The **Mercatus Center** at George Mason University is an education, research, and outreach organization that works with scholars, policy experts, and government officials to bridge academic theory and real-world practice. The center's Regulatory Studies Program works within the university setting to improve the state of knowledge and debate about regulations and their impact on society. More information about the center can be found on the Web at www.mercatus.org. For the latest federal regulatory developments, visit www.regradar.org.

Tort Reform

The court system is generally transparent — perhaps a little too transparent for those whose dirty laundry gets aired in public court documents. But the courts are only the very small public tip of the mostly concealed tort iceberg.

While no one is exactly sure about the actual numbers, experts in this area estimate that 90 percent of potential tort cases are never even filed, and perhaps 90 to 95 percent of the filed cases never see the light of court. What happens to all of those cases? Most of them are settled quietly and discretely; we never get to observe the agreements or how they are reached. Thus, as perhaps 99 percent of the human behavior within the tort system occurs out of court and out of sight, it becomes difficult to measure the effects of tort reforms.

The hidden negotiations that dominate the tort system make reform a lot like Forrest Gump's metaphorical box of chocolates: You never know what you're going to get. It might be that years after it is implemented, we would discover that "reform" only adds to the nation's litigation headaches.

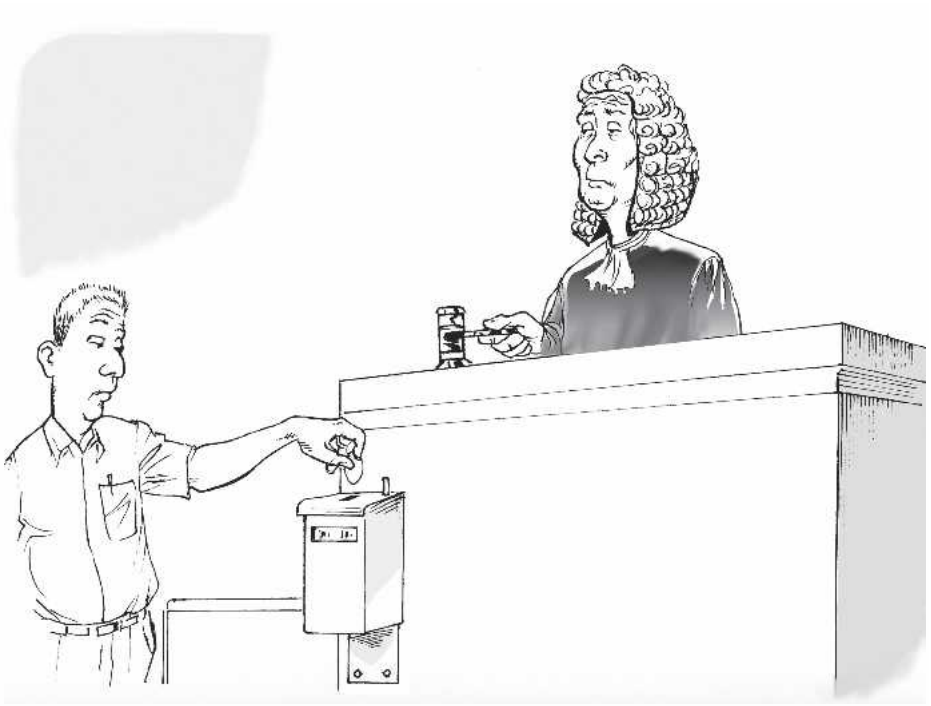
Take, for example, the "reform" of prejudgment interest. Common law did not allow injured parties to earn interest that would have accrued between the time of their injury and final award or settlement. Worried that the parties and their lawyers were drawing out trials and settlement negotiations and unnecessarily clogging the courts, early tort reformers hit on the idea of charging defendants for the interest that plaintiffs would have otherwise enjoyed if they had been paid at the time of their injury. According to the American Tort Reform Association, however, contrary to the reformers' expectations, the award of prejudgment interest actually impeded settlement and also led to overcompensation.

In the various states, tort reformers are trying other rule changes in the hope that they will reform perceived problems within existing tort systems. The problem is, like the experience with prejudgment interest, until the rules are in place and affecting real people, it seems we will not know how effective they will be at actually improving the fairness and efficiency of the courts.

Or will we? New experimental research offers a promising alternative to the trial-and-error testing of reforms in the real world. My George Mason University colleague Kevin McCabe has designed tort reform experiments that link parties representing plaintiff and defendant attorneys by computer and have them negotiate settlements. McCabe assigns parties a different mix of variables, including the strength of the case and the settlement's maximum and minimum possible compensation values. If the two parties come to an agreement during the allotted time, then the case is settled and the experiment repeats. However, if the parties fail to agree, the computer charges both parties "court fees" and imposes a settlement.

The beauty of the experiment is that it collects empirical data on settlements that would have otherwise been unobservable. Furthermore, after running enough rounds to create a baseline, experimentalists can change the rules of the game to resemble a "tort reform" and then observe how the change affects the parties' behavior.

McCabe and his research team conducted several batteries of tests on proposed legal reforms ranging from the shifting of fees from clients to lawyers, to the effects of higher court fees on settlement rates. In some cases, the results are hardly surprising; for example, the imposition of higher court fees encourages more settlement. However, others results were



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unexpected. The shifting of fees from lawyer to client caused the lawyer to behave more aggressively, which resulted in higher negotiated settlements and more frequent trips to court. Lawyers on their clients' nickel inflicted more damage on defendants, but the added court costs meant they brought home less to plaintiffs. Meanwhile, the shifting of fees from the client to the lawyer caused the lawyer to settle more easily and not risk going to court. Although lawyers who paid their own way often settled for less, the lack of court costs meant that plaintiffs enjoyed higher net payouts. Those results hint that contingency fees, which are often viewed as part of the litigation problem, are more likely to encourage settlement.

Perhaps the most surprising results have come from the "loser pays" or "English rule" experiments. Loser pays is exactly what it sounds like: The loser in a court case pays the legal fees of both parties. It is the rule in England and in most other countries in the world. In fact, the United States is one of the few exceptions where litigants pay their own ways, which is often seized upon by jurists as an explanation of the nation's litigious culture.

Adoption of the English rule has long been the Holy Grail of tort reformers, but the experimental data suggest that it will do much more harm than good. According to initial experiments, shifting to the English rule causes parties to settle less and go to court more often. This increase in court cases was offset somewhat by an increasing number of plaintiffs dropping low value cases, but lawyers looking to hit "judicial jackpots" — not small plaintiffs looking for minor redress — fuel America's litigation problem.

Experimental economics shines new light into the dark world of torts. "Surefire" reforms like the English rule might end up doing more harm than good, while long-maligned practices such as contingency fees appear more useful than previously thought. Tort reformers and their opponents would be wise to take notice.

—Alastair J. Walling

Nanotech

In 1992, nanotechnology pioneer K. Eric Drexler described the mechanics of a nanocomputer. More than a billion times more powerful than a Pentium and the size of a standard six-sided die, this nanocomputer would run on only 100 watts. Later research indicated, however, that Drexler's computer was too modest; a more optimal design would produce an even smaller computer that would be approximately 10,000 times faster.

Like the nanocomputer's speed, the promise of nanotechnology increases at an ever faster rate. So do the concerns about its effects. As University of Tennessee legal scholar and InstaPundit Glenn Reynolds points out, "Technologies with dramatic societal implications tend to generate pressures for some degree of regulation." Nanotechnology is no exception.

This summer, the International Center for Technology Assessment (CTA) filed with the Food and Drug Administration a citizen petition requesting "the first legal action to address the potential . . . risks of nanotechnology," specifically with regard to use of nanomaterials in sunscreen. Among other things, the petition asks for an immediate recall.

In response, the Center for Regulatory Effectiveness, a regulatory watchdog group, challenged the petition under the 2000 Data Quality Act. The lines in the regulatory battle over nanotechnology are beginning to be drawn.

Technically, nanotechnology refers to the manipulation of matter at the nanometer scale (one billionth of a meter). This is something of a fundamental shift in production. If the traditional means of assembly is a top-down approach, then nanotechnology (sometimes called molecular manufacturing) is a bottom-up approach. Traditional methods move materials around, at best, at relatively crude molecular scales; nanotechnology deals with the atomic level, the most basic building block of matter. As Georgia Tech professor Ralph Merkle

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puts it, the typical manufacturing method is "like trying to make things out of Lego blocks with boxing gloves on your hands…. Nanotechnology will let us take [them] off… get[ting] essentially every atom in the right place." Beyond this ability, some experts foresee the possibility of nanorobots that can self-replicate, like cells do, and thus do for long periods the precise, difficult work of this nano-sized assembly.

Most commercially available applications of nanotechnology mix nanomaterials with other materials to improve existing products. Companies already use nanotechnology to make better consumer products like sunglasses, tennis balls, cosmetics, and Teflon-coated cooking pans. Researchers are working on such nanotechnologies as "smart pills" that automatically administer doses and monitor the body's absorption of the medication, wafer-like cooling systems with no moving parts or chemicals to replace the standard compressor-based systems found in cars and air conditioners, and more efficient solar cells.

However, their minute size potentially makes nanoparticles especially toxic because they can be easily and quickly absorbed into human tissue. This potential toxicity and the possibility of self-replicating nanomaterials lead to alarming images of environmental ruin and populations of quasi-human computers. Even technologists offer dystopian visions of the nano-future. Several years ago, Bill Joy, founder of Sun Microsystems, wrote an essay in which he predicted that the non-synthetic world could be consumed by a so-called "grey goo," the result of careless corporations unaware of the effects of nanotechnology.

Through the media, papers, and comments, groups such as the Natural Resources Defense Council, CTA, and Greenpeace have all implored federal agencies to slow nanotechnology research. One such comment directed to the Environmental Protection Agency called for broad but vague labeling, public disclosure, and government safety testing requirements.

To date, just as the technology itself moves along in fits and starts, so have specific calls for regulation. Without a coherent or coordinated regulatory effort to identify, Reynolds distinguishes three broad approaches to regulation that are likely to emerge:

The Barney Fife "nip it in the bud" approach: An outright prohibition is placed on nanotech research. But even if this approach would be advisable, the Pandora's Box of nanotechnology is already open, and such a prohibition would need to cover not only research and development, but also speech in the form of published research. Moreover, there is the problem of agreeing on a useable, comprehensive, but not overbroad definition of nanotechnology.

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The Manhattan Project approach: Nanotech progresses only under strictly classified government operation or under legislation that would make "private research cumbersome and difficult… retard[ing] the growth of the civilian nanotechnology sector." Because of the myriad military uses of nanotechnology, classification could provide unchallenged military advantage. This approach, which has been used in the development of atomic, encryption, and telecommunication technologies, risks forgoing or delaying significant civilian benefits. Because military research will tend toward defense uses, vigorous private sector development in quality-of-life applications will decline, both from the aforementioned difficulty in such research and because much talent will be drawn into the military sphere.

The Biotech approach: Nanotech progresses under modest regulation. Amidst early concerns over biotech, the scientific community self-imposed a moratorium, convened a series of conferences during which it developed consensus rules about how to conduct research, and disseminated them through the National Academies of Science and scientific journals. The National Institutes of Health eventually adopted the rules for research that they funded, and many companies voluntarily adopted them as well. This preemptive self-regulation resulted in only modest government interference and robust civilian research

To some degree, the third approach is already in place. And, without calamitous surprises in nanotechnology's development, legislators will likely favor this regulatory course. This approach, however, allows environmental activists and industry critics to launch continual piecemeal attacks on private sector development. If nanotechnology is not to die from a thousand legal actions, nanotech companies will have to follow biotech's example and adopt industry standards preemptively.

Efforts like the National Nanotechnology Initiative make the coordination of such standards feasible. Moreover, as Rensselaer researcher Michael Bennett points out, a tacit structure of ethical guidelines may already be in place. Even though codification of industry self-regulation risks imposing an inflexible constitution, this codification may be necessary to create certainty within the field — a certainty that could foster a mature industry — but it cannot occur without the participation of the private sector entities who will be affected by the codification.

So as life-altering — and mind-blowing — as nanotechnology is, society's reaction is largely going to be more of the same. If small is the new big, then nanotechnology's regulatory dilemma is merely the new old.

— Satya Thallam

Public Safety Interoperability

By Jerry Brito

The Shreveport, La., Fire Department's radio system allows it to communicate with police, emergency medical services, and 50 other agencies in its region. But when the Shreveport firefighters traveled to New Orleans to lend a hand in the aftermath of Hurricane Katrina, they found that their radios were useless. Police in the area used another, incompatible system and therefore could not talk to the Shreveport squad.

In another instance, because of the destruction of infrastructure and the lack of interoperable communications systems, the Mississippi National Guard and other first responders along the Gulf Coast were forced to rely on paper relays or face-to-face meetings to exchange information. As a result, pleas for help were delayed and response times slowed.

Despite its severity, the communications breakdown after Katrina is not unusual. Emergency personnel from 50 public safety agencies in Virginia, Maryland, the District of Columbia, and the federal government responded to the September 11, 2001, attack on the Pentagon. But because their incompatible systems did not allow them to communicate, they had to use runners. Runners shuttling messages from commander to commander were also necessary in the responses to the 1999 Columbine school shooting spree and the 1995 Oklahoma City bombing.

Despite the many examples, little has been done to improve public safety communications interoperability. A 2004 survey by the U.S. Conference of Mayors found that about a quarter of cities polled did not have a communications link between their police and fire departments, and more than 80 percent reported that they did not have the capability to communicate with the Federal Emergency Management Agency, the FBI, and other federal agencies. The same survey found that 49 percent of cities are not interoperable with state police, and 44 percent reported an accident within the preceding year in which a lack of interoperable communications made response difficult.

Unlike police officers and firefighters, the average consumer has access to inexpensive advanced communications networks. Mobile telephone companies today offer nationwide coverage, including voice, text, video, and data capability. What is more, the commercial mobile networks are interoperable. A user of a Nokia phone on Verizon's CDMA network can communicate seamlessly with someone using a Motorola phone on Cingular's GSM network. So why do first responders not have the same capabilities?

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SEGREGATED AND UNCOORDINATED Individuals and corporations who want mobile communications do not apply for a Federal Communications Commission license or set up their own towers. Instead, they simply purchase off-the-shelf communications solutions from a commercial provider that has the comparative advantage and economies of scale to make available a vast network cheaply. Public safety agencies, on the other hand, each build out and control their own individual networks.

The FCC designates certain frequencies as public safety bands and gives licenses to operate in those frequencies to individual agencies and jurisdictions. This arrangement has the advantage of letting each agency or jurisdiction tailor its radio system to its own unique needs. But that also makes it very unlikely that one jurisdiction's system will be able to talk to another's.

Additionally, relegating public safety to its own walled-off region of the spectrum destroys economies of scale. While a mobile carrier such as Verizon has millions of customers over which to amortize an investment in an advanced network, the typical police department only has a few hundred officers. As economist Thomas Hazlett has noted, the current public safety spectrum policy is much like "shipping each police department tons of steel, plastic, and rubber to make them responsible for constructing their own patrol cars."

This policy of spectrum segregation is also wasteful because it uses more spectrum than a coordinated, shared approach would. Carnegie Mellon engineering professor Jon Peha has calculated that the number of antennas deployed by public safety entities nationwide correlates less with population or geographic area than with the number of municipalities. This means that more antennas are put up and more spectrum is used than are necessary to cover an area simply because local agencies and jurisdictions do not coordinate to share antennas and spectrum.

This lack of coordination among agencies and jurisdictions is the other major cause of the public safety interoperability problem. There are over 50,000 public safety agencies in the United States, and getting them all to voluntarily interoperate — even at a local or regional level — is practically impossible. The result is that police officers, firefighters, and emergency personnel often carry several radios so that they can communicate with different agencies on different systems.

The lack of cooperation stems not only from a lack of incentives, but also from strong disincentives. Public safety agencies often compete with each other for resources, power, and prestige. As a result, strained relationships between public safety agencies are typical in most American cities. New York City's "battle of the badges" — ongoing disputes over authority between the city's police and fire departments that have at times ended in physical confrontation — is a case on point. A police chief, for example, might not want his officers taking orders from a fire department commander.

The House select committee investigating the response to Hurricane Katrina found such a lack of coordination in Louisiana. The committee's report stated that although officials understood the interoperability problems they faced,

"parochial desires for duplicative, expensive, and diverse stand-alone communications systems" led them to misallocate resources.

On a more basic level, given thousands of public safety agencies, a collective action problem emerges. Hundreds, if not thousands, of agencies and jurisdictions from across the country would have to cooperate to form a seamless, standardized network. While an advanced interoperable network would be a valuable collective good, no single agency has sufficient incentives to bear the cost of attempting to organize a new network.

NO EASY ANSWERS Every time a major emergency has highlighted the sorry state of interoperability, we hear calls for more funding and more spectrum for public safety communications. In its report, the 9/11 Commission urged Congress to "support pending legislation which provides for the expedited and increased assignment of radio spectrum for public safety purposes." Former Homeland Security under secretary Asa Hutchinson has argued that what prevents interoperability "is not lack of will so much as lack of funds." But neither more spectrum nor more money will solve the problem of interoperability.

As the Katrina committee report found, blaming the interoperability crisis on a lack of funding "flies in the face of the massive amounts of federal grants to Louisiana." But even if an increase in funds and spectrum where granted, it would neither solve the collective action problem nor address the lack of economies of scale caused by the segregation of public safety frequencies. Instead of throwing more money at the problem, government needs to make a structural change.

In some parts of Europe, private enterprise builds and maintains the public safety network and sells interoperable communications capacity to the agencies there. A similar approach could be pursued in the United States. The government could allow private carriers to build advanced networks on frequencies that it now restricts to public safety use. Instead of building their own incompatible and duplicative networks, agencies and jurisdiction could purchase their communications needs from the private carriers. Because public safety communications typically use very little communications capacity, the carriers could sell space on the network to private entities without interfering with emergency communications.

A potential new market of public safety and commercial users would give private communications carriers the incentive to invest in new, advanced public safety networks, thereby helping to solve the collective action problem and eliminating the need for increased public funding to enable interoperability. Additionally, a national or regional carrier would have the economies of scale that individual police or fire departments could never achieve, thus bringing down costs. And, most importantly, as with cell phones, communications on the networks would be interoperable.

While the idea of privately operated networks shared by public safety and commercial users shows us the outlines of a solution to the interoperability problem, many questions will have to be studied and answered before such a scheme can be implemented: Should public safety calls preempt commercial calls? Should competing networks be forced to interconnect? If so, how would an interconnection standard be developed? Should public safety agencies retain the option to build their own incompatible systems?

Although these questions remain, at least a new direction is apparent for solving the perennial problem of interoperability. More funding and more spectrum will do nothing to change the existing structural problems. But changing the incentive structure of public safety agencies and allowing private provision of emergency communications can help achieve the interoperable communications necessary to save lives. R