

Digital transformation and G5 regulation: Collaborative regulation in Romania



Digital transformation and G5 regulation: Collaborative regulation in Romania



DISCLAIMER

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of ITU concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by ITU in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by ITU to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader.

The opinions, findings and conclusions expressed in this publication do not necessarily reflect the views of ITU or its membership.

ISBN

978-92-61-35471-8 (Electronic version)

978-92-61-35481-7 (EPUB version)

978-92-61-35491-6 (Mobi version)



Please consider the environment before printing this report.

© ITU 2021

Some rights reserved. This work is licensed to the public through a Creative Commons Attribution-Non-Commercial-Share Alike 3.0 IGO license (CC BY-NC-SA 3.0 IGO).

Under the terms of this licence, you may copy, redistribute and adapt the work for non-commercial purposes, provided the work is appropriately cited. In any use of this work, there should be no suggestion that ITU endorse any specific organization, products or services. The unauthorized use of the ITU names or logos is not permitted. If you adapt the work, then you must license your work under the same or equivalent Creative Commons licence. If you create a translation of this work, you should add the following disclaimer along with the suggested citation: "This translation was not created by the International Telecommunication Union (ITU). ITU is not responsible for the content or accuracy of this translation. The original English edition shall be the binding and authentic edition". For more information, please visit <https://creativecommons.org/licenses/by-nc-sa/3.0/igo/>

Acknowledgements

This case study is part of the series of reports on national approaches to collaborative regulation. This initiative has been carried out in the framework of the International Telecommunication Union (ITU) work stream on collaborative regulation with the financial support of the Republic of Korea. The case study was prepared by the ITU Regulatory and Market Environment Division (RME) of the ITU Telecommunication Development Bureau (BDT) with the support of ITU Office for Europe within the framework of the ITU Regional Initiative for Europe on broadband infrastructure, broadcasting and spectrum management. It was authored by Ms Vaiva Maciule.

This report incorporates important feedback and comments from the following institutions:

- National Authority for Management and Regulation in Communications of Romania (ANCOM)
- The Competition Council
- The Authority for the Digitalization of Romania (ADR)
- National Association of Mobile Operators (AOMR).

Foreword



I take great pleasure in introducing this series of Collaborative Regulation Country Case Studies. They provide a high-value, authoritative analysis of the regulatory landscape and offer a step-by-step pathway to our members as they progress towards their G5 destination.

The case studies reflect the journeys undertaken by selected countries from different regions as they analyse their regulatory and institutional frameworks and advance towards more collaborative governance. Each captures a unique, diverse experience of policy that enables decision-makers to explore both the challenges and opportunities that collaborative regulation offers in our journey towards inclusive digital transformation. Each case study generates discussion – and invites a better understanding of the role and impact of collaborative governance and on new tools for regulating digital markets.

Our case study approach is highly collaborative, thorough, tightly structured and inclusive, through an extensive fact-finding questionnaire and one-on-one interviews with key national stakeholders. They elicit views on the future facing G5 regulation and on drivers for regulatory evolution.

The case study lays out the country's regulatory landscape and points both to existing best practice and to areas for future progress. In addition, a high-level policy brief for ICT policy-makers provides a clear view of the value and benefits of collaborative regulation together with its challenges and solutions.

The library of collaborative regulation case studies, launched at the Global Symposium for Regulators 2021 (GSR-21), will expand to include additional country experiences. We are integrating insights from this process into a global project on the transition to collaborative regulation, which will be launched at the upcoming WTDC.

These case studies sit alongside the G5 Benchmark – the gold standard tool that fast-tracks countries along the path of collaborative, cross-sectoral regulation. The 2021 updated, G5 Benchmark provides an actionable and precise country readout on progress towards G5 collaborative regulation.

The case studies are an important element in a major global effort by ITU to measure the impact and the many benefits of G5 collaborative regulation. For more than twenty years now, we – ITU and our partners in the global regulatory community – have made enormous progress in analysing, mapping and understanding the changing role that regulation plays in society and in economies. This two-decade-long investment is increasingly bearing fruit – and is now offering a clear-eyed view of the path ahead for all countries, no matter where they are, in their journey towards G5 regulation. These country case studies are an important element in this larger, ongoing body of work and mark a step forward on our journey to achieving the Sustainable Development Goals (SDGs) and digital transformation.

I hope that the Collaborative Regulation Country Case Studies together with our regulatory metrics and tools will prove invaluable to many different types of readers, but especially to ICT regulators and policy-makers in all regions.

A handwritten signature in dark ink, consisting of a large, stylized 'D' followed by a series of loops and a final horizontal stroke.

Doreen Bogdan-Martin
Director, ITU Telecommunication Development Bureau

Table of contents

Acknowledgements	iii
Foreword	iv
List of figures, tables and boxes	vi
1 Introduction	1
2 Broadband market developments	4
3 Overview of existing strategies and policies	10
4 Institutional framework for ICT regulation	14
5 Collaboration with the private sector	19
6 G5 regulation and digital transformation: Six key steps to unlock Romania's potential	20
7 Conclusions	24
Annex: Interviews with stakeholders	25

List of figures, tables and boxes

Figures

Figure 1: Average speeds of mobile and fixed broadband, April 2021	5
Figure 2: Median prices (as % of monthly GNI per capita) of broadband connections, 2019-2020	5
Figure 3: Percentage of 16- to 74-year-olds who have used the Internet to interact with public authorities in 2019	6
Figure 4. Institutional framework for ICT regulation in Romania	15

Table

Table 1: Romania's position in a selection of international indices	7
---------------------------------------------------------------------------	---

Boxes

Box 1: G5 case study methodology	2
Box 2. Collaborative digital regulation	3
Box 3: Bucharest: a global leader in remote working	9
Box 4: Tools and mechanisms to support digitalization in Romania	11
Box 5: Neticity project in Bucharest	18

1 Introduction

Economic backdrop: post-COVID-19 recovery

Romania has demonstrated stable economic growth for almost a decade, and the economy grew by an average of 3.9 per cent annually from 2011 to 2019.¹ However, since COVID-19, the Romania economy has contracted by 3.9 per cent.

The strength of its recovery will depend on many factors. According to a study by the International Telecommunication Union (ITU), countries with better broadband infrastructure and with broad use of ICTs among the population are able to mitigate some of the negative economic effects of COVID-19, allowing households, enterprises, and governments to recover faster.² In this regard, Romania is in an advantageous position, having extensive high-quality digital infrastructure, including one of the highest penetration rates for ultra-fast broadband in the European Union (EU). Additionally, aspirations for fast recovery are linked to Romania's Recovery and Resilience Plan and significant financial support coming from EU funds.³

Accessibility and uptake of high-quality infrastructure and availability of financial resources, not only create an opportunity to recover quickly⁴ and improve Romania's standing in the EU Digital Economy and Society Index (DESI),⁵ but, importantly, accelerate the growth of its digital economy. According to estimates, the digital economy in Romania could grow to represent 20 per cent by 2025, becoming a driving force and cross-cutting pillar for socio-economic development by 2025.⁶ However, realizing this potential will require the joint efforts of a range of stakeholders:

- policy-makers and regulators will need to provide timely incentives and create a favourable eco-system for the adoption of digital technologies in both public and private sectors;
- the private sector must adopt digital tools to boost productivity and market reach;
- individuals will need to continuously upskill to take full advantage of the new digital environment.

Collaborative digital regulation: Fast forwarding digital transformation for all

In the context of these all-encompassing changes, a new regulatory paradigm has emerged that seeks to fast forward digital transformation for all, and that paradigm is embodied in the concept of collaborative digital regulation or fifth-generation regulation (G5).

Based on a broad notion of generations of ICT regulation (see Box 2), G5 regulation marks a fundamental shift in the way regulation is executed. The G5 holistic approach brings together a wide range of stakeholders from policy-makers to single-sector and cross-sector regulators, and a wide range of market players. In addition, the focus on regulatory behaviour and its impact on

¹ [GDP growth \(annual %\) - Romania | Data \(worldbank.org\)](https://data.worldbank.org/ny/gdp/ro?locations=RO).

² [ITU, The Economic Impact of Broadband and Digitization through the Covid-19 pandemic - Econometric Modelling, 2021.](#)

³ [Recovery and Resilience Facility \(europa.eu\)](https://ec.europa.eu/economy_finance/recovery-and-resilience-facility).

⁴ The economy is projected to grow at around 5.1 per cent in 2021.

⁵ Romania ranked 26th in 2020, according to the EC, [DESI - Romania | Shaping Europe's digital future \(europa.eu\)](#).

⁶ <https://www.mckinsey.com/featured-insights/europe/the-rise-of-digital-challengers-perspective-on-romania>.

markets and development brings to the fore the need to harmonise policy priorities, regulatory rules, and existing institutional frameworks and underlines the importance of the interplay between digital infrastructure, services and content across industries and national borders. Many elements are in place in Romania to support a collaborative approach to regulation and the digitalization of its economy to move beyond the G4 regulation category.

This study analyses the institutional and regulatory framework in Romania to understand how it reflects the principles and nature of collaborative digital regulation. It also highlights areas of strength and possible improvements and proposes a series of six inter-related measures for Romania to progress towards digital transformation and collaborative digital regulation.

The analysis and results are based on publicly available information (reports, legal acts, studies) and information obtained during interviews with stakeholders from Romania's public and private sector. Gathering information from different perspectives has highlighted the strengths and opportunities in Romania, while identifying areas for further consideration.

Box 1: G5 case study methodology

To better understand the role and impact of collaboration and collaborative governance, ITU has launched a series of collaborative digital regulation case studies to focus on regulatory and institutional frameworks and on collaborative governance in countries across different regions. The case studies detail diverse experiences and varied policy and regulatory patterns, and set out challenges, new ideas and lessons learnt by regulators as they journey towards G5 regulation. Each case study follows a similar methodology, is tailored to regional needs and has been achieved through stakeholder involvement and cooperation. Each case study is built on two components:

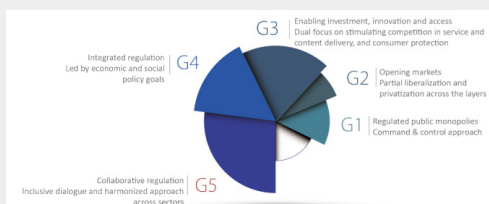
1. A 50-question survey on G5 regulation that explores collaboration across government agencies and ministries, the scope and patterns for collaboration, the involvement of other stakeholders and legal tools, policy tools and processes.
2. Multiple interviews with key national stakeholders, including representatives of the national regulatory authority, a relevant ministry, and a private sector player or consumer association. Interviews were flexible but structured to explore practical aspects of policy implementation and regulatory reform.

The case studies set out the current policy, regulatory and governance landscape in each country, with focus on current best practice and areas for future enhancement.

Section 2 of this study provides an overview of broadband market developments in Romania, while section 3 analyses digital policies and strategies. Section 4 focuses on institutional framework and inter-agency collaboration and section 5 briefly describes vertical collaboration (i.e. collaboration between public and private sectors). Section 6 provides recommendations for Romania's progression towards digital transformation and collaborative digital regulation, and the conclusion sums up key results.

Box 2. Collaborative digital regulation

The ability to successfully collaborate is one of the key building blocks of a digital economy, and a key marker of a fifth-generation regulator. Collaborative digital regulation is a key element of the ITU "generations of regulation" framework being used to reflect or benchmark the maturity of modern ICT regulatory regimes. The framework is based on criteria of collaboration, high-level principles, a focus on digital development, and the digital economy policy agenda.



- Collaboration is the dominant element: the benchmark for G5 regulation. It measures the breadth and depth of cross-sector collaboration between the ICT regulator and stakeholders that play a role in the digital economy.
- Regulation is shifting from rules to principles: the design of regulatory frameworks and the rules and principles that keep them together have acquired special importance. While rules will and should not disappear soon, in some instances, principles are better suited for finding balanced, sound solutions to complex regulatory issues.
- New consumer needs, business models and market dynamics call for new regulatory tools and coherent, outcome-oriented policy instruments that will support digital development.
- Through disruption of markets and the rise of new technologies, building an inclusive digital economy is a priority in national policy agendas. The success of their implementation will have a multiplier effect on the digital transformation of economies and their sustainability in the future.

		1. Regulatory authority	2. Regulatory mandate	3. Regulatory regime	4. Competition framework
RATIONALE FOR GENERATIONS OF REGULATION <small>Source: ITU.</small>	G1	• Consolidated with policy-maker and/or industry	• Business as usual	• Doing as we have always done	• State-owned monopoly
	G2	• Separate agency	• First wave of regulatory reform	• Doing more	• Liberalization
	G3	• Separate agency, autonomous in decision-making	• Advanced liberalization of ICT sector	• Doing the right things	• Partial competition
	G4	• Separate agency with enforcement power	• Adjacent issues become core mandate	• Doing the things right	• Full competition
	G5	• Separate agency as part of a network of partner regulators	• Separate agency as part of a network of partner regulators	• Doing things together	• Intra-modal competition

Source: ITU

2 Broadband market developments

High quality communications networks are at the heart of the digital economy, which strongly depends on network coverage, capacity, quality, and reliability. Digital transformation can only be realized if high quality networks are available at affordable prices. Therefore, it is important to understand the status of broadband developments in Romania in terms of availability, affordability and quality.

Coverage and penetration. Romania performs very well in terms of connectivity, with well-developed mobile and fixed broadband networks. According to data from the European Commission (EC), 4G mobile network coverage reached 100 per cent of households in 2020. Mobile broadband penetration, calculated as the number of broadband subscriptions per 100 inhabitants, reached 89.3 per cent at the end of 2020,⁷ which is lower than the EU average (104 per cent⁸), but higher than the global average (75 per cent⁹). According to June 2020 data from ANCOM, the mobile broadband market in Romania is shared between Orange (38 per cent), followed by Vodafone (25 per cent), RCS&RDS (19 per cent) and other operators (18 per cent).¹⁰

Data from the European Commission also indicates that fixed broadband coverage reached 90 per cent of all households in Romania and that 87 per cent of households were covered by next generation access (NGA) networks in 2020.¹¹ Thirty-nine per cent of households in rural areas were covered by ultra-fast broadband, which largely outperforms the EU average of 20 per cent. The uptake of fixed broadband reached 67 per cent of households (26.4 per cent if calculated per 100 inhabitants), 49 per cent of homes in Romania subscribed to ultra-fast (at least 100 Mbit/s) broadband (the fifth highest figure in the EU) in 2020.¹² The incumbent operator faces strong competition from other operators. In 2020, new entrant shares of fixed-broadband subscriptions (as a percentage of fixed-broadband subscriptions) reached 83 per cent and was the highest figure across the EU.

Average speed. Romania broadband networks provide some of the highest download speeds in the world. According to the Speedtest Global Index, which publishes a monthly comparison of Internet speed data for a benchmark of 100 countries, Romania is ranked 34th in terms of mobile broadband speed with download speed of 58 Mbit/s, compared to the global average of 53 Mbit/s, and is ranked fifth in terms of fixed broadband speed, with download speeds of up to 214 Mbit/s, higher than the global average of 102 Mbit/s.¹³

Affordability. The competitive situation in the fixed- and mobile-broadband markets is reflected in the affordability level of broadband services. According to data from ITU and the Alliance for Affordable Internet (A4AI),¹⁴ prices of broadband connections in Romania are among the

⁷ [Country ranking table, on a thematic group of indicators – Digital Scoreboard - Data & Indicators \(digital-agenda-data.eu\).](https://digital-agenda-data.eu/)

⁸ [Country ranking table, on a thematic group of indicators – Digital Scoreboard - Data & Indicators \(digital-agenda-data.eu\).](https://digital-agenda-data.eu/)

⁹ [ITU-D ICT Statistics.](https://www.itu.int/en/ITU-D/Statistics/Pages/default.aspx)

¹⁰ https://statistica.ancom.ro/sscpds/public/files/217_ro (Fig. III.1.6.).

¹¹ [Country ranking table, on a thematic group of indicators – Digital Scoreboard - Data & Indicators \(digital-agenda-data.eu\).](https://digital-agenda-data.eu/)

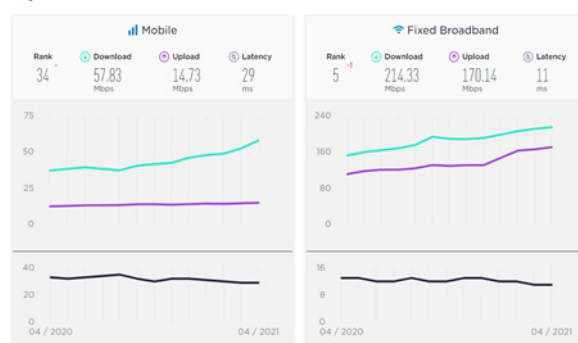
¹² [DESI - Romania | Shaping Europe's digital future \(europa.eu\).](https://europa.eu/eu-press/press-releases/2021/01/20210121-desi-romania)

¹³ [Speedtest Global Index – Monthly comparisons of internet speeds from around the world.](https://www.speedtest.net/global-index)

¹⁴ [https://www.itu.int/en/ITU-D/Statistics/Pages/ICTprices/default.aspx.](https://www.itu.int/en/ITU-D/Statistics/Pages/ICTprices/default.aspx)

lowest worldwide (see Figure 2). Expressed as a percentage of median GNI per capita, prices for the data-only mobile-broadband basket in 2020 were 0.86 per cent of monthly GNI per capita, which is significantly below the 2 per cent affordability target of the Broadband Commission for Sustainable Development. The fixed-broadband basket was even more affordable with 0.67 per cent of monthly GNI per capita (unlike the global level, where fixed broadband is less affordable than mobile broadband).

Figure 1: Average speeds of mobile and fixed broadband, April 2021

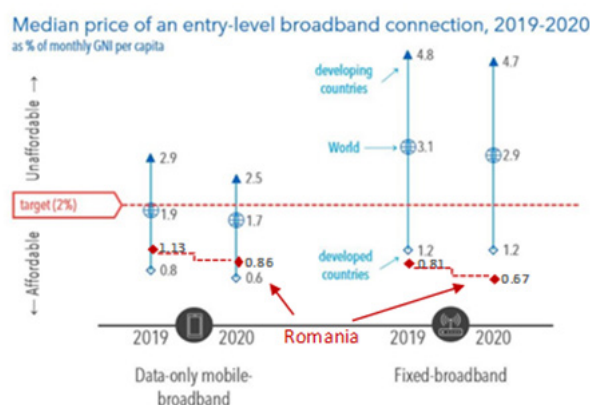


Source: Speedtest Global Index

The high percentage of broadband network coverage in Romania belies the need to improve digital skills and use of Internet services indicators, and to improve a weak performance in the digitization of businesses and in digital public services. Figure 3 shows that throughout 2019, less than 10 per cent of the population aged from 16 to 74 used the Internet to interact with government authorities. This puts Romania in the lower tier among EU Member States when it comes to digitalization, confirming that access alone is not sufficient to further digital evolution, with Romania ranking the lowest among EU member states for digitalization:

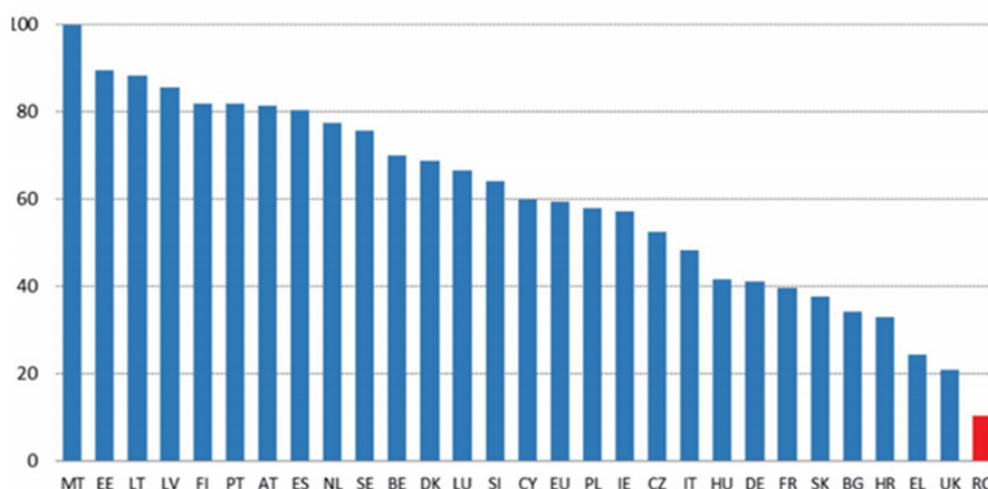
- less than one-third of those aged between 16 and 74 have at least basic digital skills, compared to the EU average of 58 per cent;
- 35 per cent have at least basic software skills, against an EU average of 61 per cent.
- almost one-fifth have never used the Internet (18 per cent), nor online banking (11 per cent) and shopping (29 per cent).

Figure 2: Median prices (as % of monthly GNI per capita) of broadband connections, 2019-2020



Source: ITU and the Alliance for Affordable Internet (A4AI), 2020

Figure 3: Percentage of 16- to 74-year-olds who have used the Internet to interact with public authorities in 2019



Source: Eurostat

International perspective. Romania ranks 49th in the IMD Digital Competitiveness Index 2020 (moving down from 46th in 2019).¹⁵ Romania's competitive digital assets are measured by the speed of Internet in broadband (10th in the IMD ranking), the share of graduates in science (13th), and the share of women in scientific research (15th). Romania's competitive digital disadvantages are due to a number of reasons, including the shortage of public-private partnerships, and insufficient knowledge transfer between companies.¹⁶

Similar findings may be found in other international metrics, summarized in Table 1:

- ICT infrastructure is Romania's main strength and is usually highly ranked (demonstrating adequate availability, accessibility and affordability of broadband connectivity);
- Main indicators that lower Romania's position in comparison to other countries include: 1) lack of political stability and long-term vision in governmental decisions; 2) insufficient innovation capacity and an immature innovation ecosystem (e.g. R&D expenditure, growth of innovative companies); 3) mismatch of skills of current workforce; 4) lack of trust in digital technologies (e.g. low use of online banking); and 5) lack of trust in collaboration and partnership (e.g. shortage of public-private partnerships, university-industry cooperation).

¹⁵ [IMD World Digital Competitiveness Ranking 2020.](#)

¹⁶ [IMD World Digital Competitiveness Ranking 2020.](#)

Table 1: Romania's position in a selection of international indices

Index	Organization and year	Rank of Romania	Strengths	Weaknesses
Global Competitiveness Index 4.0 ¹⁷	An annual assessment of the drivers of productivity and long-term economic growth. The pillars, which cover broad socio-economic elements are: institutions, infrastructure, ICT adoption, macroeconomic stability, health, skills, product market, labour market, the financial system, market size, business dynamism and innovation capability.			
	WEF, 2019	51 of 141	ICT adoption (rank 32)	Government ensuring policy stability (rank 126); Government long-term vision (113); Skills of current workforce (106); Time to start business (123); Businesses attitude towards entrepreneurial risk (111).
5G Readiness Index ¹⁸	Evaluates European countries' readiness to deploy and adopt 5G networks. The index comprises six factor categories with 35 criteria in total within those categories.			
	inCITES Consulting, 2020	27 of 39	Country's profile (economic state of a country, competition in network services) Infrastructure and technology (existing fixed and mobile infrastructure, preparatory steps towards deploying the new technology)	Innovation landscape (R&D expenditure, growth of innovative companies, university-industry cooperation and etc.); Insufficient legal framework's adaptivity to digital business models and mismatch of skills
Network Readiness Index ¹⁹	Assesses how countries are leveraging information technologies to be future-ready. The index is grounded in four fundamental dimensions: technology, people, governance and impact.			
	Portulans Institute, 2020	49 of 134	Mobile tariffs, e-commerce legislation, handset prices	Rural gap in use of digital payments; Socioeconomic gap in use of digital payments; and Investment in emerging technologies

¹⁷ http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf.

¹⁸ <https://www.incites.eu/europe-5g-readiness-index>.

¹⁹ <https://networkreadinessindex.org/#nri>.

Table 1: Romania's position in a selection of international indices (continued)

Index	Organization and year	Rank of Romania	Strengths	Weaknesses
E-Government Development Index ²⁰	Reflects state of e-government development. The index is a composite of three dimensions of e-government, namely: provision of online services, telecommunication connectivity and human capacity.			
	UN, 2020	55 of 193	Telecommunications infrastructure index	Online service index
E-Participation Index ²¹	Focuses on the use of online services to facilitate provision of information by governments to citizens ("e-information sharing"), interaction with stakeholders ("e-consultation"), and engagement in decision-making processes ("e-decision making").			
	UN, 2020	46 of 193	Qualitative evaluation, no details available	
UNCTAD B2C E-commerce Index, 2020 ²²	The UNCTAD B2C E-commerce Index measures the preparedness of an economy to support online shopping. The index consists of four indicators that are highly related to online shopping and for which there is wide country coverage.			
	2020, UNCTAD	53 of 152	Postal Reliability Index	Account ownership at a financial institution or with a mobile-money-service provider (% of population age 15+)
Global Innovation Index ¹⁶	Measures innovation performance of an economy.			
	2020 WIPO	46 of 131		
Global Cybersecurity Index ²³	Measures the commitment of countries to cybersecurity.			
	2018 ITU	72 of 175		
Corruption Perception Index ²⁴	Ranks 180 countries by the perceived levels of public sector corruption according to experts and the business community.			
	2020 Transparency international	69 of 180		

Source: ITU research.

²⁰ <https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/140-Romania>.

²¹ <https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/140-Romania>.






²² https://unctad.org/system/files/official-document/tn_unctad_ict4d17_en.pdf.

²³ https://www.itu.int/dms_pub/itu-d/opb/str/D-STR-GCI.01-2018-PDF-E.pdf.

²⁴ <https://www.transparency.org/en/cpi/2020/index/nzl>.

Box 3: Bucharest: a global leader in remote working

According to the Remote Working Index, which ranks 50 of the world's most popular cities for remote working, Bucharest is considered a world leader for the work from home index because of its low cost of living, reliable and high-speed Internet, and a high percentage of remote working jobs.

	City	Country	Uber Eats	Deliveroo	Remote Working Jobs (%)	Cost of MacBook (£)	Internet Speed (Mbps)	Cost of Living (£)
1	Bucharest		✓	✗	4.33%	£1,444.52	52	£421.32
2	Houston		✓	✗	2.76%	£1,212.39	61	£710.12
3	Las Vegas		✓	✗	3.08%	£1,212.39	36	£714.98
4	Atlanta		✓	✗	2.84%	£1,212.39	45	£807.60
5	Budapest		✗	✗	2.33%	£1,552.09	41	£470.39

Source: [The Best and Worst Cities for Remote Working](#) | [Broadband Deals](#)

3 Overview of existing strategies and policies

Romania's vision for digital transformation

Romania is set out its vision for digital transformation in three separate policy and strategy documents: the National Strategy on the Digital Agenda for Romania 2020 (Digital Agenda 2020); the National Plan for Next Generation Network Infrastructure Development; and the National Strategy for the Implementation of 5G.

Romania adopted the Digital Agenda 2020 in 2015, setting out four areas of action²⁵:

1. E-government, interoperability, cybersecurity, cloud computing and social media, to modernize the Romania public sector by making it more efficient and fit for purpose.
2. ICT in education, culture and health, to support these technologies at the sector level.
3. ICT in e-commerce, and research, development and innovation in ICT, to increase Romania's competitiveness at the regional level, and foster growth in the private sector.
4. Broadband and digital infrastructure services, to ensure inclusive connectivity across the country.

The Digital Agenda 2020 aimed to achieve coverage of 100 per cent of households with fixed broadband by 2020, 80 per cent of households with access to over 30 Mbit/s broadband and 45 per cent of households with subscriptions over 100 Mbit/s. It also established indicators for Internet usage and public services.²⁶ According to estimates from the Government of Romania, full implementation of the strategic vision was expected to generate a total investment of around EUR 2.4 billion until 2020, a significant increase in the country's GDP and number of jobs, and a decrease in administration costs.²⁷

Within the framework of Digital Agenda 2020, a number of regulatory incentives were created to move closer to national goals (see Box 4).

²⁵ [Agenda Digitală pentru România 2020 - MCSI \(gov.ro\)](#).

²⁶ - At least 35% of people use e-government systems;
- At least 60% of citizens use the Internet regularly;
- At least 30% of citizens make purchases online.

²⁷ The Romanian Government calculated that the direct and indirect impact on the economy could be GDP growth of 13%, increase in the number of jobs by 11% and a cut in administration costs by 12% during 2014-2020.

Box 4: Tools and mechanisms to support digitalization in Romania

Coalitia Skills4IT (since 2013): the National Coalition for Digital Skills and Jobs (Skills4IT) is an open platform which gathers a range of stakeholders (policy-makers, ICT companies, associations, training providers and NGOs) with the goal of developing digital skills among citizens, including coding and IT classes in schools, organizing cybersecurity courses and educational events, and training to upgrade the digital skills of the labour force.

Start Industry 4.0 training sessions (since 2018): through the Start Industry 4.0 initiative, 508 people operating in the industry sector can benefit from free-of-charge training sessions designed for managers at all levels, executives, human resources employees, as well as entrepreneurs. The sessions cover notions of introduction and adaptation to the fourth industrial revolution (Industry 4.0).

Start-up Nation programme (since 2017): Romania supports the ecosystem of start-ups through this programme, including start-ups that produce innovations or integrate them into new product and service developments. The programme provides financial support (maximum amount around EUR 44 000) for new companies.

Digital HUBs (DIHs): set up to support alignment at national level with European standards for digitalization, innovation and R&D, the Digital HUBs are multi-partner one-stop-shops that help companies become more competitive through digital technologies. DIHs provide access to the latest knowledge, expertise and technology to support companies in piloting, testing and experimenting with digital innovations, as well as providing business support and funding to implement these innovations. There are currently three DIHs, one in Bucharest and two in Cluj-Napoca.

Tax incentives for IT: offers an exemption from personal income tax for IT employees. Some categories of employees within the IT sector (e.g. programmer) have been benefiting from tax incentives since 2004. Government ordinance 2903/2016 also introduces the tax incentive for start-ups and increases eligible jobs for tax incentives.

R&D tax incentives (since 2010): these incentives take the form of an R&D tax allowance and accelerated depreciation provision for R&D capital, i.e. companies can benefit from a deduction of 50 per cent of the eligible expenses for their R&D activities and/or accelerated depreciation applied for devices and equipment used. Taxpayers that exclusively perform innovation and R&D activities on scientific research and technological development and related activities are exempt from profit tax for the first ten years of activity.

There has been a lack of clarity regarding the institution responsible for reporting on implementation results of the Digital Agenda 2020, and the degree to which Romania has met its goals is unknown. Some indicators may be tracked in general statistics, but no comprehensive report, evaluation or interim implementation reports are available.²⁸

²⁸ A manual for monitoring and evaluation of the National Strategy on the Digital Agenda for Romania 2020 is available at: https://www.comunicatii.gov.ro/wp-content/uploads/2016/02/Manual_Monitorizare_Evaluare_v2.0-BM.pdf.

The National Plan for Next Generation Network Infrastructure Development,²⁹ aligned with the objectives of the Digital Agenda 2020, aims to improve broadband connectivity throughout the country. It prioritizes the development of optical-fibre networks as close to the end user as possible, and the implementation programme of the plan envisages political and administrative measures to stimulate the development of NGN networks, including:

- encouraging access to existing passive infrastructure;
- improving transparency and coordination in relevant civil works;
- simplification of procedures for authorizing the construction of electronic communications networks;
- requirements regarding NGN infrastructure in new buildings;
- utilizing the potential of next generation wireless technologies to accelerate the expansion of broadband infrastructure in rural areas.

The National Plan for Next Generation Network Infrastructure Development implementation report is not yet available. In 2015, Romania successfully introduced the Ro-NET project, state aid for broadband development in rural areas³⁰ that sought to build up backhaul broadband infrastructure in areas still uncovered (middle-mile funding) with the use of EU funds. By the end of September 2019, work had been completed in 606 localities, while an additional 82 localities were in an advanced stage of completion.³¹ During interviews, however, private sector stakeholders noted challenges to cross-sector infrastructure sharing, such as lengthy and complex procedures for construction authorizations, indicating that the implementation of at least some of the measures is yet to be finalized.

The National Strategy for the Implementation of 5G,³² adopted in 2019, aims to boost deployment of 5G networks, by promoting new uses and fostering cooperation, and implementing a set of actions up to 5G coverage of all urban centres and mainland transport routes by 2025. The strategy was elaborated within an inter-institutional working group, which included representatives of ministries, public administration institutions, and the national defence. Representatives of associations of county councils, municipalities, towns and communes also contributed in drafting the document.³³ The 5G spectrum allocation auction was scheduled to take place in 2020 but was delayed due to issues related to the selection criteria for the equipment providers for the new networks. According to the National Authority for Management and Regulation in Communications of Romania (ANCOM), there are plans to organize the auction in the third-quarter of 2021.³⁴

In addition, there are two draft laws that can also have a positive impact on digital transformation in Romania:

1. The draft Emergency Ordinance for creating the National Cyber Security Directorate, aiming at establishing the Romanian National Cyber Security Directorate, which is set to replace CERT-RO.³⁵ The new institution would firmly position Romania as a recognized leader in cybersecurity and help fulfil its commitments towards the EU and other international partners.

²⁹ [Planul național de dezvoltare a infrastructurii NGN – MCSI \(gov.ro\).](#)

³⁰ [Proiectul RO-NET – MCSI \(gov.ro\).](#)

³¹ [Country information - Romania | Shaping Europe's digital future \(europa.eu\).](#)

³² [Ancom - Strategia 5G pentru Romania.](#)

³³ [Ancom - Strategia 5G pentru Romania, in consultare publica.](#)

³⁴ [Ancom - Plan de acțiuni.](#)

³⁵ [Update concerning the state of play on the Romanian National Cyber Security Directorate \(19th of March 2021\)\(cert.ro\).](#)

2. Proposal for public policy on e-government (E-government strategy).³⁶ The document foresees the necessary steps Romania must take to reach a level of digitization of public services that meets the needs of citizens and is in line with the general goals of the EU.

Recently, the Government of Romania adopted a new 5G law on "the adoption of measures regarding information and communication infrastructures of national interest and the conditions for the implementation of 5G" which introduces an authorization regime whereby authorizations to use equipment in the ICT infrastructure (of national interest, including 5G networks) is granted by decision of the Prime Minister based on the assent of the Supreme Council of National Defense, within four months from the date of request. A sanctioning mechanism for non-compliance with the framework is also foreseen by the new law.

To summarize, various elements of digital transformation are addressed in national policies and strategies. A collaborative approach is being used by the institutions in the preparation process of these documents (consultations, discussions, interactions with different stakeholders is a part of it). The main missing link, however, seems to be the lack of adequate monitoring of the implementation of these strategies. A holistic and comprehensive strategy for digital transformation, potentially replacing the Digital Agenda 2020, could also address this monitoring challenge.

³⁶ [Propunere de politică publică în domeniul e-guvernării, elaborată în cadrul proiectului "Stabilirea cadrului de dezvoltare a instrumentelor de e-guvernare", cod SIPOCA 20 - E-Consultare.gov.ro - Participă la decizia publică!](#)

4 Institutional framework for ICT regulation

Changing national political landscape

The changing national political landscape has had an impact on the adoption of strategies, policies and regulations over the past few years. Institutions most affected by these multiple changes included the Ministry responsible for ICT and digital policy-making and the Digitalization Authority of Romania.

In January 2020, the government abolished the Ministry for Transport and the Ministry of Communications and Information Society and created the Ministry of Transport, Infrastructure and Communications, which was subsequently changed to the Ministry of Transportation and Infrastructure.³⁷ In December 2020, ministerial responsibility for communications was placed under the newly established Ministry for Research, Innovation and Digitization.

In February 2020, the government empowered the Authority for the Digitalization of Romania with elements of information technology and information society such as the national interoperability framework, including actions and structures that were previously under the Ministry of Communications and Information Society.³⁸ The Authority for the Digitalization of Romania was placed under the coordination of the Prime Minister, with the primary objectives of supporting and contributing to (i) the digital transformation of Romania's economy and society; (ii) implementing electronic governance in regard to public administration; and (iii) managing EU financial aid programmes.³⁹ The Authority for the Digitalization of Romania is now under the Ministry for Research, Innovation and Digitization.

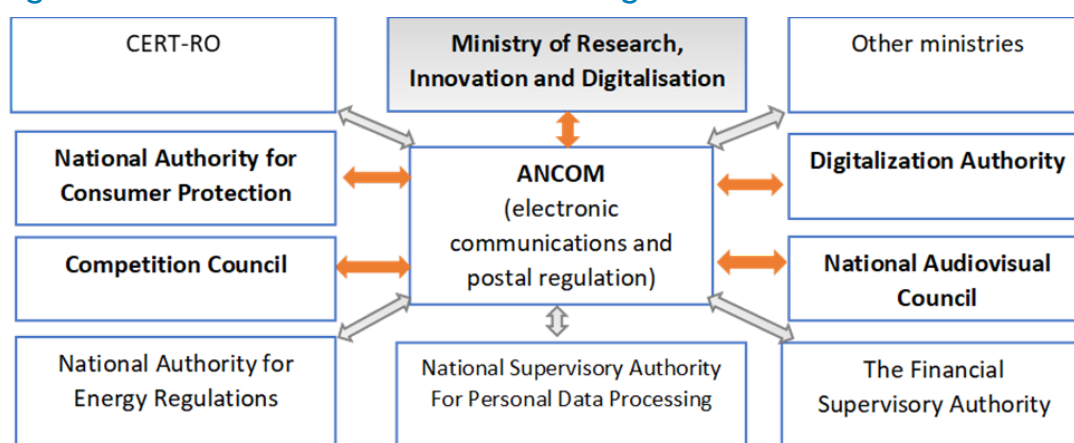
These recent changes may have resulted in the lack of clarity over the leadership and mandate of core national institutions and may have impacted the collaboration needed to drive digital transformation.

³⁷ https://www.oirbi.ro/wp-content/uploads/2021/01/40Ready_Raport-OIR_EN.pdf.

³⁸ https://www.oirbi.ro/wp-content/uploads/2021/01/40Ready_Raport-OIR_EN.pdf.

³⁹ <https://rlw.juridice.ro/16520/romanian-digitalization-agenda-the-government-takes-one-step-forward-by-setting-up-the-authority-for-the-digitalization-of-romania.html>.

Figure 4. Institutional framework for ICT regulation in Romania



Note. ↔ Formal collaboration (described by Law or MoU), ⇄ semi-formal or informal collaboration

Source: ITU

Throughout this period of political and institutional change, ANCOM, an independent, regulatory authority for the electronic communications and postal sectors in Romania, has remained a stable and reliable institutional partner. Established in 2009 as an autonomous public authority that reports directly to Parliament, ANCOM has an autonomous budget, approved annually by the Parliament⁴⁰ and is operationally independent of electronic communications and postal communications providers. It is a well-respected and effective regulatory authority that contributes to the development of ICT and postal markets in Romania.

As summarized in Figure 4, ANCOM collaborates on a regular basis with:

- The Ministry for Research, Innovation and Digitization is responsible for electronic communications policy and strategy, including audiovisual communications and postal services, for which ANCOM is legally empowered to enforce⁴¹. ANCOM also collaborates with the ministry in areas such as policy and strategy formation, law making, and information sharing.
- The Competition Council: Although ANCOM promotes competition in the sector of electronic communications and of postal services, the authority to apply the provisions of competition law resides with the Competition Council. Cooperation between the Competition Council and ANCOM is envisaged in law;⁴² additionally the two authorities signed a cooperation agreement in 2009.⁴³ Their relationship is both formal (official letters, reports, inquiries) and informal (informal meetings, discussions), covering topics of mutual interest. Usually, formal collaboration takes place when institutions realize their mandates in *ex ante* (ANCOM) and *ex post* (Competition Council) competition regulation to reach a better-informed decision, or when providing feedback on draft legislation. A recent example of their collaborative approach to solve market problems focused on access to

⁴⁰ <https://www.ancom.ro/en/financial-sources-1498>.

⁴¹ https://www.ancom.ro/en/uploads/links_files/OUG_22_2009_ANCOM_en.pdf.

⁴² "In view of fulfilling its role and legal duties, ANCOM consults and collaborates with the Competition Council and with the National Authority for Consumer Protection, including by the mutual provision of information required in view of enforcing the provisions of the competition legislation, as well as of the provisions of the legislation in the field of electronic communications and of postal services." Government Emergency Ordinance No. 22/2009 establishing the National Authority for Management and Regulation in Communications, approved by Law No. 113/2010, Article 4(2)(a).

⁴³ <https://www.ancom.ro/colaborari-cu-alte-autoritati-4514>.

underground infrastructure in Bucharest. In 2019, ANCOM⁴⁴ took a decision to reduce tariffs and ensure non-discriminatory access conditions to the underground fibre-optic network of Netcity Telecom in Bucharest. A year later, as part of an already ongoing investigation, the Competition Council decided to fine Netcity Telecom⁴⁵ for abuse of a dominant position following the failure to make its infrastructure available on fair and transparent trading conditions to all telecommunication operators wishing to provide services in Bucharest. These two decisions were taken independently but addressed the same market problem. Close collaboration between institutions helps to take such informed decisions.

- Collaboration with the National Authority for Consumer Protection (ANPC) is also envisaged in law,⁴⁶ additionally strengthened by a cooperation agreement, renewed in 2018 that seeks to enhance efficiency in solving complaints received from consumers.⁴⁷ ANPC coordinates and implements national strategy and policy in the area of consumer protection and takes action to prevent and combat practices that are harmful to the life, health, safety and economic interests of consumers, while ANCOM has limited competence of consumer protection issues in the electronic communications sector.
- The National Audiovisual Council of Romania is the audiovisual sector regulator. Its main responsibilities include issuance of broadcasting licences, control over the content of audiovisual programmes, and monitoring the legal compliance of audiovisual services. As ANCOM has regulatory and control attributes with regard to resources used for broadcasting and re-transmission of audiovisual services,⁴⁸ the two institutions signed a cooperation agreement in 2013 to establish how they collaborate, mainly concerning licensing procedures.
- The Authority for Digitalization of Romania (ADR)⁴⁹ is a specialized institution responsible for carrying out and coordinating the implementation of public strategies and policies in the field of digital transformation and the information society. ADR provides e-government services and is responsible for managing and administering EU financial aid for digitalization. In this respect, ADR and ANCOM joined forces to set up a state aid scheme for NGN development.⁵⁰ ADR is encouraging the creation and development of digital innovation centres by setting up support schemes for SMEs in Romania to engage in digitalization through digital innovation hubs, which should complement the national efforts in the field of SME digitalization.⁵¹ As functions related to the support of digitalization of the private sector are relatively new to ADR, the institution needs effective tools to increase its collaboration with the private sector, such as the Digital Council, an advisory body to ADR with representatives from the private sector, academia, NGOs that was created in 2020.⁵² Although results of this Digital Council are yet to be demonstrated, its establishment reveals intentions to intensify collaboration between different stakeholders.

⁴⁴ https://www.ancom.ro/en/the-technical-and-economic-conditions-for-access-to-the-netcity-infrastructure-have-been-agreed_6070.

⁴⁵ <https://www.commsupdate.com/articles/2020/02/04/romanas-anti-trust-body-fines-netcity-telecom/>.

⁴⁶ "In view of fulfilling its role and legal duties, ANCOM consults and collaborates with the Competition Council and with the National Authority for Consumer Protection, including by the mutual provision of information required in view of enforcing the provisions of the competition legislation, as well as of the provisions of the legislation in the field of electronic communications and of postal services." Government Emergency Ordinance No. 22/2009 establishing the National Authority for Management and Regulation in Communications, approved by Law No.113/2010, Article 4(2)(a)).

⁴⁷ https://www.ancom.ro/colaborari-cu-alte-autoritati_4514.

⁴⁸ https://www.ancom.ro/en/broadcasting_2803.

⁴⁹ <https://www.adr.gov.ro/>.

⁵⁰ Specified cooperation agreement was signed.

⁵¹ https://www.oirbi.ro/wp-content/uploads/2021/01/40Ready_Raport-OIR_EN.pdf.

⁵² https://www.oirbi.ro/wp-content/uploads/2021/01/40Ready_Raport-OIR_EN.pdf.

Strengthening inter-agency cooperation and collaboration

Informal collaboration exists between ANCOM and the CERT-RO, the Financial Supervisory Authority, the National Authority for Energy Regulations, and the National Data Protection Authority, as well as with other ministries (mainly on an ad hoc basis). Even if formal agreements are not in place, basic collaboration between institutions is guaranteed under national legislation, whereby any authority that receives an inquiry for which it does not have the legal power to solve, must hand it to the competent authority. However, as indicated in stakeholder interviews, it is normal practice across institutions to maintain informal collaboration with different administrations. The intensity of such collaboration varies depending on the dynamics in the different domains: institutions that have responsibilities in rapidly changing sectors will collaborate more than those whose activities are more settled.

ANCOM has made attempts to move towards more formalized collaboration with some of its counterparts. In 2017, ANCOM, the National Authority for Energy Regulations and the Competition Council announced their intention to set up the "Romanian Regulatory Network," a formal cooperation framework for the three public entities aiming at providing high quality regulatory services to the market and, implicitly, to the energy and communications providers and their users.⁵³

The need for closer cooperation between institutions comes from market demand for physical infrastructure for network deployment, and although some small telecommunication operators are using the energy infrastructure, cross-sector infrastructure sharing is not widespread in Romania. ANCOM sets the recommended tariffs of access for energy infrastructure operators. In addition, the underground sewers projects (with the attempt to put aerial telecommunication cables in the underground system) are ongoing in major towns across the country (see Box 5). ANCOM is also responsible for setting up the access tariffs to this underground infrastructure. Furthermore, ANCOM is the designated settlement body in disputes over access to physical infrastructure. In recent years, ANCOM was asked to solve several disputes related to access to the physical infrastructure belonging to energy distribution companies. This indicates that some ANCOM activities cross sectors, for which inter-agency collaboration becomes essential for well-informed decisions and their implementation. Local (municipal) administrations are also important stakeholders in the infrastructure deployment process (often having their own visions, not necessarily aligned with central administrations) and their engagement in the cross-institutional collaboration might be valuable.

⁵³ <https://www.ancom.ro/en/ancom-consiliul-concuren539ei-537i-anre-exploreaza-modalita539ile-de-colaborare-trans-sectoriala- 5734>.

Box 5: Netcity project in Bucharest

In 2006, Bucharest City Hall initiated a project of migrating aerial networks owned by telecommunication operators into an underground network with multiple safety benefits and an improved visual aspect of the city. The initiative was realized through open public tender and the concession contract for the development of the metropolitan fibre-optic infrastructure for a period of 49 years was signed in June 2008.

Netcity Telecom was selected to design, build, manage and operate the Netcity underground infrastructure, with the guarantee of equal, transparent and non-discriminatory access to all companies and telecom operators that activate or want to provide services in Bucharest. Netcity Telecom pays the Bucharest City Hall a royalty of 12 per cent of revenues generated from basic services.

Currently, more than 23 000 buildings in Bucharest are connected to Netcity with continuous development of infrastructure.

Similar projects are ongoing in other major cities in Romania.

Source: [Reteaua metropolitana de fibra optica a municipiului Bucuresti \(net-city.ro\)](http://net-city.ro)

5 Collaboration with the private sector

The concept of collaborative digital regulation covers not only inter-agency collaboration, but also other stakeholder engagement, including academia, end-user associations, NGOs, and the private sector. The involvement of the private sector is particularly important as the country's economic development largely depends on the alignment and common vision between state administrations and the private sector.

Collaboration with the private sector is embedded in the legal framework and tools for engagement with private partners include:

- Regulatory impact assessment (RIA), which contributes to public-private dialogue, is formally in place in Romania. While Law 24/2000⁵⁴ on drafting legal acts sets out an initial obligation to identify the impacts of draft regulations, the requirements for RIA have been further refined in Government Decision No. 1361 issued in 2006.⁵⁵ According to these provisions, all regulations are required to be accompanied by an explanatory note, describing the rationale and assessing the impacts of the draft proposal. Some analyses reveal that RIA has not yet become a systematic tool in supporting evidence-based decision-making in Romania.⁵⁶
- Romania has an established practice of public consultations. According to Law No. 52/2003⁵⁷ on transparency of decision-making in public administration, all ministries and central administrations must publish all regulations for comment on their websites. Romania recently established a central consultation portal (<http://e-consultare.gov.ro/>) where all consultations of ministries and central administrations are listed. However, the minimum period for submitting comments is limited to ten days, and, currently, feedback on the outcomes of consultations is not provided to participants.⁵⁸ In practice, the private sector is only involved in the formal public consultation campaigns on draft legislation, and mechanisms for initial informal consultation during or ahead of drafting are lacking – a situation that fails to incorporate market player views in the core legal drafts. In effect, this limits the possibility of private sector stakeholders to provide their views on priority issues for markets, reduces the scope of influence on the direction of legal reforms, and undermines confidence in the effectiveness of public-private dialogue. Indeed, international best practice is in favour of evidence-based discussions from the start of the reform processes through to the adoption of new legislation, rather than relying on one-off procedural opportunities to provide feedback without the requirement to organize public hearings nor to justify the choice of legal instruments and specific measures. Furthermore, according to the private sector, current consultation practices lack standardization across institutions, such as different consultation rules, procedures, and deadlines. A universal methodology for consultation with all institutions at national level is desirable.

⁵⁴ [Machine Translation of "Law No. 24 Of 27 March 2000 On The Rules Of Legislative Technique For The Preparation Of Normative Acts" \(Romania\) \(global-regulation.com\).](#)

⁵⁵ <https://www.oecd.org/gov/regulatory-policy/indicators-of-regulatory-policy-and-governance-2019-romania.pdf>.

⁵⁶ <https://www.worldbank.org/en/news/video/2017/06/12/romania-regulatory-impact-assessment>.

⁵⁷ [Law-52-2003r1_en.pdf \(gov.ro\).](#)

⁵⁸ <https://www.oecd.org/gov/regulatory-policy/indicators-of-regulatory-policy-and-governance-2019-romania.pdf>.

6 G5 regulation and digital transformation: Six key steps to unlock Romania's potential

Analysis of the institutional framework, policy formation and regulatory practices has identified the main areas that Romania may consider strengthening to enable its digital transformation. Following the main principles of collaborative digital regulation, identified in the Global Symposium for Regulators' (GSR) Best Practice Guidelines 2019,⁵⁹ six targeted steps have been identified that will help Romania make progress in its journey towards these goals.

Increase breadth and depth of inter-agency collaboration on regulation to make it more holistic

Although the institutional set-up at the policy-making level in Romania has gone through multiple changes over the past few years, its regulatory framework has remained stable, covering all relevant institutions, with adequate powers and clear roles, coupled with identification of areas where cross-sectoral collaboration is necessary. Institutions understand the importance of a collaborative approach and are seeking to make it work. ANCOM has established formal collaboration agreements with all main institutions that directly concern its activities and which play a role in the digital economy. It also remains in close contact with other important peers through informal collaboration. Therefore, the institutional framework in Romania has integrated effective collaborative mechanisms across national government agencies. However, to make policy implementation more holistic, closer collaboration with local authorities (not only central administrations) might be considered. Local authorities are important stakeholders in the process of infrastructure deployment and play a vital role in ensuring that all parts of the country can enjoy next-generation connectivity. Local authorities can facilitate network deployment by making their assets and land available to network providers. Therefore, the alignment between local planning policies and national plans of the roll-out of digital networks might bring substantial benefits in terms of cost and time.

Regulatory authorities (central and local) could benefit from closer collaboration if they were to operate as a national regulatory community. Some countries have created formalized networks of national regulators, where they solve existing problems, share best practices, develop common visions, and build institutional and human capacity. A similar process was initiated by ANCOM, as discussed in Section 4.

Increase the quality of reporting and quantity of open data

Evidence is essential when creating a sound understanding of the issues at stake, by identifying options and their impacts going forward, while enhancing the quality of regulatory decisions. Enhancing the use of data and evidence in crafting policies and regulation, in implementation, monitoring and evaluation can help solve market issues and keep policy implementation on track. As international best practice suggests, ensuring smooth and outcome-oriented

⁵⁹ https://www.itu.int/en/ITU-D/Conferences/GSR/2019/Documents/GSR19BestPracticeGuidelines_E.pdf.

implementation of existing strategies becomes even more important than creating new ones. Authorities should regularly collect and publish reports on progress towards achieving national targets. Appropriate authoritative benchmarks and metrics can guide regulators in rule-making and enforcement, thus enhancing the quality of regulatory decisions, as well as providing the market and citizens with useful reference information.

Analyses have revealed that adequate mechanisms and practices are lacking in monitoring implementation of existing strategies in Romania. Digital transformation, however, is a process and requires continuous revision, adjustment and flexibility to adapt to a constantly changing environment. Therefore, introducing an appropriate monitoring and evaluation framework for digital policies implementation gains additional value.

National data policies generally aim to increase the accessibility and ease of sharing social, scientific and economic data among users. Romania may wish to re-consider the amount and quality of an open data approach where market players would also be able to access information collected by the regulator and other authorities. As of 2020, Romania was ranked 22nd out of 31 evaluated countries with regard to open data maturity.⁶⁰ Easing access to data not only fosters transparency, but also supports a culture of innovation at the local level, and extending the open data initiative to local authorities in Romania would be a huge step forward. Access to information on physical infrastructure held by local authorities could also help operators better plan their investments, and further facilitate the deployment of digital infrastructures.

Encourage digital skills, innovation and entrepreneurship

Another principle of collaborative digital regulation suggests that policy and regulation should be incentive-based. While infrastructure is adequate, Romania lacks a mature innovation and entrepreneurship culture, with local businesses reluctant to take entrepreneurial risks, few instruments and funds encouraging innovations, limited knowledge sharing between academia and business and, most importantly, a shortage of skills and knowledge of business innovation. An innovation culture at the national level and the adoption of a national innovation strategy would help to unleash the social and economic potential of digital access and services in Romania.

A wide range of tools that encourage innovation are available to policy-makers and regulators. From traditional tools (e.g. tax incentives and tax breaks for adoption of digital technologies, R&D support, including R&D grants and tax credits, equity financing funds, special economic zones, science parks) to new ways of creating space for digital experimentation, such as regulatory sandboxes and innovation testbeds. Romania is successfully applying some of these tools (Box 4); however, to make substantial progress, a more systematic approach is needed. Current measures are insufficient to tackle the problems affecting the research and innovation sector; addressing this will require significant regulatory and budgetary changes.⁶¹

As substantial changes require time, effort, and political decisions, the initial steps towards the facilitation of innovation in ICTs could be taken by the ICT regulator. For example, providing non-binding regulatory advice to innovators (i.e. helping innovators or businesses navigate the regulatory system, ensuring new products, services or business models align with existing

⁶⁰ https://data.europa.eu/sites/default/files/country-factsheet_romania_2020.pdf.

⁶¹ R&D intensity of 0.51% of GDP in 2018, well below the 2020 national target of 2% and the EU average of 2.12%. Public R&D investment was 0.2% of GDP in 2018. Private expenditure on R&D was only 0.30% of GDP, below the EU average of 1.41%.

regulations), or supporting experimentation and testing of innovations (by reducing or temporarily omitting regulatory or administration fees), as well as participation in innovation projects.

Simplifying administrative procedures

A major element that slows the process of developing ICT infrastructure in Romania concerns the ambiguity of legislation authorizing construction projects. As some commentators have noted, such a cumbersome authorization process could prove to be a serious bottleneck for the deployment of 5G infrastructure.⁶² Simplifying the authorization regime for the construction of telecommunication infrastructure, depending on the type of network component, can ensure faster construction and adoption of new technologies. It would be in line with the objectives of the EU Broadband Cost Reduction Directive revision. The EC has noted that since 2014 (when the Broadband Cost Reduction Directive was adopted), limited progress has been made in supporting the coordination of civil works to ease the process of applying for civil works permits or to facilitate access to buildings for the installation of in-building infrastructure across the EU, and that additional measures should be taken to tackle the problems.⁶³ Policy and regulation should be adaptive, balanced and fit for purpose, therefore additional remedies to improve the situation may be required.

In parallel with streamlining legal proceedings, enhanced public consultation procedures in Romania will provide a sounding board for regulatory decisions and strengthen their relevance from a market player perspective. As current consultation practices lack standardization (e.g. in terms of consultation rules, procedures, differing deadlines across institutions), a standardized methodology for consultation with all national institutions would enhance public-private dialogue in Romania.

Building trust by creating engaging dialogues

Regulatory frameworks for digital transformation should promote transparency, continuous dialogue, the sharing of perspectives and expertise, and provide opportunities for all participants to see how they are making an impact. The policy design principles of collaborative digital regulation encourage regulators and policy-makers to intensify discussions with all stakeholders to come up with the best possible solutions. Trust is the foundation of the regulatory process, and continuously building trust in regulatory institutions and decisions is key to the growth of digital.

As existing collaboration and consultation mechanisms do not always deliver the expected results, and more engaged collaboration with private sector, academia and non-governmental institutions is needed, additional stakeholder engagement, such as public hearings, high-level roundtables, expert workshops, hackathons, etc., could be considered as a step forward in more engaged collaboration. On one hand, such engagement could complement existing collaboration practices between authorities; on the other hand, it could improve the private sector perception of the effectiveness of public-private dialogue. A strong sense of co-creation could drive investment, innovation and inclusiveness.

⁶² [DESI - Romania | Shaping Europe's digital future \(europa.eu\)](#).

⁶³ [Report on the implementation of the Broadband Cost Reduction Directive | Shaping Europe's digital future \(europa.eu\)](#).

Additionally, principles of collaborative digital regulation also encourage revisited regulatory approaches such as co-regulation and self-regulation, which have become common practice in many countries and can be strengthened in the case of Romania. According to industry representatives, ICT market players are usually willing to address the identified issues themselves, when proper indications are given by authorities. This is where leaving space for self-regulation, hybrid and collaborative regulatory models would demonstrate trust in markets and market players.

Setting regulatory strategy for digital

As GSR-20 Best Practice Guidelines highlight,⁶⁴ regulators and policy-makers should articulate a clear rationale for how and why decisions are made, their goals, and time-bound targets. Strategic priorities should address short- to medium-term outlooks of national and global markets, with long-term strategies taking into account appropriate government policy; they should also ensure a coordinated approach among all stakeholders, while advancing regional development strategies where appropriate.

The formulation of a consensus-based long-term vision of digital transformation in Romania could be the first outcome of an improved consultative and collaborative approach. The majority of stakeholders interviewed for this research emphasized the importance of a common vision and strategy. As the Digital Agenda 2020 has already reached its targeted deadline, a new holistic⁶⁵ and comprehensive strategy for the country's digital transformation is needed. Such a compelling vision – formulated with the inclusion of all stakeholders – has better chances of being implemented. Finally, no strategy can be successful without strong leadership-driven implementation. As international best practice suggests, a single body with strong coordination powers may be in a better position to drive the process. Romania may also consider having a single authority to coordinate the digital transformation process.

⁶⁴ [GSR-20 Best-Practice-Guidelines_Final_E.pdf \(itu.int\)](#).

⁶⁵ https://www.itu.int/en/ITU-D/Conferences/GSR/2019/Documents/GSR19BestPracticeGuidelines_E.pdf.

7 Conclusions

The research and analysis have established that Romania's institutional and regulatory framework is built upon the collaborative mindset. Institutions have appropriate mandates and decision-making powers, understand the value of collaboration and are seeking to make it efficient. Some extra steps could be taken to improve collaboration with other stakeholders (private sector, academia, non-governmental organizations) to pave the way for principled engagement of all market stakeholders in the growth of the digital economy. The adoption of best practice regulatory principles and tools of collaborative digital regulation could enhance digital market outcomes, bringing Romania into the group of regional and global leaders. Romania has all the ingredients that would allow the country to capitalize on its digital potential in a relatively short amount of time.

Annex: Interviews with stakeholders

Interviews with the following stakeholders were conducted in March and April 2021:

- The National Authority for Management and Regulation in Communications of Romania (ANCOM);
- The Competition Council;
- The Authority for the Digitalization of Romania (ADR);
- The National Association of Mobile Operators (AOMR).

Five main topics were discussed during the interviews with stakeholders:

1. Description of the existing institutional situation, i.e. a place of an organization in the general institutional framework, its accountability and involvement in the regulation of electronic communications and/ or digital markets.
2. Elaboration on the existing collaboration: the depth and breadth (i.e. main counterparts and topics) of existing collaboration, forms of collaboration (e.g. official letter, requests, formal or informal meetings), and main outcomes (in term of new initiatives, new pieces of regulation, etc.).
3. Reflection on stakeholder experiences: challenges and lessons learned through the collaboration process with other stakeholders.
4. Evaluation of existing regulatory framework and institutional governance: Is the country ready for digital transformation, in terms of its policy, regulatory framework and institutional governance? How could it evolve/change over time, bearing in mind the growing importance of digital markets?
5. Expectations for the future collaborative governance: What are the fundamental elements of modern regulation and what are the most important actions that could be taken in moving towards such regulation?

Office of the Director
International Telecommunication Union (ITU)
Telecommunication Development Bureau (BDT)
Place des Nations
CH-1211 Geneva 20
Switzerland

Email: bdtdirector@itu.int
Tel.: +41 22 730 5035/5435
Fax: +41 22 730 5484

Digital Networks and Society (DNS)

Email: bdt-dns@itu.int
Tel.: +41 22 730 5421
Fax: +41 22 730 5484

Digital Knowledge Hub Department (DKH)

Email: bdt-dkh@itu.int
Tel.: +41 22 730 5900
Fax: +41 22 730 5484

Office of Deputy Director and Regional Presence
Field Operations Coordination Department (DDR)
Place des Nations
CH-1211 Geneva 20
Switzerland

Email: bdtdeputydir@itu.int
Tel.: +41 22 730 5131
Fax: +41 22 730 5484

Partnerships for Digital Development Department (PDD)

Email: bdt-pdd@itu.int
Tel.: +41 22 730 5447
Fax: +41 22 730 5484

Africa

Ethiopia
International Telecommunication Union (ITU) Regional Office
Gambia Road
Leghar Ethio Telecom Bldg. 3rd floor
P.O. Box 60 005
Addis Ababa
Ethiopia

Email: itu-ro-africa@itu.int
Tel.: +251 11 551 4977
Tel.: +251 11 551 4855
Tel.: +251 11 551 8328
Fax: +251 11 551 7299

Cameroon
Union internationale des télécommunications (UIT)
Bureau de zone
Immeuble CAMPOST, 3^e étage
Boulevard du 20 mai
Boîte postale 11017
Yaoundé
Cameroon

Email: itu-yaounde@itu.int
Tel.: +237 22 22 9292
Tel.: +237 22 22 9291
Fax: +237 22 22 9297

Senegal
Union internationale des télécommunications (UIT)
Bureau de zone
8, Route des Almadies
Immeuble Rokhaya, 3^e étage
Boîte postale 29471
Dakar - Yoff
Senegal

Email: itu-dakar@itu.int
Tel.: +221 33 859 7010
Tel.: +221 33 859 7021
Fax: +221 33 868 6386

Zimbabwe
International Telecommunication Union (ITU) Area Office
TelOne Centre for Learning
Corner Samora Machel and Hampton Road
P.O. Box BE 792
Belvedere Harare
Zimbabwe

Email: itu-harare@itu.int
Tel.: +263 4 77 5939
Tel.: +263 4 77 5941
Fax: +263 4 77 1257

Americas

Brazil
União Internacional de Telecomunicações (UIT)
Escritório Regional
SAUS Quadra 6 Ed. Luis Eduardo Magalhães,
Bloco "E", 10^o andar, Ala Sul (Anatel)
CEP 70070-940 Brasília - DF
Brazil

Email: itubrasilia@itu.int
Tel.: +55 61 2312 2730-1
Tel.: +55 61 2312 2733-5
Fax: +55 61 2312 2738

Barbados
International Telecommunication Union (ITU) Area Office
United Nations House
Marine Gardens
Hastings, Christ Church
P.O. Box 1047
Bridgetown
Barbados

Email: itubridgetown@itu.int
Tel.: +1 246 431 0343
Fax: +1 246 437 7403

Chile
Unión Internacional de Telecomunicaciones (UIT)
Oficina de Representación de Área
Merced 753, Piso 4
Santiago de Chile
Chile

Email: itusantiago@itu.int
Tel.: +56 2 632 6134/6147
Fax: +56 2 632 6154

Honduras
Unión Internacional de Telecomunicaciones (UIT)
Oficina de Representación de Área
Colonia Altos de Miramontes
Calle principal, Edificio No. 1583
Frente a Santos y Cía
Apartado Postal 976
Tegucigalpa
Honduras

Email: itutegucigalpa@itu.int
Tel.: +504 2235 5470
Fax: +504 2235 5471

Arab States

Egypt
International Telecommunication Union (ITU) Regional Office
Smart Village, Building B 147,
3rd floor
Km 28 Cairo
Alexandria Desert Road
Giza Governorate
Cairo
Egypt

Email: itu-ro-arabstates@itu.int
Tel.: +202 3537 1777
Fax: +202 3537 1888

Asia-Pacific

Thailand
International Telecommunication Union (ITU) Regional Office
Thailand Post Training Center
5th floor
111 Chaengwattana Road
Laksi
Bangkok 10210
Thailand

Mailing address:
P.O. Box 178, Laksi Post Office
Laksi, Bangkok 10210, Thailand

Email: ituasiapacificregion@itu.int
Tel.: +66 2 575 0055
Fax: +66 2 575 3507

Indonesia
International Telecommunication Union (ITU) Area Office
Sapta Pesona Building
13th floor
Jl. Merdan Merdeka Barat No. 17
Jakarta 10110
Indonesia

Mailing address:
c/o UNDP – P.O. Box 2338
Jakarta 10110, Indonesia

Email: ituasiapacificregion@itu.int
Tel.: +62 21 381 3572
Tel.: +62 21 380 2322/2324
Fax: +62 21 389 5521

CIS

Russian Federation
International Telecommunication Union (ITU) Regional Office
4, Building 1
Sergiy Radonezhsky Str.
Moscow 105120
Russian Federation

Email: itumoscow@itu.int
Tel.: +7 495 926 6070

Europe

Switzerland
International Telecommunication Union (ITU) Office for Europe
Place des Nations
CH-1211 Geneva 20
Switzerland
Email: euregion@itu.int
Tel.: +41 22 730 5467
Fax: +41 22 730 5484

International Telecommunication Union
Telecommunication Development Bureau
Place des Nations
CH-1211 Geneva 20
Switzerland

ISBN: 978-92-61-35471-8



Published in Switzerland
Geneva, 2021
Photo credits: Shutterstock