Course description:
This course reviews fundamentals of Information and Communication (ICT) for development, with a focus on policy-making, regulation and strategy building. It covers international perspectives and national case studies in Eastern Europe and Central Asia. It teaches the economic, social, and political role of ICTs in the development dynamic and asks what can be done to reap the full benefits. Topics include digital innovation, conceptual frameworks of digital transformations, national policy strategies, ICT regulation and market structure, broadband technology, and significant applications, such as e-government.

This curriculum was prepared under the auspices of the Center for Global Communication Studies, Annenberg School for Communication at the University of Pennsylvania. It was developed in partnership with infoDev with funding provided by the Ministry for Foreign Affairs of the Government of Finland.

No prerequisites. Teaching language: English.

Overview:
The advent of digital Information and Communication Technologies (ICTs) has changed the lives of all people around the globe (directly and indirectly). In less than two decades, 3 out of 10 people worldwide have linked up through the Internet, and 9 out of 10 have connected with mobile telephony. Our generation has the luck (or responsibility) to live through and shape an era in which information and communication have become the driving force of human progress. ICT are the most powerful and also the most tangible tool to exploit the resultant opportunities. We ask: What are the fundamental changes introduced by these technological tools? Since ICT are tools that are means to specific ends, what kinds of ends can be pursued through ICT? How can ICT contribute to the economic, social, and political development of a society? What it required in order to reap the benefits of digital activities? What is currently done about it? How is it that some members of society are already more advanced than others in deriving benefits from the digital age? How can we bring the benefits of these technologies to everybody? What are the market dynamics of digital industries and how what are the best practices in regulating them? What is happening in Eastern Europe (Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine) and in Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan)? What is missing in these countries? How can they become full-fledged members of the global information society? We also look at some more advanced topic and ask: How to development a thriving broadband ecosystem? How can mobile phone or fixed-line broadband networks be incentivized and regulated? Can the digitization of government procedures act as a catalyst of digital development?

Course Objectives:
This course will (1) provide students with a critical understanding about the role of ICTs for social, economic and political development; (2) provide analytic skills that allow students to understand and critically engage with the complex and often conflicting policy debates about ICTs; and (3) provide an understanding of the dynamics and regulation of some of the most prominent industries and applications.

Since the transformative effects of ICT can currently be felt in all aspects of social, economic, political and cultural life, this course is not tailored to one particular kind of audience. Students interested in studying ongoing social transformations in future graduate study or law school will benefit as much from the course as those planning to work in the private sector, or in the governmental agencies or NGOs. This interdisciplinary seminar will employ scholarship and perspectives from economics, law, communication, development studies, information science, political science, and elsewhere. No previous coursework in this area or technical knowledge is required.

The course will be structured as a series of reading and discussion sessions that culminate in a seminar paper or project whose topic may be chosen by the student. Since ICT touch every aspect of human conduct and development, the list of possible topics is as long as the list of transformation provoked by the digital age. The only requirement is that the elaboration of the topic is heavily policy oriented. This means that the student should both analyze an issue and discuss what is and/or can be done about it. For example, students can pick one specific aspects of telecommunications regulation or e-government development, and elaborate on the current opportunities and challenges, and on existing policies, programs and projects in this area.
NOTE FOR INSTRUCTORS
(This 2-page box is to be deleted by the instructor before circulation of the syllabus!)

This example syllabus was jointly developed by the partners of the Capacity-Building Initiatives in ICT Policy and Regulation for Eastern Europe and Central Asia (ECA). The instructor is free to change it according to individual preferences.

LEVEL AND FORMAT: This course is intended to be delivered through an academic institution to graduate students and professionals, but can be adjusted by the instructor for advanced undergraduate students. While the curriculum can be incorporated into an existing academic course, ideally the course will be taught as a stand-alone course or a professional/continuing education course where both master’s level students as well as professionals would enroll and participate. The syllabus is designed for one session per week. If classes are taught twice per week, the reading load and the syllabus can be adjusted accordingly.

READING LOAD: The syllabus provides mandatory and complementary readings. The mandatory reading provides a reading load of about 100 pages per week, which is demanding but standard for graduate courses at leading research universities (i.e. 20 pages per day). It can be reduced for advanced undergraduate students. Many of the listed readings contain page number instructions (point this out to students!), which limits the reading load while exposing students to a wider field of literature, which can be explored individually. Occasionally, the mandatory reading is divided into different groups of literature. Students should sign up for (or be assigned to) one of them according to interest and then report the content to fellow students during the next session. This exchange expands the review of literature without increasing the reading load to an agonizing level. It also leads to complementary class discussions. If the instructor deletes/changes the page number instructions and/or exchanges/prioritizes readings, the reading load will naturally change and should be recalculated.

KEYWORDS: Several keywords are suggested for each session and students are encouraged to look them up on collective sites like Wikipedia before class. This allows students to get a feel of the general public opinion about the issues that will be discussed and fosters their self-initiative for personal research. As such, students should approach Wikipedia material always critically.

VIDEOS: Several online videos are suggested for each session. The instructor might make this a mandatory and voluntary part of the class preparation and incorporate their content into the class discussions or not. The instructor might also show (excerpts of) selected videos during class and discuss them collectively. Online videos sometimes present personal opinions and should be reviewed critically by students.

READING AVAILABILITY: One of the aims of this syllabus was to assure that all readings are readily available online to the students free of charge. The only exception to this norm is Everett Rogers “Diffusion of Innovations” (5th Edition), which should be available in University Libraries. If the book cannot be obtained, an online link is provided to the (less complete) 3rd edition of the book.

READING QUESTIONS: Each of the mandatory readings is accompanied by reading questions. The instructor can choose to delete them, have students answering them through a written online exchange before class (e.g. on a class blog or through a collective group Email), or to discuss them in class. For lower level students, the division of questions among students will lower the work load, while advanced grade-levels should be able to answer all reading questions. In cases where this class is taught several years in a row, it is recommended to modify the questions slightly.
**HYPERLINKS:** The syllabus contains many hyperlinks, which encourages students to connect directly to the Internet themselves to find material. The instructor is strongly encouraged to review the validity of those links before sharing the final version of the syllabus.

**FINAL PROJECT:** The final project of this course consists of an individual research project. For grad students, a short presentation and a research paper is adequate. For undergraduate students both can either be done collectively or one of them can be deleted.

**SPECIAL INSTRUCTIONS:**

**WEEK 1:** The first week contains relatively little reading and no reading questions, since experience shows that most students tend not to do any work before concrete instructions are giving during the first class. However, all students should be encouraged to read the assigned material (the quicker the better), since they provide a good overview. Besides introducing the topic and the course and having each student presents her/his personal relation to and interest in the topic, a possible exercise for the first class is to give students 45-60 min to write a confidential letter to themselves in which they answer questions like:

- What are information and communication technologies (ICTs)? Are radio and Facebook part of it?
- What is (under)development? What is poverty?
- What can ICTs do to foster development? What to fight poverty?
- What is being done about it? What should be done about it?
- What are the most important challenges right now? Where to set the focus?
- What will the future look like in 50 years from now? In the world? In our country?

These letters can be sealed by the students themselves in individual envelopes, collected by the instructor, kept in a confidential manner, and returned to the students at the end of the semester. Experience has shown that this exercise is helpful for a topic like ICT Policy which is both relatively new and technical, but nevertheless quite well-known in popular culture: it takes the fear of the technical aspects by showing that everybody knows something about radio and TV, or Facebook and Google. Besides, being contrasted with their often vaguely formulated statements and thoughts at the beginning of the semester, students will realize at the end of the semester how much they actually learned (which is important for a seminar like this that does not count with concrete test results).

**WEEK 4 & 9:** The reports from ITU, UNCTAD, World Bank, OECD and WEF, as well as the ones from UN-DESA and Freedom House are annual, bi-annual or tri-annual reports and the instructor is encouraged to replace them with the newest version of the report if it is available (see provided links).

**WEEK 5 & 7:** During week 5 students should start thinking about their research topic and by Week 8 they should define it. It is suggested that topics are posted somewhere online (e.g. on a class blog or through a collective group Email).

**WEEK 11:** No reading is formally assigned for this week. Each student lists 3 readings (journal papers, official reports, book (chapters)) that relate to her/his selected research topic. Students should post these selected reading online (i.e. on a class blog or send them to a group Email) and quickly (5 min) report on them.

**MORE THAN 10 WEEKS:** If there are more than 10 weeks, the remaining sessions can be used for class presentations about the students’ ongoing research projects. Alternatively, some session could be split. For example, the reading material and the accompanying discussions of WEEKS 2 and WEEK 5 could certainly be extended over two weeks (i.e. incorporating more of the Report on Monitoring the WSIS Targets from WEEK 2 and extending the reading from the ICT Regulation Toolkit from WEEK 5.

In case you have specific questions on the execution of the syllabus, feel free to contact: Martin Hilbert (Dr., PhD); martinhilbert[at]gmail.com ; http://www.martinhilbert.net who will make every effort to answer arising questions.
OVERVIEW and KEY QUESTIONS

WEEK 1 - INTRODUCTION

What are some of the profound social changes that came with the impressive growth in the world’s technological capacity to handle information and communication?

WEEK 2 - DEVELOPMENT AND COMMUNICATION

Since ICT are means to specific ends, we have to discuss the nature of the ends, i.e. development. What is development? What is the historical context of using communication technology for development and what are some recent ICT Policies?

WEEK 3 - CONCEPTUAL FRAMEWORKS

What are the relevant building blocks of the ICT paradigm? How do national and international policy agendas approach such far-reaching changes?

WEEK 4 - STATE OF THE ART

What is the current state of the art of different aspects of global ICT development?

WEEK 5 - DIGITAL DIVIDE

How do digital technologies spread throughout society? What are the characteristics of the demand side of the diffusion process?

WEEK 6 - TELECOM REGULATION

What can be done on the supply side of the diffusion process to facilitate the provision of digital products and services?

WEEK 7 - ICT POLICY IN EASTERN EUROPE

What are the current challenges of the Eastern European countries of Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine?

WEEK 8 - ICT POLICY IN CENTRAL ASIA

What are the current challenges of the Central Asian countries of Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan?

WEEK 9 - BROADBAND

What are the particularities of the broadband revolution and what to do about it?

WEEK 10 - e-GOVERNMENT

What are the opportunities and challenges in the digitization of governmental processes? What is the current status of Internet freedoms in Eastern Europe and Central Asia?

WEEK 11 - REVIEW and CONCLUSIONS
WEEK 1 - INTRODUCTION TO THE COURSE: an overview of the ICT paradigm

Keywords (look up at: [www.wikipedia.org](http://www.wikipedia.org)): “ICT4D”; “Information Society”; “Information Age”.

Videos: Global Growth of Information (4min); Company’s call for ICT Policy (2min); Threats and Opportunities for Global Development (5min); Dan Schiller on Digital Capitalism in Crisis (63 min).

ICT led to an impressive growth in the world’s technological capacity to handle information and communication. This has led to profound changes in the way society works.


Week 1 COMPLEMENTARY OPTIONAL READINGS:


WEEK 2 - DEVELOPMENT AND COMMUNICATION: concepts and history


Videos: Stats reshape our worldview (20min); Amartya Sen interview (6min); Problems with GDP (8min); Human Development Index (HDI) (9min); MDGs (4min); HDI to measure development? (14min); Economics of Happiness (4min); Development Communication? (1min); ICT4D interview (2min).

ICT are means to specific ends. Before studying the means, any policy has to be explicit about the pursued ends. We start by asking broadly: **what is development?**


Reading questions:
(1) What are concrete examples of Sen’s 5 instrumental freedoms?
(3) How can “information” and “communication” be a “capability” in the sense of Sen? Concrete examples?

The idea of fostering communication for development is not new. So-called **Development Communication** research during the 1960s and 1970s set the ground for most existing ICT Policy programs and institutions and provides the historical context of current dynamics.

One of the following:


Reading questions:
(1) What do these studies from the 1970 define as the “old” and the “new” development paradigm? Do modern digital ICT tend to foster one of the other? Is there a new paradigm?
(2) What are the mentioned limitations of the technologies available in the 1970s? How could modern digital technologies overcome some of them? Current examples from your country?

Finally we review a recent example of **global ICT Policy** in the light of development theory.


Reading question:
(1) What are the ingredients of “development” defined by WSIS? What indicators would you select for a “Human WSIS Index”? Would you add or replace some?
WEEK 3 - CONCEPTUAL FRAMEWORKS: building blocks of policies in the digital age

Keywords (look up at: www.wikipedia.org): “Kondratiev waves”; “Creative Destruction”.

Videos: Carlota Perez (4min); ICT ecosystem (13min); Leading Dev.& ICT intellectuals (84min).

Keeping both the technological means and the social ends in mind, we discuss conceptual frameworks that show the “Big Picture” of the relevant building blocks of the ICT paradigm.


Reading questions:
(1) While Hilbert views “social change” as the result of ICT diffusion, Wilson views “social structure” as the cause for ICT diffusion. Contrast both. Which is the chicken and which the egg: technology or society?
(2) What does each author say about the importance of policies?
(3) Provide concrete examples from the digital paradigm to flesh out Perez’s 3 interconnected processes of change and adaptation.

Week 3 COMPLEMENTARY OPTIONAL READINGS:


The all-embracing nature of the ICT paradigm forces respective policy agendas to be just as comprehensive and far-reaching.

One of the following:


Reading questions:
(1) What are the main characteristics of a national ICT strategy?
(2) What is the role of the development of ICT infrastructure in relation to other areas?
(3) What do you think are the 3 most important policy areas and why?
Week 3 COMPLEMENTARY OPTIONAL READINGS:

European Commission (2011), Digital Agenda for Europe: ICT for Societal Challenges, 

WEEK 4- STATE OF THE ART: reviewing current perspectives on an ongoing dynamic


Videos: ITU Sec.General 2009 (5min); Where was this Google all this time? (7min); How Mobiles, Facebook and Twitter make history (16min); ICT4D at Penn (lectures); Berkman Center (several).

Being equipped with critical awareness about the most important theoretical and conceptual aspects, we review the current state of the art of different aspects of global ICT development.

Select one of the following reports:


Reading questions:
(1) What are the main messages of the report?
(2) What aspects are missing in the report?
(3) What are the most fascinating things you’ve learned?
Week 4 COMPLEMENTARY OPTIONAL READINGS:

Each of these reports is a recent version of a series of annual reports. Each new version of the report focuses on different issues. Review other/former reports to brainstorm about their own research:


UNCTAD Information Economy Reports since 2001:  [http://r0.unctad.org/ecommerce/docs_en.htm](http://r0.unctad.org/ecommerce/docs_en.htm)


The OECD Internet Economy Outlook replaces the former OECD Information Technology Outlook, which was published since 2000:  [http://www.oecd-ilibrary.org/science-and-technology/information-technology-outlook_1999144](http://www.oecd-ilibrary.org/science-and-technology/information-technology-outlook_1999144)


**WEEK 5- DIGITAL DIVIDE: diffusion of ICT**

**Keywords** (look up: [www.wikipedia.org](http://www.wikipedia.org)): “Digital Divide”; “Diffusion of Innovations”; “Global Digital Divide”.

**Videos:** Rural digital divide in Honduras (3min); Digital divide in U.S. (2min); Brainstorming on solutions (2min); Watch an innovation diffuse in 3 min (3 min).

All innovations, including ICT, spread slowly and unevenly throughout society, which inevitably creates a divide between those that already have access and use it, and those still excluded. We start by reviewing the demand side of the diffusion process.


Tom Valente (2010), Diffusion of Innovations: Network Analysis, VideoPart1 (10min); VideoPart2 (9min); VideoPart3 (10min).

Martin Hilbert (2011), The end justifies the definition: The manifold outlooks on the digital divide and their practical usefulness for policy-making, Telecommunications Policy, 35(8), 715-736. [http://www.martinhilbert.net/ManifoldDigitalDivide_Hilbert_AAM.pdf](http://www.martinhilbert.net/ManifoldDigitalDivide_Hilbert_AAM.pdf)

**Reading questions:**

1. Choose one example of a specific ICT and walk step by step through Rogers diffusion process (Figure 5.1/ Table 5.1)
2. What are “social networks” and what do they have to do with the digital divide?
3. What are the most significant socio-economic variables that determine Internet access?
4. Based on evidence from the U.S., South Korea and Chile: what percentage of national public sector ICT policy budgets is dedicated to ICT infrastructure?

**Week 5 COMPLEMENTARY OPTIONAL READINGS:**


Hilbert, M. (2010), When is cheap, cheap enough to bridge the digital divide? World Development, 38/5, 756-770; [http://www.martinhilbert.net/CheapEnoughWD_Hilbert_pre-print.pdf](http://www.martinhilbert.net/CheapEnoughWD_Hilbert_pre-print.pdf)

**Time to start thinking about your class paper research topic!!!**
WEEK 6- TELECOM REGULATION: supplying ICT products and services

Keywords (look up: www.wikipedia.org): “Regulation”; “Spectrum management”; “Spectrum auction”; “Digital switchover”; “vendor lock-in”; “barriers to entry”.

Videos: Telecoms Investments and Competition in the Balkans (3min); Introduction structure regulation and competition in the telecom sector (82 min).

After understanding the demand side of the ICT diffusion processes, we focus on the supply side of digital products and services. Telecommunication networks are installed and constantly new technologies are introduced. This process is not automatic, but a tightly regulated dynamic.


Reading questions:

(1) What is the role of an ideal regulator and what are some of its institutional characteristics?

(2) Why is it so important that a telecommunication regulation landscape is stable and predictably in the long term?

(3) What is ICT convergence and what’s its impact on regulation? What does it mean when regulators converge and what are some of the related challenges?

(4) What are:

• radio spectrum and spectrum management?
• telecom incumbent and incumbent network?
• monopoly and oligopoly?
• market power?
• barriers to entry?
• customer lock-in?

Week 6 COMPLEMENTARY OPTIONAL READINGS:

**WEEK 7- ICT POLICY IN EASTERN EUROPE**

**Keywords** (look up at: [www.wikipedia.org](http://www.wikipedia.org)): “Eastern Europe”; “Commonwealth of Independent States (CIS)”; “South Caucasus”.

**Videos:** [Georgia and ICT](#) (3min); [Interview with Armenian advisor](#) (6min); [ICT, CIS & European Bank of Rec.&Dev.](#) (5min); [ICT, CIS & European Investment Bank](#) (5min); [WiMax and CIS](#) (4min).

We take a closer look at the digital development trajectories and challenges of the Eastern European countries of Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine.

(Introduction: Basic Principles from Lessons Learned, pp. 1-3)

**Reading questions:**
(1) Which is the “lesson learned” that surprised/impressed you the most? Why?

[http://www3.weforum.org/docs/GITR/2012/GITR_Chapter2.1_2012.pdf](http://www3.weforum.org/docs/GITR/2012/GITR_Chapter2.1_2012.pdf) Ch. 2.1; pp. 149-159


**Reading questions:**
(1) What are the key goals of the government of Azerbaijan? How does it see the role of the State?
(2) What are the main concerns of the Moldovan private sector? How does it see the role of the State?

One of the following:


**Reading questions:**
(1) What are 3 things that called your attention in this country?
**Week 7** COMPLEMENTARY OPTIONAL READINGS:

ISTOK-SOYUZ (2009), *Express Diagnostics of Potential for ICT R&D Collaboration with the European Union* for:


e-Belarus, Think Tank of ICT4D (2012), [http://www.e-belarus.org](http://www.e-belarus.org)
Time to decide on your class paper research topic!!!

**WEEK 8- ICT POLICY IN CENTRAL ASIA**

*Keywords* (look up at: [www.wikipedia.org](http://www.wikipedia.org)): “Central Asia”.

*Videos:* Bridging the divide in Cambodia (7min);

We take a closer look at the digital development trajectories and challenges of the Central Asian countries of **Kazakhstan, Kyrgyzstan, Tajikistan** and **Uzbekistan**.


Reading questions:
1. Which sector provides which kind of ICT financing in Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan?
2. Can you characterize different digital development paths in these countries? Do you know if this has changes since 2005/7?
3. Do you agree that the indicators used by Musaev and Bae are relevant to evaluate the digital development of a country? Can you elaborate why? If not, which quantitative indicators would you use and what would they tell you? Which qualitative evaluations would you collect?

**Week 8 COMPLEMENTARY OPTIONAL READINGS:**

ISTOK-SOYUZ (2009), *Express Diagnostics of Potential for ICT R&D Collaboration with the European Union* for:
* Kazakhstan; * Uzbekistan; * Kyrgyzstan; * Tajikistan; * Turkmenistan

* Kazakhstan


ICT Kyrgyzstan Website: [http://www.ict.kg](http://www.ict.kg)
WEEK 9 - BROADBAND: fixed and mobile

Keywords (look up at: www.wikipedia.org): “Broadband access”; “Wireless broadband” “Mobile broadband”; “Broadband universal service”; National broadband plans from around the world”; “radio spectrum”.

Videos: Lagging U.S. (3min); Broadband Convergence (5min); Toward wireless broadband? (2min);

Access to the digital realm is not anymore a binary yes-no decision, but transforms into a moving target of ever increasing bandwidth. Many useful applications only become possible with a certain **level of bandwidth**.

http://broadbandtoolkit.org/Custom/Core/Documents/Broadband%20Strategies%20Handbook.pdf Ch.1 & Ch.2 (pp. 1-84)

Reading questions:
(1) What is broadband? What are different statistical definitions of broadband? How do you think it will be defined in 20 years from now?
(2) What are 2 examples of how broadband can contribute to development and narrowband couldn’t?
(3) What is the role of government in broadband development? What of this is missing in Eastern European and Central Asian countries?

One of the following:


Reading questions:
(1) What are the most surprising/impressive things you have learned?
**Week 9 COMPLEMENTARY OPTIONAL READINGS:**

Broadband Strategies Toolkit: [http://broadbandtoolkit.org](http://broadbandtoolkit.org)


**WEEK 10- e-GOVERNMENT: the public sector as digital catalyzer**

**Keywords** (look up at: [www.wikipedia.org](http://www.wikipedia.org)): “e-Government”; “Civil Sector Reform”; “Corruption Perceptions Index”; “Public participation”; “Open Government”.

**Videos:** eGov Revolution (9min); e-Gov Applications (5min); Interoperable Europe (2min); Interoperable EU e-Gov (3min); Open Government Partnership (3min); UN e-Gov. online portal (2min);

The government not only helps to guide the transition of society as a whole, but it is subject to the ongoing digital transformations itself. The **digitization of the execution of the law** by the executive branch is a central ICT policy area.


**Reading questions:**
(1) *How are the UN-DESA “Online Service Index” and the “Supplementary e-Participation Index” constructed?*
(2) *What role do you think e-government development plays for the general transition of a country toward the digital age?*
(3) *Of the different examples given in the report, which is your favorite e-government application, website, or service? Why?*

The digitization of the public sector is not automatically empowering, decentralizing and harmonizing. As early as 1948, long before academic scholars started to talk about the “Information Society”, the novelist George Orwell wrote a novel about a very controlling vision of the information age (“1984”), where “Big Brother is watching you”. We review the current status of **Internet freedoms in Eastern Europe and Central Asia**.


Read pp. 1-12 of Summary Findings:
[http://www.freedomhouse.org/sites/default/files/resources/FOTN%202012%20Summary%20of%20Findings.pdf](http://www.freedomhouse.org/sites/default/files/resources/FOTN%202012%20Summary%20of%20Findings.pdf)

And one of the following “Country Reports”:
Azerbaijan; Belarus; Estonia; Georgia; Kazakhstan; Kyrgyzstan; Ukraine; Uzbekistan

**Reading questions:**
(1) *What have you learned about Internet freedoms in the country? What is the government’s role?*
**Week 10** COMPLEMENTARY OPTIONAL READINGS:


Each of the previous reports is a recent version of a series of annual reports. Each new version of the report focuses on different issues. Review other/former reports to brain-storm about their own research:


WEEK 11 - CONCLUSION: Review and overview of individual research projects

Today we will both review the existing material and the research topics you selected for your class paper.

Bring your course notes and annotated reading material, as we will review each session and talk about what you got out of the different topics we discussed.

Select 3 Journal articles, Book Chapters or official Reports (see links below for example) that relate to your research topic and quickly present the main messages in a few minutes. Put an effort into synthesizing the main points in a clear manner and be ready to answer questions from your class mates.
Additional Resources:

Asian Development Bank (ADB) Information and communication technology (ICT): http://www.adb.org/ICT

Asia-Pacific Telecommunity (APT): http://www.aptsec.org/

African Telecommunications Union (ATU): http://atu-uat.org/


Communication Institute for Online Scholarship, http://www.cios.org/


The International Association for the Wireless Telecommunications Industry (CTIA), http://www.ctia.org/media/index.cfm/AID/10319

ITU World Telecommunication Indicators: http://www.itu.int/ITU-D/ict/index.html

Learning Initiatives on Reforms for Network Economies, http://lirne.net/


OECD, Internet Economy: http://www.oecd.org/topic/0,2686,en_2649_37441_1_1_1_1_37441,00.html

Open Net Initiative: http://opennet.net/

Mobile Marketing Association: http://mmaglobal.com/main

National Cable and Telecommunications Association: http://www.ncta.com/


Journals of Interest:


Human-Computer Interaction, http://www.tandfonline.com/toc/hhci20/current
Info: The Journal of Policy, Regulation, and Strategy for Telecommunications, Information, and Media,  
http://www.emeraldinsight.com/products/journals/journals.htm?id=info

Information Development,  http://idv.sagepub.com/

Information Technologies and International Development,  http://itidjournal.org/itid

Information Technology for Development,  http://itd.ist.unomaha.edu/itd/


International Journal of Information Communication Technologies and Human Development,  
http://www.igi-global.com/journal/international-journal-information-communication-technologies/1101


Journal of Health Informatics in Developing Countries,  http://www.jhidc.org/

Telecommunications Policy,  
http://www.elsevier.com/wps/find/journaldescription.cws_home/30471/description

The Information Society,  http://www.indiana.edu/~tisi/
### Key ICT Governmental Agencies in the Europe and Central Asia Region:

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<tr>
<th>Country</th>
<th>Agency</th>
<th>Website</th>
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<tr>
<td>Armenia</td>
<td>Ministry of Transport and Communications</td>
<td><a href="http://www.mtc.am/">http://www.mtc.am/</a></td>
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<tr>
<td>Georgia</td>
<td>Georgian National Communications Commission</td>
<td><a href="http://www.gncc.ge/">http://www.gncc.ge/</a></td>
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<tr>
<td>Georgia</td>
<td>Ministry of Economic Development</td>
<td><a href="http://www.economy.ge/">http://www.economy.ge/</a></td>
</tr>
<tr>
<td>Moldova</td>
<td>National Regulatory Agency for Electronic Communications and Information Technology (ANRCETI)</td>
<td><a href="http://www.anrceti.md/">http://www.anrceti.md/</a></td>
</tr>
<tr>
<td>Tajikistan</td>
<td>Ministry of Transport and Communications</td>
<td><a href="http://www.mincom.rs.tj/">http://www.mincom.rs.tj/</a></td>
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<td>Uzbekistan</td>
<td>Communications and Information Agency of Uzbekistan</td>
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