



The Sandbox: Unregulated Playgrounds For Technocrat Experiments

The establishment of so-called “Regulatory Sandboxes” are sweeping the world. This article reveals their nature: “While there is no precise definition of a regulatory sandbox, it is, broadly speaking, a framework within which innovators can test business ideas and products under regulatory supervision, without fear of penalties.”

The logic of this definition would have justified the grotesque medical experiments performed by Nazi scientists during WWII - anything goes, experiment on live communities, no penalties for consequences. □ TN Editor

The fundamental business principles and very fabric of American utility infrastructure have remained basically unchanged for more than a century.

The regulatory compact set forth for public utilities was driven by economic principles. Public utilities, beginning with railroads then the distribution of electricity and gas, were (and are) considered to be natural monopolies because the economies of scale are so great that it is more efficient for one firm to provide the service than for competitors to do so.

The absence of competition enables public utilities to exact monopoly profits by producing less and charging more — an economically inefficient outcome.

Regulation is a surrogate for competition and market forces. The role of public utilities regulators, therefore, is to ensure public utilities act in a prudent manner *in lieu* of competition and market forces. Rates are determined by regulators through what is known as the rate-of-return regulation with utilities earning a theoretically competitive return on their reasonable capital investments.

The requirement that prudence exists is a safeguard against the tendency of a monopoly to make excessive and unnecessary investments. Historically, the burden of proof for prudence has lied with the utility and is applied conservatively by public utilities commissions.

To earn a rate of return on capital investment, utilities must prove that benefits of an investment outweigh its costs. Although sensible in theory, this burden often results in an impassable test for utility investment in innovation — which is often inherently unproven.

In comparing data across industries, utilities rank the lowest in their spending in research and development (R&D) by orders of magnitude.

High technology companies often spend up to 25% of their revenue on R&D, whereas utilities typically spend less than 1% (usually much less). The average across all industries is roughly 5%. Until recently, utilities were not incentivized to change or innovate because steadily growing demand (load) justified large investments in traditional infrastructure that earned reliable annual returns.

Innovation challenges

But concern over climate change and the improving economics of renewables, electric vehicles, battery storage and the revolution of digital transformation are driving a step-change in utility business models. The confluence of these forces will require utilities and regulators to reevaluate traditional assumptions by recognizing and rewarding innovation.

We are at the precipice of multiple technological revolutions that will fundamentally change how essential services are provided and paid for.

If the driving principle behind public utility regulation is to ensure the prudence of capital investments, and operations and maintenance, *in lieu* of market forces, it stands to reason that in fundamental ways utilities and their unregulated corporate peers should behave similarly. In the case of investment in innovation, this is clearly not the case.

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