Artificial intelligence (AI) allows a computer program to supplement or, in many cases, replace the role of human decision-making or action [1]. This often includes gathering and analyzing data to make more efficient and/or accurate decisions. While some AI is fairly simple, other AI applications rely on sophisticated machine learning (ML) that allow machines to learn and improve from experience without being continually reprogrammed by humans [2].

AI has become ubiquitous in most industries and technologies, including smartphones, automobiles, healthcare, home appliances, and major machinery [3]. As it continues to develop, no sector will be left untouched and there are unique risks associated with AI applications and tools. Many of which will be unknown a priori to decision and policy makers as they shape the regulatory framework. Specifically, AI may leave organizations liable for physical harm, data breaches, property or brand damage, and business failure without an adequate system to catch and rectify these repercussions [4]. The combination of fast-paced, ever-changing technology with new and potentially unknown risks makes effective regulation challenging. In this way, AI can be viewed as a “wicked” problem for policy makers who wish to regulate the technology and the tools that it enables [5]. In planning and policy, a wicked problem is one that is difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognize [6]. At the same time, AI is rapidly evolving, making it difficult for legislatures to pass laws that successfully govern the technology in the medium to long-term. This pacing problem known as “legal lag” is further compounded by the breadth of applications that the emerging technology enables and the fact that it does not respect national or supranational borders [7]. Given these characteristics, traditional state-based command-and-control mechanisms such as legislation and binding rules are unlikely to serve as an immediate solution to manage AI’s effects on society.

This article argues that alternative mechanisms that draw upon the concept of “soft law” will be needed to manage the risks associated with AI deployment and build confidence and trust in those who interface with these systems. In particular, it focuses on the role that the insurance sector may play in mitigating risks associated with AI. While often not a focus of scholarship writ large, insurance groups (for the purposes of this article meaning both primary insurance and re-insurance) are frequently at the forefront of rulemaking, thus shaping organizational behavior.

Soft law: A primer

Limitations of legislation and regulations—commonly referred to as command-and-control instruments—have resulted in policy makers, regulatory scholars, and practitioners to increasingly explore “softer” mechanisms to shape the behavior of individuals, entities, and/or sectors [8]. As defined by Marchant, soft law refers to frameworks that “set forth substantive expectations but are not directly enforceable by government” [9]. These mechanisms include, for example, codes of conduct, certification schemes, and industry standards. Soft law mechanisms can be initiated and implemented both...
by private sector actors as well as governments to encourage or discourage certain behaviors as illustrated by the issuance of guidance documents and voluntary calls for data [10]. These instruments are created in a more agile way than traditional rulemaking, can evolve and pivot in response to a changing landscape, and are arguably less resource-dependent than legislation or rules. As such, it has been argued that soft law should play a central role in the governance of emerging technologies [11], [12].

Soft law is not without its critics. Commentators have noted that these mechanisms may lack legitimacy and that the limited—if any—enforcement provisions can result in varied and/or tokenistic compliance, which can create an uneven playing field for market participants [13]. However, such mechanisms appear to be ideal for governing rapidly evolving technologies, such as AI, due to the ability to test different approaches across industries and jurisdictions. Outcomes of this type of experimentation can be utilized to better inform the design and execution of subsequent instruments. It is also important to note that soft law instruments do not operate in a governance vacuum; rather, they exist alongside legal frameworks and often work to supplement the perceived deficiencies of hard law.

While often not thought of as a soft law mechanism per se, the insurance and reinsurance sectors have an important role to play in governing emerging technologies such as AI. Between 2019 and 2021, the Center for Law, Science, and Technology at the College of Law at Arizona State University (ASU) compiled a database of 634 current global soft law programs focused on AI [14]. In this database, insurance had no representation. This is, in many ways, counterintuitive given the primary role of regulation—to mitigate risk—combined with the fact that the insurance sector is often the primary controller of risk assessment and a key gatekeeper for accessing the market. In this way, it easily fits with Marchant’s soft law definition, as it set substantive expectations on companies which who wish to participate in the market without governmental enforcement.

As noted by Trump et al. [15], “the role of insurance as a risk management strategy has not changed significantly in concept over several hundred years,” with the calculation of risk being at the very heart of their business. This holds true even when there is a high degree of uncertainty over risks and known–unknowns. Given the ways in which the sector can shape behavior through premium setting or denial of coverage, this article argues that insurance will play an important role in shaping the AI landscape and rollout of certain applications. Some risks associated with AI already fit easily into the tools offered by the insurance sector; others, though, will need more creative approaches. Nonetheless, the insurance market may offer pathways for entities to innovate to mitigate potential financial loss.

Nanotechnologies provide a case-in-point. As detailed by Bowman, early concerns over the potential risks posed by nanomaterials resulted in substantial innovation across market sectors, organizations, and jurisdictions in relation to the design and implementation of soft law mechanisms [10] [16]. While their level of success varied, the true value of these heterogeneous approaches is that they were designed during periods of high scientific and societal uncertainty and implemented in parallel with the technology’s development and commercialization—not after the fact [10], [17], [18]. As highlighted in the following section, the global insurance sector was a pivotal player in the development of this technology’s governance.

Insurance as a soft law instrument for nanotechnologies

The increasing commercialization of nanotechnology-based products in the early 2000s occurred against a backdrop of scientific uncertainty over potential risks presented by nanomaterials to human and environmental health and safety [19]. Within the scientific community, little data existed in relation to, for example, the potential toxicity of certain families of nanomaterials, potential exposure pathways, and the appropriateness of conventional risk assessment protocols for determining toxicity of certain nanomaterials [20]–[21]. Given the scale of the global investment and the increasing integration of nanomaterials into products across every sector, the technology presented a complex and somewhat unique challenge to the global insurance sector given that risk is a fundamental variable used in calculating premiums.

It is, therefore, not surprising that some of the earliest reports focused on how the technology should be commercialized and governed were published by large global insurance firms. In their 2002 report, Munich Re noted the uncertainties posed by the technology,
While nanotechnologies and AI are associated with varying levels of risk [24]. This sentiment is important when looking at risk and AI.

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References


[27] S. Mullins and J. Gatof, ‘Are we willing to heed the lessons of the past? Nanomaterials and Australia’s asbestos legacy,” in Nanotechnology Environmental
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