Request for Expression of Interest

A Study, Online Toolkit and Training material on:

– New Technologies and Their Impact on Regulation –

Country: International

Notice/Contract Number: 1250

Publication Date: April 27th, 2005

Deadline: May 16th, 2005

Funding Agency: infoDev

Implementing Organization: infoDev

Eligibility of Bidders: The consultants are expected to be a team of experts, consisting of personnel with knowledge and demonstrated experience in telecommunications, technologies, and regulations. The consultants should have a minimum of 5 to 10 years of relevant experience and a proven record of expertise showing that they are qualified in the field of the assignment and have previous experience in similar studies.

Expression of Interest (EOI):
infoDev intends to finance the assignment described below under funding to be made available by infoDev Donors.

The overall objective of this activity is to develop a study, tool-kit, and training materials related to new technologies and their impact on regulation. Detailed description of the assignment is provided in the attached Terms of Reference.

The assignment is expected to be completed 28 weeks from the date of signing the contract agreement (i.e. approximately November/December 2005). The assignment is expected to require a level of effort of approx eight person-months to be completed within the available lump-sum budget of US$195,000 which includes all fees, travel, and other expenses.
infoDev now invites eligible consultants to indicate their interest in providing their services. Interested consultants must provide information indicating that they are qualified to perform the services (brochures, description of similar assignments, experience in similar conditions, availability of appropriate skills among staff, etc.). Consultants may associate to enhance their qualifications.

For this assignment we specifically request submission of a five page note outlining how the consultants would conduct this assignment if selected. The note should include the following: (a) an analytical framework and a process by which the research will be conducted; (b) a timeline that demonstrates the consultants ability to meet the deadlines as noted in the Terms of Reference below; (c) a brief narrative on resource allocation; and (d) brief summaries of key personnel to be involved in the work, particularly their experience that directly relates to needs of this study. In order to prepare the note, interested consultants should review the Terms of Reference, which is provided below.

We suggest that the EOI including the five page note and all additional documents, brochures etc. should not exceed 25 pages in length.

Electronic submission of the EOI, including the note, is preferred. The EOI can be submitted either as a Microsoft Word or PDF file. Please send your email submission to dpauschert@worldbank.org. (Please, cc. Mrs. Samia Melhem, smelhem@worldbank.org)

Selection will be based on the “Consultants Qualifications” (CQ) method (provision 3.7 and 3.8 of the Consultants Guidelines) in accordance with the procedures set out in the World Bank's Guidelines: Selection and Employment of Consultants by World Bank Borrowers May 2004.

Interested consultants may obtain further information at the address below from 10:00am – 5:00pm US Eastern Daylight Time.

Expressions of interest must be delivered to the address below by May 16th, 2005.

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TERMS OF REFERENCE
A Study, Online Toolkit and Training material on:
New Technologies and Their Impact on Regulation

A. BACKGROUND/OVERVIEW

This is a joint knowledge product of infoDev and the International Telecommunication Union (ITU).

infoDev is a program committed to the use of ICTs for development consisting of public bilateral and multilateral development organizations, working in close cooperation with partners from civil society and the private sector, and assisted by an expert secretariat housed at the World Bank’s Global Information and Communication Technology Department (GICT). Its mission is to help developing countries and their international partners use information and communication technologies (ICTs) broadly and effectively, as tools of poverty reduction, sustainable economic growth, and empowerment of individuals and communities. Its work is rooted in the conviction that information and communication are indispensable elements of effective and responsive institutions, governments, markets, and societies. One of the main pillars of infoDev’s new strategy (approved by all its donors in July 2004) is the ICT enabling environment. Within that theme, infoDev will be producing research and knowledge products to practically assist its partners and stakeholders in reforming the regulatory framework to allow private sector growth in the ICT arena. This entails adapting infoDev’s knowledge products to developing countries’ needs in terms of policy advice and capacity building services. Web Site: http://www.infodev.org

ITU is a world-wide organization which brings governments and industry together to coordinate the establishment and operation of global ICT/telecommunication networks and services; it is responsible for standardization, coordination, and development of international telecommunication systems including radio communications, as well as the harmonization of national policies. To fulfill its mission, ITU adopts international regulations and treaties governing all terrestrial and space uses of the frequency spectrum as well as the use of all satellite orbits which serve as a framework for national legislations; it develops standards to foster the interconnection of ICT/telecommunication systems on a worldwide scale regardless of the type of technology used; and it fosters the development of ICT/telecommunications in developing countries.

The Telecommunication Development Sector (ITU-D) is the development arm of the ITU, the main responsibility of which is to foster ICT/telecommunication development in developing countries through policy advice, provision of technical assistance, mobilization of resources, and initiatives to extend access and bridge the digital divide.

Challenges to Regulators and Existing Approaches to Regulation

Most countries have established—or are in the process of establishing—regulatory authorities to implement competition-centered policies on ICT reform and ICT infrastructure development. The diffusion, structure, and usage of an ICT infrastructure is influenced by the substantive regu-
latory standards that are applied, by the way regulators incorporate market considerations into their decisions, and by the relations they establish with the government and the courts, as well as the regulated sector, consumers, and the media. The ICT sector has undergone some dramatic changes lasting recent years, triggered by the development of new technologies and the convergence of existing ones, leading now to a merging of markets and services. These developments affect traditional regulatory strategies, raising questions such as how to deal with growing pressure to adopt converged licensing regimes and how to successfully realize the potential of alternative network infrastructures such as WI-FI and WIMAX to bring both services and high-speed Internet access to urban and rural areas.

The ICT Regulatory Toolkit

As a tool to help regulators identify their individually relevant questions and to provide with answers and guidance, infoDev in cooperation with the ITU will develop an ICT Regulatory Toolkit. The Toolkit is an update and expansion of infoDev’s popular and influential Telecom Regulators’ Handbook. The ICT Regulatory Toolkit will be a web-based tool, divided into several modules being authored in the 2005-2006 timeframe. The Modules currently planned to be developed include: (a) Overview on Regulation; (b) Radio Spectrum Management; (c) Extending Services Beyond the Market; (d) Licensing (Recently completed); (e) Legal and Institutional Aspects of Regulation; (f) New Technologies and Their Impact on Regulation; and (g) Interconnection, Price Regulation, and Competition. The latter three modules are currently being commissioned in parallel by infoDev.

Beyond the aforementioned modules, infoDev and ITU are already discussing the framework and content for additional modules, for example, a module focusing on ICT related taxation issues. With this strategy and building up on its predecessor’s success, the ICT Regulatory Toolkit will become a regularly updating and constantly improving live tool to provide regulators, operators, policy makers, sector experts, and the general public the latest on regulation strategies, best practices, and case studies.

The Module on New Technologies and Their Impact on Regulation as one Part of the ICT Regulatory Toolkit

During the past decades, a dramatic technological advance in the ICT/telecommunication sector has coincided with a first bundle of regulatory reform. These reforms had a positive impact on developing countries. To some extent, however, this positive impact was accidental, mainly resulting from an overall internal and external pressure to open ICT/telecom markets. Today, regulators and policy makers facing the diffusion of new technologies and services are once again encountering major challenges in the design and implementation of a new set of models and tools for reform and regulation. In order for regulators to understand these new technologies and their impact on regulation and to effectively deal with upcoming challenges, infoDev invites proponents to deliver the following:

1) Study on the Impact of New Technologies on Regulation. The purpose of the study is to develop an intellectual framework and innovative content exploring issues related to new technologies and regulation policies. The study will not aim at mirroring the existing de-
bate but at presenting innovative thinking and raising new questions of immediate practical relevance for regulators. The study will be the pivotal product for developing the toolkit-module and training material. These findings will have immediate practical importance for regulators and are expected to have continued relevance for the next five years.

2) Web-based electronic “Toolkit” on New Technologies and Their Impact on Regulation. The web-based toolkit is derived from the aforementioned study, but presents the content in a pre-defined methodology (see below). The purpose of the toolkit is not only to provide regulators access to the findings of the study but to offer value added by meaningfully hyper-linking the content to all other seven modules of the regulatory toolkit, thus offering a non-linear learning experience reflecting on all relevant aspects of regulation. The module will also contain some original content that elaborates on issues presented in the study.

3) Training Material. The training material offers a summarized perspective on the relevant questions in a Microsoft Power Point presentation. The purpose of the training material is to enable infoDev staff to present the study findings to regulators.

Regulators in developing countries are usually not able to leverage the same amount of resources and skills than regulators in developed countries. Thus, in developing the aforementioned study and the module, the consultants should emphasize to discuss tools of minimum complexity that require a minimum of resources and that are operational in the specific environment and circumstances in which most developing country regulators do have to function.

B. SCOPE OF WORK

1. First Deliverable – Developing a Study on the Impact of New Technologies on Regulation

Objectives and Scope of the work

A core question in designing the study is the need to understand how, in a fast moving technological environment, effective regulatory policies may be developed in order to fully leverage the opportunities created by rapid technological changes.

The main objective of the study is to help key actors in regulation to keep track of new technologies and to enable them to respond to new innovations “just in time” by adjusting regulatory frameworks and legislation. Regulators and policy makers worldwide may take advantage of a unique situation created by technological changes to provide access to un-served areas and leverage information and communication infrastructure as a tool for economic growth and competitiveness. The study will review the relevance and impact of earlier policies. In addition it will examine the potential of new technologies for the private sector to develop new business models and for policy makers to design and implement new legislation.

The goals of the study are to:
• Identify technological trends and document the consequence, implications, and repercussions on main regulatory issues;

• Highlight the various options and debates that exist around these issues;

• Use an economically and regionally balanced set of developing and developed country case studies in order to provide a global overview of emerging new ICT/telecommunication regulation best practices. The study will showcase examples/case studies of new technologies having been successfully integrated into a regulatory framework.

To address the mentioned objectives, the study will focus on the following issues:

• What are the emerging trends in new technologies and what is their impact on the relevance of traditional approaches, policies, and regulations?

• Which new regulatory and policy models should emerge to deal with challenges and opportunities related to new technologies, in particular the migration to packet switched networks?

• How to address the specific needs of developing countries while designing specific models and tools, including new policies and regulations? How to take into account the different legal and administrative cultures in such a context?

• How will regulators in developing countries tackle the paradigm shift, and re-formulate questions about classical regulatory and policy issues, such as licensing, interconnection, numbering, frequency management, and regulatory structure in this context?

• What are the consequences of new technologies on the feasibility of the open/extending access models doctrine?

**Detailed List of Deliverables**

Overall, the study will not focus on discussing broadband but on new, mostly Internet-based technologies, and their influence on ICT/telecommunication regulations.

The study will consist of three parts that deal with the following topics:
I. Technological Trends

Before explaining how technologies and technological development has an impact on the process of regulation, the technological-functionality of old and new technologies used to provide services will be explained. Thus, this part will introduce the most general terms as they are necessary to describe and understand new technologies. It will provide explanation on how new technologies operate and work, how they are deployed and how they are being used.

A particular effort will be made to identify the technologies that are likely to challenge main regulatory issues—such as interconnection, licensing, price regulation, spectrum management, numbering, content and security issues, and universal service obligations—and that are likely to be a challenge to the current regulatory paradigm overall.

As an example this module could include the following list of content. The selected consultants will determine the actual table of contents in discussion with infoDev and ITU.

a. Which New Technologies are we talking about?
   i. Definition and short description of relevant technology
   ii. Measuring the impact of technology on economic model and demand

b. Trends
   i. Voice becomes data
   ii. From circuit switching to packet switching
   iii. Intelligence at the core or at the edge of a network
   iv. Narrowband versus broadband
   v. From wired to wireless
   vi. Proprietary technologies vs. converged technologies, markets and services

II. Impact on the different regulatory issues

This part will lay out good practice in regulation under the impact of new technologies and the related problems and implications. As an example, new technologies, such as VoIP, allow consumers to make phone calls through an internet connection, largely bypassing traditional circuit-switched wire line telephone networks. How would an effective regulatory policy address this issue? The study will showcase examples/case studies of new technologies having been successfully integrated into regulatory frameworks.

By default, the consultant will explore the impact of new technology on the following regulatory themes. The following indicative list of themes/table of contents is meant to illustrate the scope and complexity of the present study. Other regulatory issues such as numbering, quality of service, security issues, and anti-competitive issues will also be considered by the consultants’ note/approach paper as part of the submission of the EoI. The final table of contents will be determined by discussions between infoDev, ITU, and the selected consultants.
a. Market Structure and Tariff Regulation  
   i. From vertically integrated markets to horizontally integrated markets  
   ii. New market entry barriers  
   iii. New market structure: from monopoly/duopoly structure to oligopoly  
   iv. Impacts on cost structure and tariff regulation

b. Interconnection  
   i. Which interconnection regime for new technologies  
   ii. Peering, RPP, CPP, Bill and Keep…  
   iii. Unbundling of network elements  
   iv. Interconnection pricing, costing and charging arrangement

c. (Re) Licensing  
   i. Licensing versus re-licensing  
   ii. From vertical to horizontal and unified licenses  
   iii. Re-licensing: when to make new technologies re-licensing necessary?  
   iv. Key obligations in granting new or renewal licenses.

d. Universal Service Obligation  
   i. Universal access, market failure and development gaps  
   ii. USO funding approaches in new technological context  
   iii. Managing the funding of USO in a convergence context

e. Spectrum management  
   i. Spectrum as shared versus dedicated resource  
   ii. How convergence is changing the idea of scarcity?  
   iii. Unlicensed free spectrum

f. Legal and Institutional Framework  
   i. Innovation, convergence, proliferation of operators and globalization  
   ii. The structure of regulatory institutions  
   iii. Competition policy versus regulation

III. The new regulatory paradigm: Integrative part

This chapter will be partly dedicated to describing the main pillars of a new regulatory paradigm that new technologies would entail for regulatory authorities. In addition, and as an integrative effort, this chapter will discuss the foundations of a new regulatory framework in a world of technological convergence.

The study will recoup the themes from the aforementioned table of contents and will incorporate them in a systematical, analytical framework. This framework will define the boundaries of regulation; the consultants will describe and propose to regulators on how to effectively operate inside the framework in order to ensure successful ICT/telecommunications regulation in the context of convergence, and in order to ensure a level playing field for operators.
The study will identify and formulate several key pillars likely to integrate all the issues raised in the previous parts. As an example, the following themes may be considered:

- Horizontal versus vertical regulatory layers;
- Opportunities for developing countries to leapfrog technologies and regulatory practices;
- Impacts of convergence on regulatory policy options;
- Challenge to main economic concepts: natural monopoly, market failure, public-private partnerships,

2. **Second Deliverable – Merging the Study into a Web-Based Product (ICT Regulatory Toolkit)**

The aforementioned study, in addition to its own value as a knowledge resource, will also generate knowledge for and feed into the development of the toolkit-module. However, the toolkit-module itself is considered an independent product to the extent that it will offer a number of features and additional content which is not covered by the study. The module will offer (a) core documents; (b) secondary documents; (c) practice notes and (d) reference documents. Especially the latter two will be derived from and linked to the intellectual framework that is set by the study, but will clearly present additional material that is beyond the study’s scope of work.

As described further in section three below, infoDev has already developed a standard format for modules of the ICT regulatory toolkit and the consultants will be expected to develop content according to this format. The consultants will use the standard model for the web-based toolkit already developed by infoDev (as exemplified in the existing licensing module – please see III. Resources). In preparing the web-based module, the consultants will work closely both with infoDev and the web-design firm commissioned by infoDev to develop the common information architecture, look & feel and functionalities of all toolkit modules.

To this end, the selected consultant will:

- Develop the web-based module based on the aforementioned study;
- Develop logical content/theme linkages and references between the different modules and between the different parts within each module where appropriate;
- Use extensive developing country examples and case studies, while balancing the choice of country and regional examples to provide a global overview of ICT/telecommunication regulation best practices that reflects a range of country and regional perspectives;
- Communicate progress regularly with relevant infoDev staff and adapt the module according to input from infoDev, ITU, and the WBG Steering Committee. An infoDev task manager with in-depth knowledge of the module’s subject matter is assigned to ensure close cooperation with the selected consultant;
- Conduct several review meetings with infoDev, taking into account comments, suggestions, and feedback offered on form and substance during the review meetings;
- Present the findings of the study as a set of four different document formats for the online-ICT regulatory toolkit:
o Core Document – The core document is a revised and abridged version of the main module. It will provide a high level summary of the process and issues related to policy aspects of regulation and will serve as the framework for the online content from which more detailed information will be hyperlinked.

o “Secondary” Documents – Secondary documents will open as separate pages on the website, hyperlinked from the core document or other content. These secondary documents will contain more detailed discussion or examples of issues (in text and graphical format) than that contained in the core document. Some of the content will come from text boxes, tables and more detail-oriented sections of the module in question.

o Practice Notes – Practice notes will also open as separate web pages. Practice notes are short Case Studies summarizing for the reader good practices and international experience. Practice notes will provide summaries, context and practical advice regarding reference documents and other content. They will often be intermediary steps to reading reference documents. For example, in the licensing module, by clicking a link to a certain telecommunications licence, the reader may first be guided to a practice note that describes the licence, and that gives background, context and practical advice on its use.

o Reference Documents – Reference documents will contain documents and other data selected by the consultants and WBG advisors as representative of good practices and precedents dealing with the module’s main theme.

- The selected consultant will be provided with detailed information on the methodology upon beginning the work. The types of documents will be hyperlinked to a database that provides precedents, practical examples, and commentary on the practices and issues discussed. Final decisions about where such a database will be maintained, by whom, with what criteria to screen content for inclusion, how quality is maintained and related technical and quality control issues will be decided by infoDev in consultation with ITU and the WBG steering group.

- The selected Consultants will co-ordinate with infoDev in developing the module format, look and feel; and with infoDev’s web designers to produce the web-based product.

- infoDev will also oversee and manage relationships with various regulators providing intellectual input, reference documents and case studies related to the different modules of the toolkit.

The toolkit will also be published in CD-ROM and paper form, and it is expected that most of the material produced will be used for training and capacity building.
Third deliverable - Developing Training Materials and Review Workshops

In order to facilitate the dissemination of the results of the work, the consultant will provide a training module with detailed comments and explanations.

The training module will be integrated in a generic powerpoint presentation format to be used by infoDev and ITU staff to disseminate and organize full propagation of the study results.

The consultant will prepare draft versions of each component of the study for review and discussion. The assessment process will be organized through several review meetings. ITU may participate in such review meetings by virtual or video conference.

Composition of the Steering Committee and details in the organization of review meetings will be proposed to the Consultant at the beginning of the assignment.

C. ORGANIZATION OF WORK

Resources

Generally, the selected consultants are expected to identify all resources (papers, books etc.) necessary for completion of the work. However, several infoDev and ITU products are specifically important as reference points for developing the final products and it is expected that the selected consultants will make use of the following to develop the content of the toolkit-module.

- *The Telecommunications Regulations Handbook* (2000). The original Handbook (Telecommunications Regulations Handbook) was published in 2000 and has since been translated to six languages and has been distributed by ITU and infoDev. It has become a world renowned, standard reference book for regulators and an indispensable training tool for their new personnel. It consists of six chapters: (a) An overview of regulation, (b) licensing, (c) price regulation, (d) interconnection, (e) competition and (f) universal service. The Handbook is one of infoDev’s most successful products, and was used in several capacity-building events. The deliverables defined in this EoI will have strong resemblance to the content, methodology, and design of the handbook; however, they will offer new and updated content and explore more profoundly the impact of new technologies on regulation. Overall, the toolkit module will present a clear evolution from the Handbook.

- *The Pilot Module on Licensing (Module 2.) of the ICT Regulatory Toolkit* (2004). infoDev and ITU commissioned the development of a pilot module on licensing (previous Chapter 2 in original telecommunications handbook) according to the methodology and objectives of the new ICT Regulatory Toolkit. This pilot module is to demonstrate the core functionality of the new ICT Regulatory Toolkit and consists of five sections describing the background, policy, and legal context of telecommunications licensing, types of licensing and authorization regimes, and the practices and procedures used in various countries. The module includes boxes, figures, and tables that illustrate licensing
processes in various countries and regional groups, including a checklist of contents of typical licenses. The Licensing module is a complete revamp of the former Telecommunications Handbook’s Chapter two. Access will be provided to the selected firm.

- **ITU Annual Regulatory Survey Database.** The Regulatory Reform Unit of ITU conducts an annual regulatory survey of its membership. The survey poses questions dealing with a range of regulatory issues such as appeals processes and the state of competition in markets. Access to information on the database will be provided to the selected firm.


- [http://www.itu.int/md/meetingdoc.asp?lang=e&type=sfolders&parent=D02-SG02-C](http://www.itu.int/md/meetingdoc.asp?lang=e&type=sfolders&parent=D02-SG02-C)

**Timing**

The assignment is expected to be completed within 28 weeks of commencement. The assignment is expected to require a level of effort of approximately eight person-months to be completed within the available lump-sum budget of US$195,000.00 which includes all fees, travel, and expenses, etc. The project funds will be disbursed in five tranches. The release of each tranche will be further conditioned upon infoDev being satisfied with each of the deliverables before proceeding to the next.

**Conduct of the Assignment**

In undertaking this assignment, the consultants will work under the general direction of the task supervisor from infoDev. The consultants will take the lead and will be directly responsible for all tasks, while the task supervisor will be closely involved in reviewing reports and providing guidance as necessary. Final decisions will be made by infoDev in consultation with ITU and the WBG steering group.

**Consultant qualifications**

Consultants with a proven record in the following areas of knowledge will be considered:

- Expertise on issues new technologies, regulation, interconnection, price regulation, and competition policy and regulation.

- Understanding on the overall issues related to ICT/telecommunication regulation, law, and economics.

- First class research capacity and ability to develop the Toolkit based on the content and methodology of the previous work done by infoDev and ITU.
International experience in developing countries, particularly in the area of ICT/telecommunication reform.

Reputation and expertise in the field amounting to 5-10 years of experience.

**Timeline and Deliverables**

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<tr>
<th>Tranche</th>
<th>Deliverable</th>
<th>Indicative Due Date</th>
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<tbody>
<tr>
<td>Tranche 1 (10%) (US$19,500)</td>
<td>The first tranche will be paid by infoDev to enable the consultant to start developing the Study</td>
<td>Mid of June 2005</td>
</tr>
<tr>
<td>Tranche 2 (20%) (US$39,000)</td>
<td>Workshop/Presentation: First Draft of The Study and a Toolkit blueprint as well as proposed, additional content materials for the toolkit.</td>
<td>Mid of July 2005</td>
</tr>
<tr>
<td>Tranche 3 (20%) (US$39,000)</td>
<td>Workshop/Presentation: Final draft of the study submitted to infoDev for review</td>
<td>End of August 2005</td>
</tr>
<tr>
<td>Tranche 4 (20%) (US$39,000)</td>
<td>Workshop/Presentation: Final Version of the study and the module of the toolkit to infoDev. Presentation of Draft Training/Presentation Material.</td>
<td>End of September 2005</td>
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<td>Presentation of Study and Toolkit at WSIS. Integrate final comments on toolkit as derived from WSIS.</td>
<td>End of November 2005</td>
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<tr>
<td>Tranche 5 (30%) (US$58,500)</td>
<td>Presentation of Final Study, Toolkit and Training Material</td>
<td>End of December 2005</td>
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