



The Nano-Bio Interface: Enterprise Liability and Insurance Risk

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ENTERPRISE LIABILITY AND INSURANCE RISK

Abstract

This presentation will consider whether the interface of nanotechnology with biotechnology will overstrain the capacity of private liability insurance to fulfill its traditional role of both reducing harmful activity and distributing the remaining costs of product liability over the entire enterprise/industry. Legal changes are suggested to foster rather than inhibit responsible development of converging technologies while continuing to protect the overall public interest.

Converging Technologies Bar Association

The Converging Technologies Bar Association is a professional association dedicated to addressing the multifaceted impact of converging technologies. With its collective focus on nanotechnology, biotechnology, cognitive science, neurosciences and technologies, the CTBA provides a rich forum for bringing clarity and focus to the legal, ethical and societal issues generated by the convergences of these fields. The CTBA is the first bar association formed with an array of communities in mind including, among others, legal, scientific, engineering, business, financial, government, academic, which represent the multidimensional nature of converging technologies at the nanoscale.

OVERVIEW OF TORTS

- Intentional harms

Examples: battery, defamation, interference with business opportunity

- Negligence

- Strict liability

Product liability

Pollution - release of chemicals

FAIRNESS RATIONALE OF ENTERPRISE LIABILITY

Placing burden on the party able to bear or spread the loss:

“...on those who are in position to pass part of the loss on to purchasers of their products or to factors employed the the production of their products (including labor and capital), in this way bringing about a fairly wide spreading of the accident losses.”

Guido Calabresi

ECONOMIC RATIONALE OF ENTERPRISE LIABILITY

Internalization of costs reduces accident costs:

If activities that produce harm bore their full cost, which included the cost of these harms, there would be cost avoidance activity to the point where the cost of avoiding the harm would exceed the benefits of avoidance. With cost internalization of the activity forced by tort liability, market forces would determine the right mix of resource allocation.

PRODUCT LIABILITY

Definition: Liability for harm caused by the use of a [defective] product

PRODUCT LIABILITY TYPES

- Defect in manufacture
- Defect in design
- Defect in warning

PRODUCT LIABILITY COST BENEFIT ANALYSIS

Gravity of danger

- Likelihood of occurrence of such danger
- Feasibility of safer alternatives
- Financial cost of improved design
- Adverse consequences to:

Product

User

OVERVIEW OF INSURANCE: FUNCTIONS

- Transfer of risk
- Spread of risk by pooling
- Allocation of risk
- Convey information about risk

UNDERMINING FACTORS

- Adverse selection - problem of pool
- Moral hazard - being insured changes individual behavior
- Generalized uncertainty - unknown and or unknowable frequency and magnitude
 - problems of diversifying/pooling
 - problem of setting premium

COPING PRACTICES AND MECHANISMS

- Adverse selection - screening and exclusion
- Moral hazard - risk classification, experience rating/monitoring
 - o objective feature rating - before the fact
 - o experience rating- after the fact
- Uncertainty -Risk reduction
 - o variable risk classification and pricing
 - o deductibles and policy exclusions
 - o safety incentives: on-going inspection and risk management assistance

INSURANCE AS QUASI-GOVERNANCE OR SURROGATE REGULATORY TOOL

- Private standard setting- insurability
 - o Safety incentives
 - o Information on relative risk
- Enforcement
 - o Price rise - reclassification
 - o Cancellation or non-renewal

PRE-NANO OPTIMIZATION ACCIDENT COSTS AND COMPENSATION THROUGH INSURANCE

- Tort rules result in predictable risk assessment - causation and responsibility
- Traditional safety engineering and actuarial expertise
- Premiums are partially determined by safety measures employed
- Risk information assistance improves cost-benefit analysis of risk management

Swiss Re Report

“An unforeseeably large loss potential could accumulate, for example, in the field of health impairment.”

Insurers have to know “ application areas and the dissemination of potentially suspect nanoparticles as well as about the precautionary and loss-prevention measures being taken.”

NANO-BIO INTERFACE — EARLY STAGE PRODUCT CHALLENGES

- May not be able to internalize through tort litigation/Insurance
 - o Products qualitatively different?
 - o Unpredictable
 - Not all products can be made safe for all
 - Need for trial and error
 - o Revolutionary changes - no time to adapt

COMBINED EFFECT OF LITIGATION THREAT AND LACK OF INSURANCE

- Deterrence of research, development or manufacture/distribution
- Valuable but unaffordable product

VACCINE ANALOGY

Threat not to develop or produce with both liability and lack of insurance

Past attempts to solve:

- Substitute of government as defendant - swine flu
- No fault compensation - National VICP
- Government indemnification
- Restrictions on lawsuits and compensation limit
 - Safety Act (Homeland Security Act)

PROPOSAL: COMBINED APPROACH

- Enact targeted statutory changes
 - Medical/health products only
- Tighten regulations
 - Information gathering and reporting
- Retain tort litigation rights for conduct not enterprise
- Create selected compensation funds