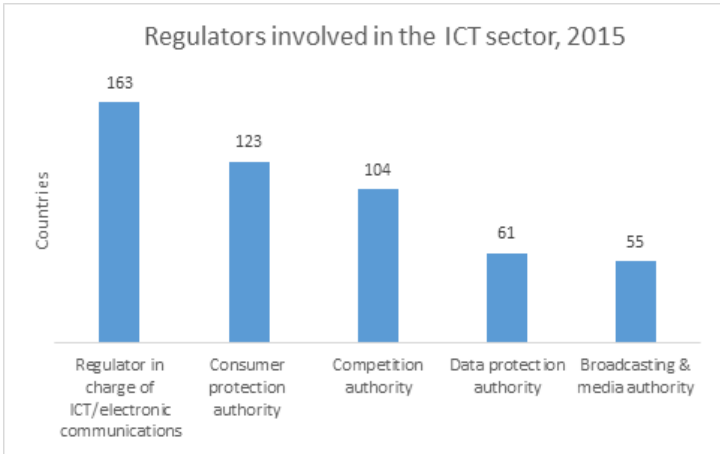
3.2 Interaction with Other Authorities involved in ICT

Regulators increasingly require collaborative strategies with other agencies to develop targeted responses to common challenges and opportunities. Experience shows that coordination with the respective competent authorities and other interested stakeholders is taking place, to create awareness and foster an innovation-and consumer-friendly environment.

There has sometimes been convergence between entities, particularly when there is significant overlap in the markets they cover. The creation of a converged regulator avoids having separate regulators overlapping, thus enabling better efficiencies for both the private and public sectors. Where the mandate is clearly specified and sufficient resources are dedicated to effective regulation, the combination of expertise generally also allows such regulators to effectively address issues relating to new emerging technologies, and to deal with issues such as telecommunication and/or media and broadcasting licensing issues where new models of delivery are replacing old ones.

The lines between services and technology are becoming blurred and examples such as over-the-top (“OTT”) and machine-to-machine (“M2M”) services have impacted regulatory models.

Figure 5: Regulators Involved in the ICT Sector



Source: ITU ICT Eye & ITU research.

3.2.1 Broadcasting and Media Authorities

New technologies and developments in ICTs have affected telecommunications broadcasting, and the Internet, leading to closer coordination between these sectors. The relative policy and regulatory measures have also converged, including on issues relating to content, intellectual property, and privacy.

Converging ICT/telecommunications regulators with broadcasting regulators is a trend that emerged from the blurring lines between technology and media, as well as from changes in the way that service providers deliver content and bundle services, and users are consuming services and content.

In some countries, this has led to the creation of communications authorities that include telecommunication, media and broadcasting.

Examples of Converged Telecommunication's and Broadcasting Regulators from around the world:

Ofcom is the communications regulator in the **UK** and regulates the TV, radio and video on demand sectors, fixed line telecoms, mobiles, postal services, plus the airwaves over which wireless devices operate. The stated mission of Ofcom is to make sure that people in the UK get the best from their communications services and are protected from scams and fraudulent practices, while ensuring that competition can thrive.²⁰ Ofcom also has the powers to enforce competition law in those sectors for which it is responsible, alongside the Competition and Markets Authority. Ofcom is funded by fees from industry for regulating broadcasting and communications networks, and grant-in-aid from the Government.

The Communication Regulatory Agency (**RAK**) of Bosnia Herzegovina, established in 2001, merged the Independent Media Commission (broadcasting) and the Telecommunications Regulatory Agency (telecommunications). Adopting a convergent approach, RAK's mandate includes telecommunications, radio, broadcasting (including cable television) and associated services and facilities.²¹

As part of the Constitutional Reform of 2013 in **Mexico**, the Federal Telecommunications and Broadcasting Law was published on 14 July 2013, and established a new regulatory framework in the telecommunications and broadcasting. The object of the Law is to regulate: the radio-electric spectrum, the public telecommunication networks, the access to active and passive infrastructure, orbital resources, satellite communication, the provision of public services of general interest of telecommunications and broadcasting and the convergence between both services, the rights of the users and audiences, and (the process of competition and free market participation in these sectors. The Federal Institute of Telecommunications (the IFT), created by the Constitutional Reform as an autonomous constitutional body, is responsible for the regulation, promotion, and supervision of the use, approval, and exploitation of: the radio-electric spectrum, orbital resources, satellite services, the public telecommunications networks, broadcasting and telecommunications services, the access to active and passive infrastructure, and other essential facilities.²²

The Telecommunications Authority of **Trinidad and Tobago** is the independent regulatory body responsible for regulating both telecommunications and broadcasting sectors, managing spectrum and number resources, establishing equipment and service quality standards, setting guidelines to

²⁰ <http://www.ofcom.org.uk/about/what-is-ofcom/>

²¹ <http://rak.ba/eng/>

²² <http://www.ift.org.mx/>

prevent anti-competitive practices and encouraging investment in order to facilitate the availability of affordable telecommunications and broadcasting services to all.²³

In **Namibia**, CRAN is the Communications Regulatory Authority of Namibia. CRAN regulates telecommunication services and networks, broadcasting services, postal services and the use and allocation of radio spectrum.

The Independent Communications Authority of **South Africa** (ICASA) is the regulator for the South African communications, broadcasting and postal services sector. ICASA was established by an Act of statute, the Independent Communications Authority of South Africa Act of 2000, as Amended. ICASA's mandate is spelled out in the Electronic Communications Act for the licensing and regulation of electronic communications and broadcasting services, and by the Postal Services Act for the regulation of the postal sector.²⁴

In **Australia**, the ACMA is responsible for regulating online content, including Internet and mobile phone content, and enforcing Australia's anti-spam law. The ACMA's responsibilities include:

- promoting self-regulation and competition in the communications industry, while protecting consumers and other users
- fostering an environment in which electronic media respect community standards and respond to audience and user needs
- managing access to the radiofrequency spectrum
- representing Australia's communications interests internationally.²⁵

In **Singapore**, the Infocomm Media Masterplan 2025 (2015), recognizes that convergence is accelerating, as demonstrated by traditional telecommunications providers entering the media business, and by social media players entering the telecommunications market. As a result of this Plan, the merger of the Info-communications Development Authority (IDA) and the Media Development Authority (MDA) was announced in 2016 with the aim of streamlining of the legislative and licensing framework governing communications and media players. The new Info-communications Media Development Authority of Singapore (IMDA) will develop and regulate both the information and communications and media sectors, as a converged regulator. The Personal Data Protection Commission (PDPC), the regulator for the Personal Data Protection Act (PDPA), will also be part of the new IMDA. Various pieces of legislation will be amended and promulgated, including the Broadcasting Act (Cap. 28), Films Act (Cap. 107) and Telecommunications Act (Cap. 323).²⁶

3.2.2 Competition authorities

The introduction of competition and liberalization of ICT/telecommunication markets led to collaboration between the newly created telecommunication regulatory authorities and competition authorities. Although, as discussed in the ITU-*infoDev* ICT Regulation Toolkit²⁷, in many countries, the telecommunications regulator was often responsible for technical regulation such as spectrum allocation, number allocation, type approval, and standard setting, telecommunications-specific economic and social regulation such as licensing, universal service, price regulation, access and

²³ <https://tatt.org.tt/AboutTATT.aspx>

²⁴ <https://www.icasa.org.za/>

²⁵ <http://www.acma.gov.au/theACMA/About/Corporate/Responsibilities/regulatingq-media-communications-acma>

²⁶ <http://www.lexology.com/library/detail.aspx?q=f10c8f3f-c6e0-4ac9-9c65-1de46c22bd1f>

²⁷ <http://www.ictregulationtoolkit.org/6.5>

interconnection, and rights-of-way were also often part of the telecommunication regulator's mandate.

Competition authorities, on the other hand, are generally mandated with tasks relating to anti-competitive behaviour and mergers with the aim of avoiding collusion and controlling the ability of market players to restrict competition. They also generally seek to protect consumers from anti-competitive practices.

In practice, however, there is some overlap between the issues that the telecommunications regulatory authority and the competition authorities address, for example in relation to significant market power or pricing policies, which raises the question of whether competition aspects relating to telecommunications regulation should be integrated into the broader powers and responsibilities of the competition authority and removed from the sector regulator, or whether both agencies should collaborate on competition issues.

Where there is shared responsibility relating to competition issues, collaboration needs to be organized and managed. A key element to ensure successful collaboration related to the clear definition of the role and mandate of each institution. This avoids duplication, legal uncertainty and disputes or unclear decision-making.

Collaboration with Competition Authorities

Telecommunication regulators can contribute to the work of the competition authority by:

- designing *ex-ante* rules that will support the competition authority's goals and facilitate its role as a watchdog.
- sharing its sector expertise with the competition authority for example in the case of mergers or anticompetitive conduct, or when evaluating market structures
- enforcing the competition authority's rulings

Source: <http://regulationbodyofknowledge.org/fag/market-structure/competition-authorities-what-are-the-potential-functions-of-competition-authorities-and-how-can-they-collaborate-with-sector-regulators/>

3.2.3 Consumer Protection Agencies

Consumer protection is a key element of an effective competitive market.

Although in many cases ICT/telecommunication regulators have some form of consumer protection responsibilities in their mandate, consumer organizations and associations often exist in parallel – albeit that in many cases their mandate is wider than just telecommunications/ICTs. Such organizations, however, have a role to play in identifying consumer protection issues, providing data and carrying out surveys in relation to, for example, tariffs and quality of service.

To benefit from competition and be able to make informed choices, however, consumers need to be well informed, not just about price, but also on the qualitative aspects of the service. An important element of consumer empowerment is the need to provide the mechanisms whereby consumers are also educated on the rights that they have and how to exercise those rights. It is not just sufficient to publish the information, but awareness raising and education on consumer rights is also core to a competitive market.

ICT/Telecommunication policy and regulation relating to consumer protection and empowerment has generally focused on creating mechanisms to ensure consumers are informed about their rights and choices as well as to the quality of service provided in the ICT/telecommunication market, that they are protected from the unfair practices of the companies providing ICT/telecommunications services, and that they have the right to redress where issues occur.

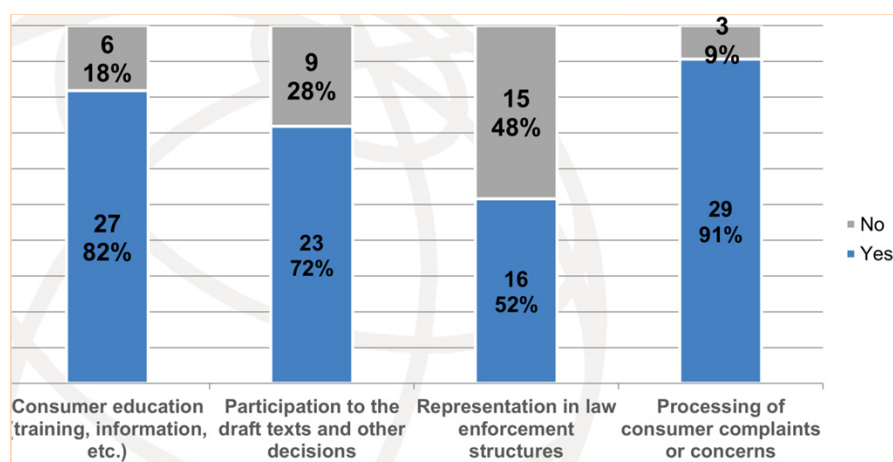
Regulatory tools and measures to protect consumers include regulations on misleading conduct, disclosure requirements, product regulation, and regulation aimed at allowing consumers to conveniently switch between suppliers in the telecommunications industry. Access and interconnection as well as interoperability standards and number portability are also aimed at providing consumers with choice and reliable communication tools.

Concerning the protection of their rights, measures such as the creation of industry codes for consumers, the creation of consumer ombudsmen, data privacy and protection measures as well as the collection and publication of comparative data for consumers are also key.

Redress is also important, with consumers needing meaningful and affordable access to fair, easy-to-use, transparent and effective mechanisms to resolve domestic and cross-border disputes in a timely manner and obtain redress, as appropriate, without incurring unnecessary cost or burden.

OECD identifies mechanisms such as internal complaints handling and alternative dispute resolution as well as small claims tribunals, ombudsmen, and complaints systems (which provide feedback to regulators and suppliers) as important institutions for consumers in many markets in addition to regular tribunals²⁸. They are cheaper, quicker, and provide a pro-active forum for the resolution of disputes such as for example, consumer complaints about the billing process. Out-of-court redress mechanisms should not, however, prevent consumers from pursuing other forms of dispute resolution and redress.

Figure 6: ICT/Telecom related responsibilities of consumer protection agencies



Source: ITU

3.2.4 Data Protection Agencies

With regard to areas like privacy and data security, the competences of ICT/telecommunication regulatory authorities vary amongst countries, with some having only limited or no competences at all. The right to privacy has been a long established principle in many countries, enshrined in laws and often even in the Constitution. Today, many countries have introduced personal data privacy legalization that goes beyond consumer protection. The question in a digital connected society is how to apply these principles and who carries the mandate for regulation and enforcement.

New laws, regulations and codes of practice must aim to balance the interests of individuals who have a right to privacy with the social benefits of a growing digital economy and public safety concerns. In an interconnected world anything online can be located anywhere on the planet, and

²⁸ OECD Recommendation on Consumer Dispute Resolution and Redress, OECD 2007, available at: <https://www.oecd.org/sti/consumer/38960101.pdf>

with the rise of cloud computing anything online can, in principle, be transferred anywhere at any time. The result is that measures are being defined in relation to the data ‘controller’ of information, the data ‘processor’, and individuals. For individuals, the concept of “informed consent” means that for individuals, the right to opt in or opt out and measures relating to the retention of data are now at the core of discussions.

In the European Union, regulations have been defined regarding the privacy and confidentiality of user information that apply directly to electronic communications companies (telecommunications companies and internet services providers) and to any entity using such communications and electronic communications networks to communicate with customers, e.g. by telephone, via a website or over email.²⁹

This is also the case in other countries and regions. As of April 2016, some 108 countries had implemented national privacy or data protection laws.³⁰ In Australia, for example, privacy provisions in telecommunications legislation and in other related legislation have been harmonized, this with the aim of to ensure a consistent standard of privacy protection applied to both the public and private sectors.

In terms of enforcement of such legislation, there is often a shared responsibility between data protection authorities and ICT/Telecommunication regulators or even policy makers. In Finland, for example, the Office of the Data Protection Ombudsman is an independent authority operating in connection with the Ministry of Justice. The office is run by the Data Protection Ombudsman, appointed by the Council of State for a term of five years. FICORA, the Finnish Communications Regulatory Authority, on the other hand, supervises the data protection of electronic communications in the operations of telecommunications operators, corporates or associations, and, since 2015, also in other communications providers' operations. The supervision also concerns, on certain conditions, services provided from abroad. FICORA supervises that telecommunications operators implement their network and communications services in an information secure-manner so that the confidentiality of the communications is not endangered. FICORA also oversees compliance with the Information Society Code and other provisions and regulations issued under it. FICORA is also in charge of processing of identification data, protection of communications and decoding, and compliance with the provisions on the information service of communications services.³¹

In the United States, the Federal Trade Commission (FTC) has overall responsibility of supervising the enforcement of federal requirements on different sectors of the economy. FTC is responsible for supervising whether information is collected and used about customers by telecom companies, confidentiality of health records, Inland Revenue data, etc., and to generally apply consumer protection regulations.³²

There are also global initiatives such as the Global Privacy Enforcement Network³³ started in 2010 following the adoption in 2007 by the OECD Council of the *Recommendation on Cross-border Cooperation in the Enforcement of Laws Protecting Privacy* which provided that

“[m]ember countries should foster the establishment of an informal network of Privacy Enforcement Authorities and other appropriate stakeholders to discuss the practical aspects of privacy law

²⁹ BEREC Report on IoT – available at:

[http://berec.europa.eu/files/document_register_store/2016/2/BoR_\(16\)_39_BEREC_IoT_Report_FINAL_for_publication.pdf](http://berec.europa.eu/files/document_register_store/2016/2/BoR_(16)_39_BEREC_IoT_Report_FINAL_for_publication.pdf)

³⁰ UNCTAD Cyberlaw Tracker 2016

³¹ <https://www.viestintavirasto.fi/en/steeringandsupervision/dataprotection.html>

³² <http://broadbandtoolkit.org/3.9>

³³ <https://www.privacyenforcement.net/>

enforcement co-operation, share best practices in addressing cross-border challenges, work to develop shared enforcement priorities, and support joint enforcement initiatives and awareness raising campaigns.”³⁴

3.4 Multisector Regulators

Some countries have established multisector regulators as a way of regulating utilities and sometimes have included other sectors. This is an example of collaborative regulation.

Advantages, in addition for providing the institutional and legal framework for collaboration and the context to leverage ICTs in other sectors, include:

- Uniform regulatory strategy and similar approaches in all regulated sectors;
- Similar procedures in dealing with customer complaints, supervision of utilities;
- Ability to apply experience from one sector to other sector and to leverage expertise and resources across the sectors.³⁵

In Eastern Europe, examples of Multisector Regulators include the Public Utilities Commission (PUC) of Latvia, the Energy and Public Utility Regulatory Authority of Hungary, and the Agency for Communication Networks and Services of the Republic of Slovenia. PUC in Latvia is mandated with regulatory functions in relation to energy, electronic communications, post, railway transport, waste disposal and water management.³⁶ The Agency for Communication Networks and Services of the Republic of Slovenia, for example, regulates and supervises electronic communications, as well as the radio frequency spectrum and broadcasting. In addition, its mandate includes the regulation and supervision of the postal and railway service markets.³⁷

Created in 2005, the *Bundesnetzagentur* (Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway) was created in Germany as a separate higher federal authority to bring together various sectors and agencies. The Agency works within the scope of business of the Federal Ministry of Economics and Energy. It also acts as the root certification authority under the Electronic Signatures Act³⁸ The Multi-sector regulator in Germany was built up gradually by adding further responsibilities to RegTP, and the change of names in 2005 to *Bundesnetzagentur*. Interesting to note, however, is that the Cartel office (BKartA) remains responsible for competition law intervention. Although there are no concurrent powers between both agencies, meaning that there is no application of general competition law by BNetzA, elements of the general competition law are directly incorporated as provisions in the Telecommunications Act and the Energy Industry Act. The relevant laws however provide for information exchange to ensure legal certainty and avoid duplication or uncertainty.³⁹

In the Bahamas, prior to the sector reform process launched in 2009, the task of regulating electronic communications was shared between a number of authorities including the Public Utilities

³⁴ <https://www.oecd.org/sti/ieconomy/38770483.pdf>

³⁵ PUC (2011), www.sprk.gov.lv/uploads/doc/Multiregulator.pdf

³⁶ [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=GOV/RPC/NER\(2014\)6&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=GOV/RPC/NER(2014)6&docLanguage=En)

³⁷ <http://www.akos-rs.si/about-akos>

³⁸ http://www.bundesnetzagentur.de/cln_1432/EN/General/Bundesnetzagentur/About/AboutTheBundesnetzagentur_node.html

³⁹ http://www.regulatel.org/wordpress/wp-content/uploads/2015/05/Pro_competitive_electronic_communications_Alemania.pdf

Commission (PUC) and the Television Regulatory Authority (TRA), which were responsible for overseeing the telecommunications and broadcasting sectors, respectively. In 2009, the sector was reformed, and this led to the creation of URCA that was organized as a multi-sector regulator, in charge of the electricity, telecommunications, water and gas sectors, and responsible for promoting the interests of consumers and promoting effective competition.⁴⁰

⁴⁰ <https://www.itu.int/en/ITU-D/Conferences/GSR/Documents/GSR2014/Discussion%20papers%20and%20presentations%20-%20GSR14/Case%20Study%20GSR14%20-%20URCA.pdf>

5 Recommendations for Collaboration in a Smart Connected Society

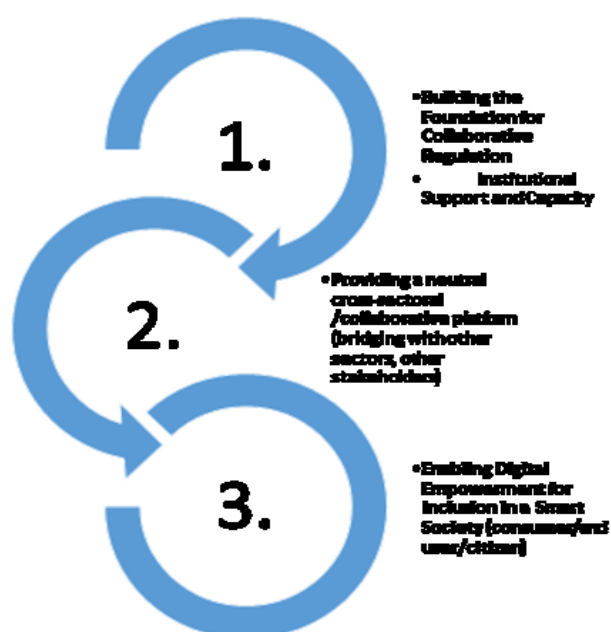
Although policy and regulatory frameworks have evolved independently in many sectors over the past years, recognition has grown that there is an increasing interdependence between sectors. Technology developments are enabling effective global, regional and local development through knowledge management, sharing and collaboration between all sectors and at all levels of government as well as with business and users. There are clear opportunities to empower and include people around the world in a trusted, connected digital society.

Although in most countries, some kind of coordination mechanisms to ensure close and effective dialogue with the different tiers of government involved in regulating ICTs exist, systematic and institutionalised mechanisms for collaborative regulation to leverage ICT/telecommunication in other sectors is still being discussed.

ICT as well as other sector policy makers and regulators are stakeholders in the process of development. This makes transparent, practical cooperation and communication across sectors as well as between regulators and policy-makers as well as with other stakeholders essential to ensuring that regulation is responsive to government policy decisions and the realities of the markets around the world.

5th Generation regulation means having the necessary tools for creating an enabling environment for effective collaboration across the sectors so as to include and empower citizens through ICTs. It also means adopting a holistic view so that ICTs can be leveraged across the sectors. The decision to use technology/across the sectors as a tool for economic and social development requires coherent and strategic planning of policies for the availability of digital technologies in all areas and at all levels as well as the framework whereby digital skills can be enhanced across the population. Policy makers and regulators should work together to ensure people have access to technologies, have the digital skills to use them, and that there is trust in using ICTs.

Figure 7: 5th Generation Collaborative Regulation



Source: ITU

Collaborative regulation starts with holding an inclusive dialogue across the sectors to leverage the potential of ICTs/telecommunications for economic and social development, empower, include citizens, and enable them to be an integral part of a connected digital society. Issues to be addresses include the challenges and risks associated with the co-existence of different regulatory frameworks, ways to mitigate risks in fast changing ICT and education, health, banking, administration, energy, broadcasting environments, the need for harmonized regional and international regulations, and the roles of responsible entities.

Options include multisector regulators, but this is not the only option. Countries can also opt for collaboration mechanisms across and between sectors that support separate independent regulatory frameworks of the individual regulators and policy makers. Such collaborative mechanisms should enable regulators and policy makers to work closer together on issues of cross-sectoral significance and to learn lessons across industries which help to improve regulation and the promotion of competition in order to secure better outcomes for consumers.

A call for regulatory collaboration

ITU's Global Symposium for Regulators is a unique, neutral platform where regulators and policy makers have come together every year since 2000 to share their experiences and expertise. Every year, Best Practice Guidelines are adopted. Since 2014, such guidelines have recognized the need for and have called for collaboration among regulators and across the sectors.

Such guidelines have included:

Given the global nature of online services and apps, cross-border harmonization of relevant regulatory policies as well as enhanced collaboration among national government agencies, regional and global organizations is essential for creating a global digital ecosystem while putting in place effective safeguards against fraud and abusive practices.

GSR15 "Best Practice Guidelines to Facilitate the Widespread Adoption and Use of Mobile Applications and Services through Targeted Regulation"

We recognize that, in enforcing and reviewing relevant legislation, regulators and policy makers must establish effective mechanisms for cooperation (such as memoranda of cooperation) with dedicated consumer protection authorities, service providers and other relevant bodies at the national, regional and international level. In doing so, clearly defining roles and responsibilities between the parties is fundamental, as well as information and resources sharing, as appropriate.

GSR14 "Best Practice Guidelines on Consumer Protection in a Digital World"

We believe regulators have a role to play in building consumer trust and protecting security of services by appropriately addressing data protection, privacy issues and cybersecurity matters. It could be done by strengthening cooperation with other government agencies at the national level and by collaborating with other regulators and other partners at the regional and international levels. We are mindful that the exchange of experience, knowledge and ideas is vital in facing the new challenges in an interconnected global borderless digital ecosystem.

GSR13 "Best Practice Guidelines on the Evolving Roles of both Regulation and the Regulators in a Digital Environment"

The creation of a converged regulator in charge of ICTs and broadcasting could be an effective step towards enabling market integration in a converged environment. Should this not be feasible, closer coordination and collaboration between the sector-specific regulatory authorities in charge of telecom, broadcasting and electronic media, as well as authorities in charge of competition is essential.

Strategic and policy activities to build the information society and to play an inter-sectoral coordinating role should be integrated into the converged regulator's mandate.

Close collaboration with other concerned agencies is needed to ensure that appropriate measures and tools are put in place to safeguard Intellectual Property Rights (IPR), Internet safety covering such issues as the protection of the children online and fraudulent activities.

GSR09 "Best Practices Guidelines for innovative regulatory approaches in a converged world to strengthen the foundation of a global Information Society"

ICT/telecommunications regulators can create an enabling collaborative environment by sharing guiding principles and best practices with other sectors and encouraging an inclusive dialogue on issues where ICT/telecommunications may be leveraged in other sectors. Discussions could also seek to identify options and ways to strengthen collaboration, build synergies, and develop collaborative regulatory approaches.

A next step is to define approaches for effective coordination, cooperation and accountability across the sectors, this between government departments, between government departments and regulators, and with relevant non-public actors. Such collaboration mechanisms can contribute to achieving 5th generation regulation and constitutes a fundamental building block for smart societies in a connected world.

Incorporating mechanisms to engage citizens, including disadvantaged and vulnerable groups, is also a key element of collaborative regulation. This requires policies to enhance digital skills and using ICTs to promote engagement.