Caribbean Economics and Financing Workshop

Trends and Developments in the Caribbean Communications Sector: Prospects, Financing and Economic Issues

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ICT Infrastructure and Economic Growth

- ICT diffusion matters when it comes to stimulating economic growth: but it cannot happen without infrastructure; and for that to happen, funds must be made available for investment.

- There exist two sources for funds:
  - the public sector, but it suffers from a shortage of funds, and
  - the private sector, but it is risk adverse.

- For developing countries with inadequate funds, the result has been infrastructural underinvestment, which has been compounded by risk associated with poor governance, or absence of regulation.

- The good news is that infrastructural investment risk is now lower than it has been historically. This is so because of
  - technology cost deflation;
  - mobile operator consolidation;
  - high profit margins in developing countries;
  - managed deals where risk is offloaded onto OEMs; and
  - enormous unmet demand.

- ICT is a driver of economic growth: though how quickly and by how much remains the subject of much debate; the World Bank estimates that 1% growth in GDP requires an investment of 1% of GDP in energy, transportation, communications, water and sanitation infrastructures.

- Regardless of the debate, the fact remains that the world economy is becoming an ICT-based economy and the countries that do not participate will lose out.

- Hence, the promulgation of ICT strategies and the facilitation of inward investments is crucial for the attainment and maintenance of long-term economic growth objectives.

- Why does communications growth matter so much? Simply put: communications investments boost productivity. Countries with policies creating barriers to ICT investments lose out.

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Impact of Infrastructure Investments on Productivity and Growth (Telecommunications, Water/Sanitation, Electricity, Transport)

Area Studies	Number of Studies	Percent Positive Effect	Percent Little Effect	Percent Negative Effect
Multiple Countries	30	40	50	10
USA	41	41	54	5
Developing Countries	12	100	0	0
Total/ Average	83	49	45	6

ICT Investments Boost Productivity

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- Because ICT can boost productivity, its effect, or the absence of it, is felt across the economy. This is so because communications
  - reduce transaction costs by rationalizing the flow of information;
  - move information more efficiently, and
  - interconnect the national with the global economy.

- World Bank research shows that a 1% increase in phone lines per worker increases GDP growth by 0.19%.

- To promote ICT investments, the reform of the telecommunications sector is essential since it is the underpinning of ICT diffusion.

- This connection should not come as a surprise since the problem of low growth in infrastructure industry output and investment for developing countries is well documented.

Components of Sector Reform

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- Reform requires good regulation and good governance to become an effective catalyst for accelerated ICT investments; and hence ICT diffusion.
- Reform also needs to include changes in industry structure, ownership and behavior.
- Reform requires that a regulatory body is established prior to sector reform in order to set the conditions for sector participation; and that body needs to be independent.
- Reform requires laws to be promulgated that limit vertical and horizontal ownership.
- Reform requires policymakers to realize that sector reform needs also the legal foundation that provides security to investors who are needed to fill the investment gap between government ability to fund infrastructures and the demand therefore.

Components of Sector Reform

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- Reform drivers differ for developed and developing countries:
  - In developed countries the principal aim is to improve the economic and financial performance of technically reliable systems.
  - In developing countries it is the reduction of subsidies, the need to improve quality service and expand service coverage that matter.

- Reform needs to address the incentive problem where cost levels and service quality are of lower priority than employment and fiscal considerations. In fact, prices are intended to generate revenue for government rather than reflect cost.

- Reform needs to curb the incumbent operator's market power and to prevent regulatory "capture" where regulation can become a vehicle not for maximizing consumer welfare, but to protect the firm's monopoly and profits.

- Hence, regulation in the post-reform era becomes an important component of competition policy in the context of telecommunications.

Components of Sector Reform

- The principles of “good” regulation are transparency, accountability, proportionality, consistency and targeting.

- The objectives of “good” regulation are designed to
  - increase efficiency and quality of service;
  - reduce operating and investment costs;
  - reduce prices to final consumers;
  - enforce competition policy goals;
  - prevent market abuse; and
  - maintain universal service obligations.

- “Good” regulation is beneficial in providing higher investment and larger revenues from privatization, as well as better services at lower prices to consumers.

- A World Bank sample of 185 countries found that
  - a separate regulator is positively associated with the number of mobile subscribers;
  - a regulator installed before privatization is positively associated with investment.

Components of Sector Reform

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- It is not only a question of implementing “good” regulation, it is also important to find a balance between regulatory oversight and laissez-faire.

- Excessive regulation affects IP communications (i.e Internet/VoIP).
  - Authoritarian governments worry about the effects of free access to information; hence, they tend to restrict access.
  - Governments per se worry about the effects of IP on incumbent operators; hence they have imposed regulation, which is designed to suppress access.

- In either of these cases, IP regulation is not intended to correct market failures, but is consistent with a regulatory “capture”.

- In the Internet domain, World Bank research has shown that the requirement for formal approval for ISP operations and price regulation correlated with higher prices and lower penetration.

Affects of Sector Reform

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- A World Bank study concluded that regulation per se tends to reduce growth.
  - If a country's overall regulatory index was increased by one standard deviation in the cross-country sample (0.13) and its level of governance is equal to the world median (0.44), then the annual rate of per capita GDP growth would decrease by 0.4 percentage points.
  - If a developing country were to decrease its product market regulation to the median level of industrial countries - that is, from 0.51 to 0.17 - while maintaining the level of governance equal to the median developing countries' 0.37 level, then its annual growth rate would rise by about 1.3 percentage points.

- The quality of regulation makes a big difference. In most instances, the World Bank study finds that better institutions help mitigate, and even eliminate, the adverse impact of regulation on macroeconomic performance.

- Most importantly, the World Bank study found that the burden of regulation appear systematically related to countries' level of development. Taxes are most heavily regulated in developed countries, while in all other areas developing countries show the harshest regulatory environment.

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Caribbean Headcount Statistics

	2005	2006	2007	2012
Population (000)	37300	37700	38200	40600
Wireless Subscribers (000)	12400	13800	15400	23000
Wireless Penetration	35.1%	36.6%	40.3%	56.6%
Wireline Subscribers (000)	4800	5000	5150	6100
Wireline Penetration	12.9%	13.3%	13.5%	15.0%

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Caribbean Headcount Statistics

	2005	2006	2007	2012
Population (000)	37300	37700	38200	40600
PCs (000)	3100	3550	4000	5800
PC Penetration	8.4%	9.4%	10.4%	14.3%
Internet Users (000)	4500	5600	8100	13700
Internet Penetration	12.1%	14.9%	21.2%	33.7%

Caribbean Telecommunications Investments

	2005	2006	2007	2012
Population (000)	37300	37700	38200	40600
CAPEX $M	1975	2085	2200	2700
CAPEX / Subscribers $	1317	1363	1326	981
CAPEX / Population $	53	56	58	67
CAPEX / GDP	1.2%	1.2%	1.2%	1.0%

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Telecommunications Investments Comparison

	2005	2006	2007	2012
Asia CAPEX/ GDP	0.8%	0.8%	0.7%	0.7%
Europe CAPEX/ GDP	0.6%	0.6%	0.6%	0.6%
North America CAPEX/ GDP	0.3%	0.3%	0.2%	0.2%
Americas CAPEX/ GDP	0.7%	0.7%	0.7%	0.7%
Africa CAPEX/ GDP	0.8%	0.8%	0.9%	1.2%

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Worldwide Headcount Statistics: Wireline Penetration

	2005	2006	2007	2012
Asia	15.7%	17.1%	18.6%	28.4%
Europe	41.5%	42.4%	43.4%	47.9%
North America	60.7%	60.0%	60.3%	60.8%
Americas	19.3%	20.1%	21.7%	28.8%
Africa	3.1%	3.3%	3.4%	4.1%

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Worldwide Headcount Statistics: Wireless Penetration

	2005	2006	2007	2012
Asia	23.3%	28.8%	35.2%	58.0%
Europe	85.0%	86.9%	89.4%	114.8%
North America	67.6%	71.4%	76.4%	95.0%
Americas	63.1%	65.0%	71.4%	73.0%
Africa	15.2%	20.6%	22.8%	39.4%

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Worldwide Headcount Statistics: PC Penetration

	2005	2006	2007	2012
Asia	7.4%	8.1%	8.9%	12.1%
Europe	33.5%	36.1%	38.8%	50.3%
North America	86.3%	87.0%	90.0%	94.0%
Americas	11.4%	12.6%	13.7%	18.3%
Africa	7.4%	8.1%	8.9%	12.1%

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Worldwide Headcount Statistics: Internet Users Penetration

	2005	2006	2007	2012
Asia	10.8%	12.9%	15.0%	26.9%
Europe	34.1%	39.1%	43.9%	68.5%
North America	68.7%	73.4%	77.5%	94.3%
Americas	14.1%	16.5%	18.8%	30.5%
Africa	4.4%	5.6%	7.1%	17.7%

Impact of Convergence on Stakeholders

- Merger of wireline/wireless communications with IP communications will make possible voice, data and video convergence. Are operators ready to meet the challenge by scale up?

- For developing country operators this means cheap “bucket” pricing for converged communications because it will allow these countries to leapfrog from the voice age into the information age; hence erasing the digital divide. Will governments stand in the way, or allow it to happen?

- Convergence means companies that used to be in separate industries – wireline/wireless operators, ISPs and cable-TV firms – now find themselves in the same business. Is strategic re-think by operators and OEMs possible?

Impact of Convergence on Stakeholders

- Telecommunications is in the midst of a transformational makeover: IP networks are taking over, while PSTNs are moribund.

- The transformation is more significant than a mere circuit-to-packet transformation. IP networks
  - are designed and operated, from the bottom up rather than from the top down;
  - are controlled from the periphery with intelligence at the edge, not at the core; and
  - allow separate voice, video and data streams to be merge onto one network.

- IP technology is therefore unhinging established conventions for network engineering, service provisioning and sector regulation, while at the same time dramatically changing business processes and social interaction, and stakeholder risk.

Impact of Convergence on Stakeholders

- For operators, voice revenue declines are irreversible:
  - Wireline operators must increase IP investments to keep cost reductions ahead of revenue declines until new revenue sources can be found.
  - Wireless operators need to find a compelling 3G value proposition beyond “bucket” voice to erase price deflation.

- For OEMs this means to come to terms with the fact that equipment is less and less equipment and more and more software and services.

- For regulators this means regulating less while increasing competition enforcement and drawing up new rules for a converged world.

- For governments this means the risk of losing billions of dollars in taxes when operators move their voice traffic to IP networks.

Benefits of Convergence for Developing Countries

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- For developing countries the news is not all bad:
  - IP technology provides an opportunity to build networks cheaper;
  - IP is a more efficient way of providing fixed, mobile, Internet, broadband services.
  - IP permits scaling up from voice to converged services.
  - IP will bridge the “digital divide” between rich and poor countries.

- IP networks cost less to build: hence, reducing investment and governance risk, and as a result raising FDI inflows.

- What is worrying is that IP networks boost productivity less in developing countries than in developed countries.

- This is the result of a paradox: at a time when the “digital” divide between rich and poor countries is narrowing it is increasing within poor countries because of unequal adoption levels due to a skewed wealth distribution.

Operator Convergence Dilemma

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- With IP technology voice service becomes an Internet application it uncouples the intertwined components of access and service. It is this uncoupling that makes IP communications such an explosive service paradigm.

- IP communications *per se* represents not a new service, but rather a replacement of existing services; hence, it is not a new revenue stream but is instead a replacement service, at lower cost, but with significantly lower margins.

- This is the operator dilemma and is the key point in understanding not only the market potential but also the competitive landscape.

- The demise of traditional telephone service can be charted by looking at:
  - the proportion of call traffic carried using VoIP technology, which already exceeds 50 percent and seems to be heading towards 100 percent; and
  - the cost per call minute, which appears to be heading inexorably downwards, and perhaps even to zero.

Operator Convergence Dilemma

- Operators must find new sources of revenue to replace declining voice revenue and to justify investments into IP networks: hence, the headlong rush into VoD.

- Is VoD another collective delusion like the earlier fiber-build-out and 3G mania, or does convergence onto IP networks have merit?

- The technical challenge appears manageable because
  - investments into IP networks to increase bandwidth are already underway; and
  - the technology is well understood and cuts costs.

- But will it work? For now, customer demand is still unclear and the technology is still immature. Yet at the same time, operators have little choice but to place their bets, and for now that bet is on VoD.

Operator Convergence Dilemma

- Convergence is likely to mean that in the future customers will pay for phone access but not for individual calls as IP erases both the distinctions between voice, data and video, as well as the distinction between time and distance.

- High hopes exist that convergence will open up new markets, but that seems unlikely. It can cut operating costs, but IP technology also erodes revenues from traditional fixed-line telephony, and new revenues from VoD will not fill the gap for some time, if ever.

- Even if VoD revenues materialize, can operators make money with VoD (i.e IPTV)?
  - First, content costs limit profits even if network costs are covered by other services.
  - Second, content costs largely scale with subscribers which include minimum payments and scaled revenue share payments based on subscribers.
  - Third, operators face an uphill battle convincing media companies to sell content cheaper than they do for platforms with more subscribers, such as cable-TV operators.

- Strategic re-think for stakeholders is a necessity for the IP communications environment since no region can isolate itself from global interconnection and transformational technology change.

  - Regulators will have little option but to regulate.
  - Governments will lose a large slices of tax revenues but need to get out of the way if they want to capture the benefits of ICT generated economic growth
  - Wireline operators need to find new sources of revenues while cutting costs.
  - Wireless operators need to find a value proposition for subscribers outside “bucket” priced voice.
  - OEMs need to move from hardware sales into managed service provisioning and software licensing since cost deflation will continue.
  - Consumers will benefit from improved service provisioning and lower pricing options.