

# **Institutional Requirements for Second-Generation Infrastructure Reform: Processes and Performance in Developing Countries<sup>1</sup>**

**By Sanford Berg**

Distinguished Service Professor  
Director of Water Studies, Public Utility Research Center

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## *Abstract*

*Preventing regulatory ossification may require second-generation reforms that involve fine-tuning procedures and methodologies, or major organizational restructuring may be necessary. Clearly, the changes should not be too disruptive since that would affect the ability of regulators to make credible future, long-term commitments. Part of the second-generation reform process involves revisiting performance objectives. If visions are not grounded in reality, rhetoric rules the day, ultimately leading to disappointment and to a possible denial of legitimacy. A record of accomplishment yields broad-based support for industry and for government. Conversely, if the regulatory commission has promised improvements in service quality yet reliability has deteriorated, performance does not match the promise. However, there are several potential explanations to poor performance. First, the stated objectives may have been unreasonable given other constraints (such as the political pressures to keep prices below cost). Second, managers may be inept and have wasted opportunities to improve quality. Third, the regulatory policies may have involved poor incentives. Whatever the reason for coming up short, stakeholders now can begin playing the “Blame Game.” Recognition of the institutional, economic, and political forces affecting the performance of regulators and of suppliers underscores the importance of having realistic objectives for infrastructure sectors.*

The life cycle of a regulatory commission has been characterized as having four stages: infancy, youth, maturity, and “old age” (Bernstein, 1955). There is no standard duration for these phases. However, to counter the possible ossification of regulatory institutions, early activities of new (infant) commissions are often followed by second-generation reforms.

At different stages of the regulatory life cycle, the agency leadership and professional staff make decisions that either promote or discourage infrastructure investment. This paper describes the constellation of factors affecting infrastructure performance—

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<sup>1</sup> This paper is a revised and updated version of a paper presented at the Australian Consumer and Competition Conference on Regulation and Competition (July 2002). The dramatic expansion of studies on infrastructure issues in emerging markets has resulted in a number of extensions and significant revisions to the original paper.

particularly at the second stage of the regulatory process. Each stage presents its own set of threats and opportunities. A newly born agency is somewhat fragile, as the new agency establishes its place among other institutions at the national and state level. For sector regulatory commissions, infancy is a period of learning the ropes and creating an organizational culture that supports its public mandate.

New studies appear on a regular basis.<sup>2</sup> Recently, two books have surveyed infrastructure reform in emerging markets: *Reforming Infrastructure: Privatization, Regulation and Competition* by Kessides (2004) and *Handbook for Evaluating Infrastructure Regulatory Systems* by Brown, Stern and Tenenbaum (2006). Kessides describes effective regulatory systems as necessary but not sufficient for improved sector performance. He compares policy strategies applied to different sectors in regions of the world, noting how characteristics of these network industries affect the feasibility of liberalization and private participation. The second volume provides templates (and supporting principles) for evaluating regulatory processes and performance. There are a number of checklists that identify best practice—in terms of the design of regulatory agencies. However, the *Handbook for Evaluating Infrastructure Regulatory Systems* goes beyond the “how” of regulation to consider regulatory substance, the “what” of regulation. The formal elements (laws, institutions and procedures) provide clues as to how an agency is likely to respond to sector developments, but the decisions of regulators represent the “output” of agencies. The resulting incentives have significant impacts on sector performance.

The handbook identifies three meta-principles that can be used for evaluating regulatory process: credibility, legitimacy, and transparency. A key indicator for social and economic impacts would be sector efficiency: if policy can create positive-sum games, then it is easier to get buy-in from stakeholders for reform initiatives. Greater efficiency in the sector means that more resources can be devoted to poverty alleviation without creating new fiscal burdens. While more politicians have run on platforms of fairness than efficiency, the latter deserves to be highlighted when evaluating regulatory performance.

### **Beyond Infancy: Moving Towards Mature Regulatory Systems**

When a regulatory commission moves past the “infancy” stage, it enters a youthful stage, characterized by self-awareness and a thirst for new approaches to solving problems. If the agency has had a successful initial growth period, it might enter the next stage with youthful confidence—possibly even cockiness. To avoid pitfalls requires equal doses of humility and technical proficiency. Stakeholders are watching how the agency navigates the next stage of development. Some have an interest in seeing the youngster fail, but most on-lookers have a stake in an agency that addresses issues with a high degree of professionalism: where improved sector performance is its primary goal.

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<sup>2</sup> For a survey of the regulatory literature, see [www.regulationbodyofknowledge.org](http://www.regulationbodyofknowledge.org). The Web site includes a Glossary of Terms, Annotated Reading List, and Tests that can be used to cover the basics of regulatory policies. Scholars at the University of Florida, Public Utility Research Center (PURC), Pacifica Universidad Catolica del Peru, and the University of Toulouse collaborated in the creation of the initial material which was subsequently turned into a hyperlinked learning system.

The external environment is changing as well. Industry participants are revising their strategies in response to rules established by the agency. They understand the importance of two factors: governance (agency design and processes) and regulatory policies (or incentives). Generally, both factors are a matter of public record by this stage of the regulatory cycle, so the fundamental problem is to demonstrate to stakeholders that those processes and policies support the objectives laid forth in the law and the agency's own documents. Internal reviews and external communications are two activities that one can expect in the youth phase of a regulatory commission.

This new stage of the regulatory cycle raises some issues. Perhaps the greatest danger of the youth stage is that the benefits of long-term investments are given less weight than actions that can increase today's approval rating of the agency. In addition, if the internal reviews lead to new priorities and regulatory strategies, then stakeholders need to be made aware of the changes. If stakeholders find out indirectly, the investors and consumers are likely to find the resulting surprise disturbing. Past decisions often represent precedents that anchor change and thus make the outcomes of price reviews more predictable. "The problem with such anchoring is that it can prove dysfunctional in the next phase [maturity] . . ." (Berg, 2000, p. 168).

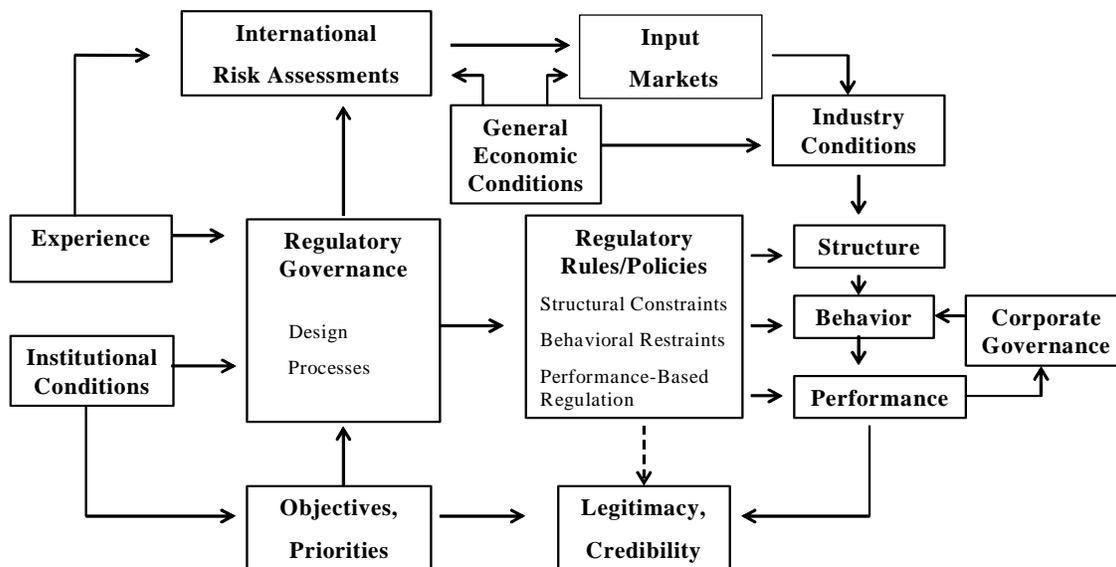
Except for agency governance and policies creating incentives, most factors affecting network industry performance are outside the regulatory domain, but these factors both influence and are influenced by regulation. Ultimately, the legitimacy and credibility of the regulatory system depend on how closely sector performance matches realistic national objectives.

### **The Regulatory Environment**

Government policymakers often formulate network infrastructure objectives; however, policymakers do not act unilaterally. Competition and regulatory commissions reporting to policymakers establish the necessary conditions for network expansion and improved operating efficiencies. For example, regulators provide incentives through tariff structures and create benchmarks via yardstick comparisons. Both influence a utility's behavior and, ultimately, industry performance. Like policymakers, regulators do not operate in a vacuum. For example, politicians will wish to protect energy producers in their own regions while simultaneously promising citizens lower prices. Spectrum auctions and access to essential facilities are two policies affecting entry conditions in telecommunications. Similarly, rules and regulations promulgated by environmental agencies affect allocative efficiency in that sector (as do determinations by watershed managers on access to raw water supply). Ultimately, responses by public and private investors may precipitate changes in regulatory governance and incentives.

Although it may be overly simplistic, Figure 1 depicts the circular dynamics of the larger decision-making environment in which government policymakers, regulatory commissions, investors, and firms operate and interact.

Figure 1. Factors Affecting Sector Performance and Regulatory Credibility



### Government Objectives and Priorities

During the infancy phase, government policymakers identify objectives and set priorities for infrastructure industries, ideally with citizen input.<sup>3</sup> Policymakers could rank objectives based on surveys that capture citizens’ priorities. Although elections represent a “voter survey,” sector issues are bundled into party platforms or into the priorities of individual candidates. Election outcomes may not mesh with how citizens prioritize performance objectives. Most people have witnessed serious “disconnects” between citizen preferences and government policies. However, infrastructure sector issues seldom drive election outcomes.

From the standpoint of initiatives in the second stage of the regulatory life cycle, it is unlikely that either the government or its agents at competition or regulatory commissions will be very precise regarding the prioritization of objectives. Since outcomes are the result of exogenous factors as well as regulatory policies, those articulating and implementing broad sector policies may not wish to meet quantifiable objectives. *Berg’s Law* would seem to apply; it states: “Given that mistakes will be made, decision-makers will try to make mistakes that are difficult to detect.”<sup>4</sup> Any report card for sector performance and for the regulatory process is likely to be qualitative rather than quantitative in nature. Furthermore, decision-makers probably will be selective in the choice of performance indicators, so they can claim success whatever the outcome.

<sup>3</sup> Jordana and Levi-Faur (2005) explore the factors influencing the creation of regulatory agencies within a nation and across nations. The current paper takes the establishment of a sector regulator as given and considers how processes, rulings, and sector performance create pressures for further reform.

<sup>4</sup> The author first presented this law at the Bureau of Industry Economics Infrastructure Policy Forum—1995 in Canberra (Berg, 1996, p. 101). The “law” remains relevant for decision-makers at all levels: from parents to presidents.

Thus, the starting point for reviewing performance involves revisiting the objectives. The objectives represent a social consensus regarding what is possible and what is desirable. If the Youthful Phase of the regulatory life cycle results in a lack of citizen trust in the regulatory process, the consequences are significant for the long term. The system will not be sustainable without legitimacy.

## **Regulatory Governance**

Government agencies are often created in the context of a crisis or changed perceptions regarding the status quo. However, it is naive to think that a new government agency will *solve* the problems that precipitated its creation. Agencies are created to *manage* problems—to balance the interests of competing groups and gain citizens' confidence. A poorly conceived regulatory scheme will impede a government's realization of its objectives and priorities. Therefore, when creating a new regulatory or competition commission, policymakers should have given careful thought to regulatory governance in terms of both commission design and processes.

***Agency design.*** Agency design is established in the infancy stage. An agency's design relates to the clarity of its role in relation to other government institutions: specifically to the division of responsibility between the competition commission, the government ministry responsible for developing broad policies, other sector regulators, and agencies in other jurisdictions. If the roles of these entities are not clear, conflicts will result, and stakeholders will not be able to predict how policies will be implemented in the future. Stakeholders go "jurisdiction-shopping" to find the entity with interests more parallel to their own. The courts end up becoming policymakers as they select the pecking order that politicians were afraid to establish.

A regulatory commission's autonomy and accountability are interlocking design features. When regulatory commissions are vulnerable to political pressure, their credibility can be undermined. Political interference for short-term gains can threaten the credibility of existing commitments to suppliers and prospects for new investments. Despite the information asymmetry characterizing regulation, antitrust authorities and sector regulators are in a better position than politicians to analyze the long-term implications of alternative rules. So some deference is warranted.

***Regulatory process.*** Citizen participation, transparency, and predictability in decision-making characterize an effective regulatory process. Here, too, the broad features of the process will be in place at the start of the second stage of the regulatory cycle. As noted, citizen participation can help governments set priorities for infrastructure sectors, and citizens are more likely to accept regulatory decisions when there are formal mechanisms for their participation in regulatory decision-making. Some agencies even create citizen advisory councils to educate opinion leaders and obtain feedback regarding consumer perceptions. In addition, if the regulatory process is transparent and the public has access to commission reports, the commission will be less likely to promulgate arbitrary rules. Finally, the consistency

of decisions over time gives stakeholders, including investors, some confidence that facts and the law, not political pressures, form the basis of regulatory decisions.<sup>5</sup>

One issue faced when creating a regulatory agency is the amount of discretion: flexibility allows regulators to adapt to changing conditions. However, reliance on broad principles leads to unpredictability as regulators attempt to “balance” different considerations, including the political acceptability of decisions. The alternative is to have very precise rules (similar to contracts) that are known and agreed upon in advance. Sharp rules promote consistency over time, although if the system attempts to address every contingency, it can become very complex and (paradoxically) can create ambiguity in the way rules are actually implemented.

In addition, regulation is a mechanism for conflict resolution: though the introduction of a new agency also creates conflicts. Shabman (2005) has identified four types of conflicts (that can be applied to regulatory systems):

1. *Authority conflicts* (lack of clarity in roles and responsibilities or negative stances by entrenched government agencies that lose under the new regulatory arrangements)
2. *Cognitive conflicts* (disagreements regarding facts, historical developments, the current baseline, and analyses of particular policies)
3. *Value conflicts* (absence of consensus regarding priorities for sector objectives and weights given to process vs. outcomes)
4. *Interest conflicts* (where stakeholders have different or even diametrically opposed notions regarding the preferred industry structure, regulatory rules, and the desirability of sector benchmarking initiatives)

Studies and workshops organized by regulatory commissions can contribute to resolving the first three types of conflicts and can highlight the sources of the fourth. Ultimately, the political process addresses conflicts—in both transparent and non-transparent ways. Investors and citizens evaluate the conflict resolution process, as both give weight to lack of predictability and political uncertainty. Of course, the possibility of gaming the regulatory process creates the need for procedures that limit the success of such activities (Jamash, Nillesen, and Pollitt, 2004).

### **Investor Considerations**

By the start of the second stage of the cycle, regulators have a track record regarding dispute resolution and balancing the interests of various stakeholders. That record is reviewed by investment bankers and multilateral lending agencies. Before making long-term funding and technical commitments to infrastructure projects, investors consider certain factors, including the following:

***Institutional Conditions.*** Each country has a unique legal and cultural context. Institutional conditions include the strength and independence of the judicial

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<sup>5</sup> Green and Pardina (1999) provided an early manual for regulators on how to conduct rate reviews. The process has a significant impact on regulatory credibility.

system, the administrative capacity and expertise within government ministries, the nature and stability of political processes, and the nature and historic enforcement of property rights and laws governing policies for infrastructure development (Levy and Spiller, 1996). Clear legal authority for expansion plans is a crucial prerequisite for obtaining new investment. Lack of legal clarity can be a significant impediment to private investments in network industries.

***Risk Assessments.*** Because participants in financial markets face a wide array of investment opportunities, they tend to favor infrastructure projects in countries with predictable regulatory conditions. In making risk assessments of proposed network projects, they utilize information on country risk from a number of financial sources. As Figure 1 suggests, regulatory design and past policies affect investors' perceptions of risk (Berg, Jamison, and Holt, 2005).

***Economic Conditions and Input Markets.*** Whatever the stage of the regulatory cycle, investors' assessments of project risks are also affected by a country's economic conditions: these include the employment, savings, and inflation rates; the strength, stability, and diversity of the economy; the country's balance of trade; and the strength and stability of its capital markets. These conditions affect the markets, resources, and incentives that influence a utility's cost of doing business. Input markets also affect costs: entrepreneurial businesspeople, skilled labor, capital equipment, and natural resource abundance all affect the level and structure of network industry costs.

Most infrastructure sectors are highly capital-intensive and politically sensitive, which makes private financing difficult to secure unless the rules are predictable and well understood by managers. One indicator of sector performance is whether the right level and mix of investments occur. Both public and private investments may be required to create the infrastructure networks that are crucial for economic transformation. For example, municipal bonds represent one potential source of external funds. Without basic data on baselines, trends, and comparative performance in comparable countries, it is impossible to evaluate whether the current system of laws, regulations, and operating entities "delivers the goods."

To the extent that managers can curb input costs and obtain capital at lower rates, more resources become available to improve quality of service and expand supply networks. Benchmarking by regulators can put pressure on utility managers to identify and curb input costs. Moreover, competition in input markets can potentially reduce costs for both companies and consumers. The youth phase may involve experimentation with different incentives and different market structures—enabling policymakers in a country to better understand the complex links among the factors identified in Figure 1.

### **Basic Industry Conditions**

Figure 1 also suggests that economic conditions and input markets affect the conditions of utilities in terms of supply, demand, information, and ownership of assets. These

features are not affected by the stage of the regulatory life cycle: they represent the economic realities of infrastructure industries.

**Supply** is determined by input prices and available technologies. Technologies, along with other related factors, have implications for costs. Thus, policies that encourage innovation are more likely to improve performance than those requiring particular technologies. Policies at all stages of the regulatory life cycle should be technology-neutral—leaving both incumbents and potential entrants to select production techniques and service bundles. Historically (in the U.S.) there has been a tendency for regulatory agencies to protect incumbents from those offering new technologies in the mature phase of the cycle (e.g., railroads vs. trucking; broadcast vs. cable vs. satellite TV; wire line vs. cellular telephone).

**Demand** depends on the population, their preferences, user demographics, and household income. A high percentage of the population with low income also implies low willingness to pay. Given the importance of infrastructure services, a government may decide to subsidize some groups who otherwise could not afford one or more of those services. Clearly, targeted subsidies are better than general cross-subsidies that are neither sustainable nor equitable.

**Information** also affects market structure since managers have better information than national policymakers or regulators regarding demand patterns and the potential for cost containment. In the youth stage of the regulatory life cycle, regulators are in a position to use benchmarking to partly offset this information asymmetry. However, when designing incentives, they need to recognize that their information is still limited.

**Ownership** affects both number and size of firms, in conjunction with geographic and demographic conditions. Since public ownership has historically involved territorial (and vertically-integrated) monopolies, the youth stage of an agency becomes a time when relative efficiencies can be evaluated. Government regulation of government corporations can be contentious since the latter may argue that they already have adequate oversight. In some sectors, such as water, municipal or government ownership and operation characterizes many nations. In other sectors, such as telecommunications, private participation has emerged as a key driver promoting innovation and new services.

### **Effects of Regulatory Rules and Policies on Infrastructure**

Regulatory processes during the agency's infancy yield rules and policies that influence the structure and behavior of suppliers. These have implications for corporate governance (the internal operations of network firms).

**Market Structure** is clearly affected by regulatory rules governing entry of suppliers. High access prices for network interconnection can be an entry barrier. However, if prices are set too low, the incentive to invest in new capacity is diminished. In the

youth stage of the regulatory cycle, the agency is in a position to evaluate the impacts of past decisions—perhaps leading to revisions in rules.

**Corporate Behavior** is determined by regulatory policies governing price caps, reliability mandates, service quality standards, and network modernization requirements. Service to rural regions is likely to be more costly than service supplied to more densely-populated areas. Regulators set targets for network expansion, and other dimensions of service quality, including reliability. Thus, rules affect both corporate cash flows and cost of service. Although regulatory policies are often directed at constraining price levels and price structures, the presence of information asymmetries means that firms should be given the opportunity to propose plans that can be win-win in nature.<sup>6</sup>

**Industry Performance** is related to regulatory rules regarding how utilities and consumers will share the upside or downside returns on investment and to penalties imposed on utilities for missing targets for network expansion. Ultimately, politicians and consumers care that the country's infrastructure networks perform well. They care that prices are in line with costs and that appropriate innovations are adopted so that service is comparable to that in peer countries. If citizens are dissatisfied, governments may press for reforms. Often, reform efforts are precipitated by a crisis: some highly visible tragedy sets off calls for investigations and new approaches. Reform can also come about because of the cumulative effect of poor performance, where service quality is less than expected, excessively inefficient operations continue, or financial problems place an unsustainable drain on government resources—in the case of public enterprises.

**Corporate Governance** reflects the decision rights, implementation responsibilities, incentive programs, and auditing/reporting systems of publicly or privately owned organizations. In the U.S., citizens worry about the *enronization* of infrastructure: where the company had been allowed to write the rules, limit the umpire's role, play the game, and report the score to affected stakeholders. With the Enron debacle and the collapse of WorldCom, it became clear that investors (and citizens) cannot take manager-provided information for granted. Independent auditors have failed in their fiduciary responsibilities. Investors are hurt by lack of credible information, poor internal incentives for executives, and cozy relations among subsets of stakeholders. Perhaps the "Old Age" phase has set in for key U.S. regulatory institutions—from the Securities and Exchange Commission to the sector regulators. Corporate governance is a factor that deserves greater attention, though one should avoid medicine that is more lethal than the disease.

Other nations entering the youth phase of the regulatory cycle can learn from the mistakes of the U.S.—strengthening the corporate governance procedures and improving the information flows to citizens and government ministries (in the case of public

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<sup>6</sup> Komives, et al. (2005) surveyed rate design issues associated with water and electricity pricing. They find that untargeted subsidies characterize many price schedules: the poor generally do not benefit from these subsidies. Prices for hook-ups, monthly access, and consumption need to be carefully reviewed.

ownership) and to investors (in the case of private participation). The checks and balances within firms need to be reinforced by rules requiring information disclosure and penalties for preparing financial reports that mislead the public.

Recent problems in the U.S. seem to characterize infrastructure industries. U.S. experience with infrastructure investment provides at least three lessons<sup>7</sup>:

- Information, accountability, and incentives matter. Large projects with substantial sunk costs can result in opportunistic behavior by various stakeholder groups. Mergers based on economies of scope can enhance efficiency, but those driven by short-term financial considerations often benefit executives with inflated egos but harm shareholders. In addition, mergers reduce the number of comparators for benchmarking.
- Entrepreneurs, equity-owners, debt-holders, governments, and input suppliers have conflicting interests that often result in waste, theft, and significant wealth redistribution. Recent developments in the U.S. underscore the importance of financial accountability and strong corporate governance as complements to effective sector regulation.
- To avoid economic inefficiency and social inequity, the oversight agency must have an appropriate legal mandate, a shared set of operating principles reflecting national values, and a budget that enables the agency to perform the activities necessary to implement good incentives (Berg, 2000). In addition, the role of “regulator as educator” warrants continued emphasis in the second stage of the regulatory life cycle. An infant agency must explain its role to stakeholders to lay the foundations for legitimacy. During the youth phase, continued interaction is necessary to prioritize objectives and to explain the rationales for new initiatives.

While the U.S. has a track record of some regulatory successes, it has had significant lapses in the areas of regulatory design and corporate governance. The savings and loan scandals resulted in the losses of billions of dollars. Most recently, the California electricity crisis and the collapse of Enron, Global Crossing, and WorldCom suggest that energy and telecommunications present significant public policy problems even in mature developed economies. One can not know the extent to which these recent failures will reduce investor interest in infrastructure, although it seems that they will dampen

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<sup>7</sup>Consider one emerging nation’s experience with a network industry. Entrants into the sector devoted considerable managerial attention and financial support to shaping national policy towards the industry. Political contributions to regional and national legislators lead to governments helping firms attract international investment capital. However, corporate insiders gained at the expense of shareholders by padding construction contracts (from which they benefited). The entrepreneurs obtained great wealth, but the companies became debt-ridden and many finally fell into bankruptcy. Constructed using poor designs and materials, portions of new infrastructure networks needed to be rebuilt almost immediately. Bribery and corruption characterized the industry, as field supervisors and contractors misallocated resources to personal advantage. Where and when did these events occur? The answer: the United States, in the last half of the 1800s. The history of the U.S. transcontinental railroad reminds us that private and public fraud is not new to the development of network industries (Bain, 1999).

enthusiasm for network projects involving long time horizons that depend on sound corporate governance and on consistency in government policies. In the case of emerging markets, the costs of delayed and mismanaged investments will be significant. Investors face other opportunities: they will turn to regions of the world where the risks and rewards are more favorable. Australia is a potential beneficiary of such capital flows—assuming its policies are not anti-business.

Thus, the behavior and performance of firms depend on corporate governance. Regulatory policies can improve the situation by providing investors with some kinds of data that might otherwise be unavailable—via yardstick comparisons across firms and comprehensive reporting requirements. In retrospect, it is clear that government oversight in this area was severely lacking in the U.S. Perhaps politicians should have devoted more attention to designing agencies that could help owners and potential investors understand the actual performance of firms. Instead, politicians found the “blame game” to be a much more attractive way to spend time in the wake of the Arthur Andersen accounting debacle and the California energy “circus” (a.k.a. energy “crisis”).

### **Conclusion – Legitimacy and Credibility**

Infancy sets the stage for youth, which in turn lays the foundation for maturity. The framework presented in Figure 1 shapes organizational propensities. However, as with anything, nothing is predestined. Commissions can engage in structured self-examinations to gain insights for second-generation reforms. Purposeful change is possible and, generally, desirable. The consequences for economic growth can be considerable, according to a recent empirical study on telecommunications and energy:

The results suggest that the institutional capabilities that lend credibility and effectiveness to government policy play particularly important roles in the development process through infrastructure growth. The effects indicate that countries can gain a great deal by improving investment and performance in infrastructure sectors. But the exercise also implies that achieving better outcomes requires institutional and organizational reforms that are more fundamental than simply designing infrastructure projects and spending money on them (Esfahani, et al. 2003, pp. 470-471).

Thus, it is useful to ask whether regulatory commissions incorporate processes that support and encourage institutional reform. Operating principles are generally developed in an agency’s infancy. The shared values so essential for an agency’s success have also been labeled the *organizational culture*:

Culture is . . . a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems (Schein, 1992, p. 12).

For example, the Australian Competition and Consumer Commission's nine best practice principles of good regulation represent an effort to be intentional regarding the process.<sup>8</sup> Newly hired professionals are (presumably) exposed to these ideals. They learn how the agency has attempted to make the concepts operational so that routine tasks and key decisions reflect the weights given to each aspect of the process. Second-generation reforms can involve reviewing how values are explicitly communicated within the commission. A regulatory scorecard that evaluates how well an organization lives up to its own standards would seem to be an important initiative for an agency moving into the "Mature Phase" of the regulatory life cycle.

Several empirical studies examine whether regulatory governance is a factor affecting sector performance. Cubbin and Stern (2006) find that both regulatory law and higher quality regulatory governance lead to higher per capita generation capacity. They conclude (p. 135) that agencies with better governance are

- less likely to make mistakes;
- more likely to correct mistakes speedily;
- less likely to repeat mistakes;
- more likely to develop procedures and methodologies that involve participants and to develop good practice;
- more likely to copy and implement best practice from other countries.

Their results are in line with the earlier findings of Henisz (2002) that utilized an indicator of governmental checks and balances as a determinant of infrastructure investment. For Latin American telecommunications, Gutierrez (2003) obtained similar results for an indicator of regulatory governance. Estache, Perelman, and Trujillo (2005) surveyed a large number of productivity studies and found that reforms promoted both technological change and movements towards the efficient frontier. While these studies offer some hope to those concerned with infrastructure performance, they support the view that there is no single recipe for expanding networks and improving service quality.

Figure 1 comes full circle when comparing actual infrastructure sector performance against the expected performance articulated by political leaders. Absent quantifiable goals and prioritized objectives, it would be difficult to create scorecards for the first two stages of the regulatory cycle. Part of second-generation reform involves revisiting performance objectives for infrastructure sectors. Clearly, if the targets associated with those objectives are unrealistic, the regulatory process will be perceived as having failed. Thus, identifying and communicating key objectives is an important task for policymakers. The vision should stretch capabilities—but not be unrealistic. If visions are not grounded in reality, rhetoric rules the day—ultimately leading to disappointment and to a denial of legitimacy for regulatory commissions. Panizza and Yañez (2006) document citizen discontent with reforms in Latin America, where surveys find that people tend to associate economic downturns with recent policy initiatives. In their role

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<sup>8</sup>These principles include communication, consultation, consistency, predictability, flexibility, independence, effectiveness and efficiency, accountability, and transparency.

as educators, regulators must interact with the various stakeholders—setting realistic objectives, explaining how policies have been designed to promote the good sector performance, and monitoring the degree to which goals are achieved.

When important social objectives are realized, policymakers, managers, and consumers are likely to be content with the outcome. A record of accomplishment yields broad support for industry, government, and the regulatory system that devised efficiency-enhancing incentives. With improved performance, stakeholders gain confidence in the regulatory system. They trust the agency that leads to higher levels of service penetration and improved prospects for other sectors that depend on energy, telecommunications, water, and transport. A widely accepted regulatory system can move a nation away from remaining inefficient outcomes.

The phases of regulatory agencies raise a number of questions. How do the initial years of a commission contribute to the likely initiatives of youth? How will the youth stage of the regulatory life cycle affect the success of network industries when the commission becomes truly “mature”?

The first question asks whether the track record to date has predictive power for successive phases of regulation. The second question asks how policies and procedures applied in the second phase of the regulatory life cycle will affect the attitudes of investors, managers, consumers, and policymakers. If one pays attention to warning signs and reinforces best practice, the youth phase can serve as a crucial bridge to the future. If the youthful commission is not careful and focuses only on short-term outcomes, later commissions will be forced to pick up the pieces and begin anew.

The process of evaluating a commission’s moving from infancy to youth requires careful research by insiders and thoughtful critiques by outsiders. It is likely that the regulatory cycle will be full of surprises requiring further organizational transformation in emerging markets. The new developments will, in turn, stimulate additional research which, hopefully, will enhance our understanding of how regulatory processes affect sector performance.

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