

and technology bills, has actually been incorporated into U.S. law. It would be interesting to see a comparison of U.S. policy with those of Europe and Asia.

Those interested in gaining a general understanding of nanotechnology, in finding out which industries will be affected and some of the challenges ahead will find this book useful, otherwise the target group of investors and industrialists should find it informative particularly with the regard to the U.S.

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**Julia Black, Martin Lodge & Mark Thatcher (eds.):
Regulatory Innovation: A Comparative Analysis.
Edward Elgar: Cheltenham, UK, 2005. 230 pages.**

If there is a single message that this comparative analysis of regulatory innovation highlights, it is that neither the occurrence nor the outcomes of innovation can be controlled and predicted. One cannot 'design' bureaucracies or legislatures to produce innovations, nor can one predict the results. Innovation simply cannot be engineered. (p.194).

Regulatory Innovation is the result of tight collaboration between researchers across empirical fields. The book is un-

usually well integrated. Chapters one and two by Julia Black present the definition and problem of regulatory innovation, the field's theory, and five "worlds of regulation". These are followed by six empirical chapters that compliantly apply the vocabulary laid out in the first two, notably without compromising the uniqueness and creativity of each individual study. This well integrated style gives the reader a thorough insight into the approach and empirical field.

The edited volume will not be found on the STS shelves in the library. Its contributions are written mainly by scholars of law and political science. It has nonetheless relevance for STS scholars as I shall argue below. The book defines “regulation” as “the sustained and focused attempt to alter the behaviour of others according to standards or goals with the intention of producing a broadly identified outcome” (p.11), and “regulatory innovation” consists of “innovation in the performance of regulatory functions, institutional structures and organizational processes in the regulatory regime” (p.12). Crucial for the analytical approach is the suggested five “worlds” of regulation: (1) the individual, (2) the organizational, (3) the state, (4) the global polity, and (5) the world of innovation (ch. 2). Each empirical study – covering regulatory innovation of railways, financial markets, legislation, 3G mobile phone licensing, dangerous dogs, and Internet gambling – investigates which of the five worlds are crucial for establishing regulatory innovation.

A clear strength of *Regulatory Innovation* is its comparative approach. Each study presents comparisons of regulatory innovations in two to six different countries, across time and across sectors. In order to explain the regulatory innovations the comparisons explore cross-national appearances of the same “worlds” in the regulatory innovation in focus. Because such coincidences fail to appear systematically and no definite driving forces can be determined for regulatory innovation, the book concludes that no prediction or engineering is possible of regulatory innovation. This may be interpreted as an unsuccessful

comparison. However, I find the comparisons highly valuable due to their descriptive richness that marks out important qualitative specificities of each regulatory innovation.

Hood & Lodge’s chapter (ch. 7) begins in the following way: “On 29 May 1991, six-year-old Ruckhsana Khan suffered severe chest and head injuries as a result of an unprovoked attack in a public place by an American pit bull terrier”. It goes on to analyse the way in which the ensuing massive media attention made the British government introduce a new risk-regime for regulation of dangerous dogs by singling out a few dog types as being particularly aggressive, and thus submitted to stricter regulation than other dogs. The researchers are puzzled over discovering that during the next decade regulatory innovations almost identical to the British were introduced in France, Germany and the Netherlands. In other words, same forms of regulation emerged in quite different state systems and institutional contexts, created by different individuals, and displaying minor influence from global polity organisations. In the analysis none of the five “worlds” provided an explanation for the regulatory innovation of dangerous dogs. Hood & Lodge solve this problem by inventing a sixth world, the world of “Pavlovian regulation” that cuts across the five pre-defined worlds. They mobilise Pavlov’s well-known experiment – in which dogs were conditioned to salivate to the sound of a bell – to describe how governments and administrations were conditioned by the experience of negative massive media attention to create low-intelligent regulatory innovation in a very short space of time. Hood & Lodge argue that just as the

“economizing in intelligence” of Pavlov’s dogs broadly makes sense (saving dogs from thinking hard about the banal information of food coming) “Pavlovian innovation” may be rational in less important political areas (like that of dangerous dogs) due to its quick regulatory solutions that are cheap in money and labour.

As in Hood & Lodge’s chapter most of the chapters do not find any “world” satisfactorily explaining the specific regulatory innovation in question. With its strong relational emphasis STS vocabulary could help out here. Star & Griesemer (1989) and Galison (1997) have shown that boundary objects and zones *between* “worlds” are often more important for the production of science and technologies than the “worlds” themselves. The same may be the case in the production of regulatory innovation, and thus a reason why the “worlds” metaphor is unfortunate for analyses in this field.

Scott’s account of Internet gambling (ch. 6) compares the regulation of “brick and mortar” gambling with Internet gambling. Thereby he nicely documents how the different material characters of two objects of regulation make a difference for the regulatory innovations developed. Scott’s account is an exception in this volume. Most authors neglect an account of how the *object of regulation* contributes to forming the regulation of this object. Thatcher, for example, argues in his analysis of 3G mobile phone licensing (ch. 5) that “...new technology offers new opportunities for actors to alter long-standing policies, instruments and relationships” (p.92). He however fails to consider why new technologies have a better ability to offer new opportunities than other objects of regulation

(railways, dangerous dogs or financial markets). An STS analysis showing how the object of regulation makes specific forms of regulations available would be an important next step in the study of regulatory innovation, and in general for grasping the “materiality of governance”.

One of the volume’s core questions is whether we live in a hyper-innovative society or in a society with much hype about innovation. On the basis of its empirical studies *Regulatory Innovation* concludes that there is evidence of some innovation. The turn in the UK from a prohibitive approach to gambling to a liberalised view on gaming as entertainment is indeed innovation for those who regard gambling as a social and moral issue. Similarly, changes in the design of a regulatory regime in terms of regulatory functions, institutional structures and organizational processes are certainly innovative even when their effects may be marginal. *Regulatory Innovation* concludes that even though innovation is taking place across the broad variety of empirical fields no substantial overall hyper-innovation can be found across all domains of society.

The book is a good read due to its well-integrated form, its comparative approach, its empirical case descriptions and its ability to encourage readers to approach the field of regulatory innovation. The latter may be due to the book’s truly explorative character inspiring further questioning and further tinkering with the vocabulary suggested, contrary to the more argumentative or missionary style found in so many purportedly explorative studies.

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