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ABOUT US

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INSURANCE FOR AI COMPANIES: A NECESSITY FOR THE FUTURE

AUTHORED BY - ACHUDA MANICKAM M

I <u>ABSTRACT</u>

The alarming introduction of artificial intelligence in major areas like healthcare, transportation, and finance has highlighted massive gaps in the liability and insurance models in existence. As AI systems become more prevalent in performing tasks previously based on human judgment, how we assign responsibility and control risks needs urgent and careful consideration. This essay engages with the call for a general legal and insurance framework for regulating AI activity, with a particular emphasis on the Indian legal structure. The central question addressed is: if an uninsured doctor cannot treat a patient, why should an uninsured AI system be allowed to diagnose a disease, drive a car, or grant a loan? By providing a comparative systematic study of the regulatory approaches, foundations of liability theory, and ever-changing nature of emerging technological risks, this essay represents a contribution (among many) to the current discourse on how to create trustworthy, fair, and accountable regulatory frameworks for AI technologies.

II THE USE OF AI AND ITS EFFECT ON MAIN SECTORS

Artificial Intelligence (AI) has become a game-changer in industries, changing how businesses operate and creating efficiencies never before realized. The introduction of AI, nonetheless, comes with new risks that need to be dealt with through specific insurance products.

AI systems like IBM Watson Health and Google DeepMind in healthcare have created a seismic shift in diagnostics by outcompeting radiologists when diagnosing certain conditions, such as breast cancer and diabetic retinopathy.¹ If an AI algorithm fails, it could result in a misdiagnosis, thereby putting healthcare professionals at risk of liability. The da Vinci Surgical System robot, which is used to perform surgeries with a high degree of precision, has been the subject of litigation due to complications resulting from technical failure.²

¹ <u>https://pctechmag.com/2025/04/the-role-of-ai-in-healthcare-innovations-impact-and-the-future/</u>

² <u>https://health.economictimes.indiatimes.com/news/health-it/from-code-to-care-how-indias-ai-prescription-is-rewiring-access-and-affordability-for-scalable-healthcare/120519311</u>

In the technology sector, AI technology is enabling new capabilities for breakthroughs in the traditional meaning of autonomous driving vehicles and cybersecurity technology. However, if such a failure were to occur, it could result in catastrophic consequences.³ Companies like Tesla have used autonomous technology to prevent computer-driven accidents arising from these automated algorithms and human-controlled vehicles with insurance coverage.⁴

The insurance industry itself is currently undergoing a significant transformation using AI, allowing for predictive analysis and fraud detection. An example of a large company using AI in the insurance industry is Future Generali India Insurance, which launched an AI tool to recommend health insurance products according to the consumer's lifestyle profile.⁵ Although there are clear advantages to improving exposure, personalization, and understanding of a life cycle, there remain issues around algorithmic bias and data breaches.

III <u>THE OVERWHELM OF ARTIFICIAL INTELLIGENCE</u>

AI is no longer a consideration for the future; it is a reality of today. It exists today in several important areas of our world, and it needs to be embraced if we are going to progress.

By 2030, AI is expected to create \$15.7 trillion worth of output in the global economy.⁶ Different disciplines like fintech are utilizing AI to offer credit risk assessments and fraud detection, providing possibilities for communities that are typically more marginalized. In healthcare, India has used AI-supported diabetic retinopathy screening to prevent blindness for 430 million patients living in underserved rural India. That said, relying on AI needs to have adequate accountability to address unfortunate events that occur with AI. From this perspective, denying AI is accepting that we can turn the taps off to sustainable innovation and economic development. AI needs to develop, but it also needs to develop with good measures for risk management and ethical use.

³ <u>https://www.bankofthesierra.com/interactive/bsrr2014ar/files/assets/basic-html/page32.html</u>

⁴ <u>https://cential.co/ai-in-enterprise-risk-management-risks-vs-opportunities-and-the-path-ahead/</u>

⁵ <u>https://theprint.in/economy/ai-powered-advisor-to-help-people-choose-health-insurance-cover/2601023/</u>

⁶ <u>https://cio.economictimes.indiatimes.com/news/artificial-intelligence/ai-in-fintech-future-of-credit-risk-smart-financing-in-india/120515576</u>

IV <u>AI AS A SEPARATE RISK ENTITY: UNDERSTANDING</u> <u>ALGORITHMIC HAZARDS</u>

Artificial intelligence presents risks that are fundamentally different from traditional technologies, so it has to be viewed as a risk in its own right. All of these risks collectively are called algorithmic hazards, which occur when AI systems perform incorrectly, operate unpredictably, or deliver harmful results for unintended reasons that stem from the way they were designed, developed, or deployed. Because AI has significant applications for high-impact industries like healthcare, transportation, and finance, these risks are all consequential and need insurance policies to ensure against them.

One of the most widely discussed algorithmic hazard examples is algorithmic bias, where AI systems will reinforce and deliver discriminatory results because they were trained on incomplete or biased datasets, as demonstrated in the widely publicized experience of Amazon's AI hiring tool that significantly favoured male candidates.⁷ Biases reflect ethical and reputational risks associated with poorly designed algorithms, which can lead to litigation, regulatory fines for excessive bias towards certain populations, and certainly loss of public confidence in the algorithmic decisions, leading to adverse public consequences.

Equally concerning is autonomously establishing decisions using AI systems, i.e., self-driving cars that make self-determined decisions in real-time autonomy. When Tesla's autopilot technology causes an accident, and they start facing scrutiny about the design that led to the accident,⁸ It suggests that algorithmic hazards can lead to significant injury, financial penalties, and reputational costs.

The growth of identical standardized AI models across various industries creates systemic risks.⁹ A flaw found in a commonly adopted AI algorithm can easily spread through multiple organizations, potentially causing devastating effects across all organizations. Assume AI-based cybersecurity tools fail due to a breach in security, creating risks for many organizations undertaking simultaneous attacks. The interconnections of the systems magnify opportunities for disruption.

⁷ <u>https://redresscompliance.com/amazon-ai-hiring-tool-a-case-study-in-algorithmic-bias/</u>

⁸ <u>https://www.forbes.com/advisor/legal/auto-accident/tesla-autopilot-lawsuit/</u>

⁹ https://www.rand.org/pubs/research_reports/RRA3243-1.html

It creates several challenges for insurers to manage:

- A. Randomized Risk Assessment: Traditional actuarial methods based on historical claims data do not accurately assess the unpredictable risk of AI systems, which are constantly evolving.¹⁰
- B. Hidden Liability: The legal and ethical issues around liability from a malfunctioning AI system (developer, user, or AI itself) are far from straightforward.¹¹
- C. Coverage Gaps (Unknown AI risks): A considerable amount of current insurance is unaware of or explicit about AI-based risks affecting companies that could accept liability without coverage.¹²
- D. Large-scale Systemic Failures: The fact that AI systems could be classified as "high risk" increases the possibility of larger-than-expected payouts from insurers.¹³
- E. IP Exposures: AI systems frequently utilize third-party data or proprietary algorithms, creating a risk for disputes regarding licensing rights and ownership.¹⁴

As AI becomes an integral component of essential industries, recognizing AI as a separate risk entity can help make sure that its possible breakdowns and systemic consequences are being dealt with completely. Insurance products designed specifically for AI companies protect against financial loss, encourage accountability, transparency, and ethical AI development.

V THE NECESSITY OF INSURANCE FOR AI FIRMS

Insurance is important for AI businesses. It allows companies to manage the risk of their invention, which is innovative but inherently uncertain. AI challenges may include algorithm failure, biased behavior, data breaches, and failures to operate as intended. Each risk can result in loss and even liabilities. For example, the popular company name Tesla has been sued after a self-driving crash.¹⁵ Equifax had a well-known breach with vulnerabilities associated with sensitive data.¹⁶ Insurance can help AI businesses tailor how they plan for these types of risk,

¹⁰ <u>https://genesisglobalinsurance.com/articles/ai-risk-in-the-insurance-industry-challenges-and-opportunities-in-a-rapidly-changing-landscape/</u>

¹¹ <u>https://www.dentons.com/en/insights/articles/2025/january/10/ai-trends-for-2025-disputes-and-managing-liability</u>

¹² <u>https://www.stoel.com/insights/publications/ai-and-insurance-the-awkward-early-days</u>

¹³ <u>https://genesisglobalinsurance.com/articles/ai-risk-in-the-insurance-industry-challenges-and-opportunities-in-a-rapidly-changing-landscape/</u>

¹⁴ <u>https://www.dentons.com/en/insights/articles/2025/january/10/ai-trends-for-2025-disputes-and-managing-liability</u>

¹⁵ <u>https://www.msn.com/en-za/news/other/new-york-man-took-elon-musk-at-his-word-that-teslas-could-drive-themselves-then-he-hit-a-tree/ar-AA1Dymyy</u>

¹⁶ <u>https://www.csoonline.com/article/567833/equifax-data-breach-faq-what-happened-who-was-affected-what-was-the-impact.html</u>

and add a layer of coverage for some of their liabilities, interruption or failure of operation, for regulatory fines or penalties, and reputational damage.¹⁷ There are many options for tailored policies more suited to an AI company's liabilities, like cyber insurance, product liability insurance, or intellectual property protection, which would better allow an AI company to innovate, while also providing priors to the opportunity to have strong fortification. Insurance will allow companies more focus on the things they should focus on: accountability, incentivizing compliance, or otherwise managing risk where they can. In an AI-enhanced world, it has never been more important for the insurance industry to facilitate the responsible innovation of AI companies.

VI <u>GLOBAL DEVELOPMENT OF AI-SPECIFIC INSURANCE</u> <u>PRODUCTS</u>

The global insurance market is slowly moving toward addressing the unique risks of AI firms. Though there are leaders in the field acknowledging AI firms as a unique risk group, the insurance markets in various states and countries have been slow to develop. To draw a clear picture of the global evolution of insurance for AI companies, it is crucial to map out the countries that have started to start creating an insurance product specifically for AI firms, and are treating AI firms as a separate class of risk.



¹⁷ https://www.compliancequest.com/cq-guide/regulatory-compliance-importance-in-corporate-reputation

A. <u>Countries with High Engagement – Established AI – Specific Insurance Offerings</u> UNITED STATES: In the provision of insurance products uniquely designed for AI companies, the US remains unrivaled. Innovation is not absent in the insurance space with regards to loss of control (liability) from deploying A.I. Major re-insurers, like Munich Re, are already in the business writing specific liability covers addressing what may happen in the event of algorithmic errors, data breaches, and operational failure (ex., Machine Learning). Meanwhile, new entrants like Armilla AI are working with new ideas, including new performance guarantees for AI systems that can guarantee AI products comply with reliability and equity standards, adding more layers of certainty to both developers and users.¹⁸

GERMANY seems to be the furthest ahead in developing AI insurance innovations. In July 2022, Munich Re developed its portfolio of products and utilized its latest developed AI liability solution for machine learning models and automated decision-making. This movement by Munich Re represents a broader German approach regarding responsible AI development across some (largely) industry, supported by comprehensive regulatory regimes.

FRANCE is also showing quite advanced signs of convergence of AI and insurance. Shift Technology is assuming a leading role here as it develops AI-based solutions to fix operational aspects of insurance (e.g., fraud detection in claims), but also takes on the challenges posed by emerging AI liability issues, which are perhaps new to insurance and the world of business operations. Akur is also doing innovative work in creating other insurance products depending on AI for underwriting and risk assessment, resulting in more flexible and reactive insurance that can respond to ongoing changes in the digital economy.

SWITZERLAND, which has been in the insurance and reinsurance business for a long time, has shown further support by building AI-specific liability insurance. Larger insurers will invest additionally in research and product development to solidify themselves as the primary insurance provider for emerging risks. In conjunction with the support of AI and the development of AI liability insurance solutions, Swiss Re, one of the world's leading reinsurers, concentrates on filling the gaps in coverage offered by traditional policies, both concerning explainability, bias, and operational failure with AI systems.

¹⁸ <u>https://www2.deloitte.com/us/en/insights/industry/financial-services/financial-services-industry-predictions/2024/risk-insurance-for-ai.html</u>

Overall, the message is clear across the major economies, insurers and reinsurers are not simply responding to the risks related to AI risk; they are also creating new products, and guarantees trying to provide protections to both developers and users of AI that will enable both to operate in a more secure and predictable legal context.

B. <u>Moderate Engagement Countries- Emerging AI Insurance Initiatives</u>

Aside from the United States and Europe, several more jurisdictions are starting to grapple with the emergent need for AI-specific insurance products, albeit to various degrees of maturity.

CHINA is the most notable case in terms of the prolific growth of the AI ecosystem. The rapid development of companies such as SenseTime and Ping An, among others, has positioned China as an AI leader. Early-stage AI insurance products are starting to materialize in the Chinese domestic market, but regulatory uncertainty is a huge impediment. Although the Chinese government is proactively engaged in establishing technological advancement and taking the lead in AI nationally, it has not yet developed a comprehensive legal framework to deal with the liability risks attributed to AI systems. This regulatory ambiguity has made it difficult to capture appropriate levels of insurance coverage, and insurance companies are naturally reluctant to develop a durable and standardised AI liability insurance product. Nonetheless, the enormous scale of AI adopted within China creates an imperative for innovative insurance products in this space soon.

The UK is already working to adapt the traditional insurance market to the unique demands of AI technologies, continuing to see insurtechs, like Tractable, establish themselves as market leaders by using AI to innovate claims processing and risk assessment, while UK insurers are working to develop products specifically to cover identified AI referred risks, such as algorithmic failure, bias, and cybersecurity risks. The UK is fortunate to have a regulatory environment that is generally conducive to innovation, and steps taken by the FCA to see how to ensure the financial services, including insurance, can future-proof against disruptive technology.

JAPAN also shows early signs of involvement in AI insurance. Sompo Holdings, one of Japan's top insurers, is looking into ways to develop AI liability insurance products. Japan's notable approach to AI insurance is its regional coordination, considering efforts made across government agencies, industry associations, and market participants working jointly to review

potential AI-related exposures for which proper insurance exists. The Japanese culture particularly values risk management and preparedness, and future development within this sector should further support Japan in carving out a space to develop insurance frameworks for AI.

In summary, these developments indicate an escalating global awareness of the need for specialized products to handle AI risk. While some jurisdictions, particularly Europe and North America, are ahead of the game in terms of credible market offerings, many others are still in the beginning phases of market development or experiencing regulatory uncertainty. The gut check on the evolving landscape suggests that the ability to provide tailored, targeted, and comprehensive insurance and risk management solutions for AI companies will be a differentiator in assessing national competitiveness in the global AI economy.¹⁹

C. <u>Low Engagement Countries – Initial Steps towards AI Insurance</u>

As is the case in other parts of North America, Europe, and some regions of East Asia, the expansion of insurance products developed around AI companies is just beginning in India. Major INDIAN corporations, like Infosys and Wipro, are using technology based on AI more frequently, and while these companies operate with certain degrees of data analytics, automation, and AI-driven services, the insurance industry is lagging quite a distance behind.²⁰ The current insurance products available in India are primarily focused on the more traditional cyber insurance and technology errors and omissions (E&O) product offerings, and just in principle, do not contain any product offering targeted at the specific liability associated with AI-centric activities. It is anticipated that as the country becomes more digitally dependent and the AI industry begins to develop within India, the insurance industry will have to offer products that respond to the demand based on legislative expectations placed upon them, or market demand from the private sector.

In the same vein, although SOUTH KOREA is home to one of the world's most advanced technological ecosystems, it is still attempting to create suitable targeted insurance policies for AI-associated risks. As a catalyzing function of AI innovation, South Korea's government investment in AI R&D, along with large conglomerates being present in the technology industry, including Samsung and LG, has encouraged the development of AI. Against this

¹⁹ <u>https://pmc.ncbi.nlm.nih.gov/articles/PMC10994314</u>

²⁰ https://www.ocs.help/blog/why-insurance-lags-behind-with-new-tech

backdrop, insurance solutions ultimately directed to AI liability specifically are still in their infancy. However, discussions taking place with continued discussions at the government and industry level suggest that South Korea is moving to a more systematic process in ensuring AI technologies. There is a significant long way for product development and regulatory structure for AI.²¹

Across ASEAN, the pace of AI adoption is astonishing. From financial services to manufacturing industries, there is AI adoption by countries and sectors. Countries such as Singapore and Malaysia, as well as Vietnam, are investing heavily in developing and integrating their AI technologies through government initiatives and private sector demands. Unfortunately, the insurance industry in the ASEAN countries is still relatively far behind. While some countries (Singapore in particular) monitor potential AI-specific risk models, insurance products that are tailored towards the risk profiles of AI companies are largely not yet developed.²²

The uneven and inconsistent development of AI-specific insurance across jurisdictions creates its challenges and opportunities. Countries that are more mature in their offerings—like the US, Germany, and Switzerland—are demonstrating that AI companies should be regarded as a separate class of risk with their underwriting, risk models, and claims management. Specifically, these countries are demonstrating how the insurance industry can achieve innovation while, at the same time, supporting the legal and financial stability of AI.

Alternatively, in countries where AI insurance remains a new, and in some cases, theoretical concept, AI companies remain exposed to risks that could remain unchecked in the absence of dedicated products. More importantly, countries developed AI insurance are (potentially) at cross-purposes to those countries developing AI insurance, which creates structural issues: if AI insurance is to advance as a legitimate, viable, and stable industry sector in countries across the globe, at some point there will need to be some level of regulatory consistency and harmonization. If countries do not coordinate with each other, AI companies with international operations could face uneven risk coverage or limited products, as well as potential regulatory arbitrage and uncertainty. To support the sustainable development of a responsible AI insurance market, at some point, a level of convergence (potentially via model laws, recognized

²¹ <u>https://www.hunton.com/media/publication/200595_MealeysAILITReport-Levine-Pappas-Zullo-3-11-25.pdf</u>

²² https://www.chinadaily.com.cn/a/202409/09/WS66deadf0a3103711928a6f48.html

best practices, or cross-border regulatory engagement) will need to be achieved to reduce the risk of market fragmentation in an otherwise emerging insurance offering.

VII LAW, LAG, AND THE ROLE OF INSURANCE AS A BRIDGE

Historically, law has always struggled to keep up with innovative technological advancements, and the rise of AI is no different. As AI systems incorporate more human-like functions, whether that is through medicine, finance, transportation, etc., the law in India is struggling to respond to technologies that perform poorly and harm victims. Inquiry into formal legislation that might allocate liability for autonomous activities is a work in progress. In the meantime, insurance plays an important role in offering an interim solution for risk transfer, which ensures victims will be made whole even if liability is uncertain pending litigation in their respective courts and areas of law. Additionally, specialized insurance products for AI companies, calibrated by the developments depicted in the global heatmap, may serve to privately regulate standards for acceptable behaviour and to incentivize safe and insured artificial agent risks using premiums. In other words, insurance can act as both a financial shield and a barrier between innovation and accountability. Using insurance for risk allocation is also complicated by the way humans define blame when machines fail.

VIII THE PSYCHOLOGY OF BLAME IN AI FAILURES

Agentic and psychological biases fuel the behavior of shifting blame for AI failure. Studies show that ascribing anthropomorphic qualities such as perceived intentionality or capacity for emotions to AI systems increases the likelihood that moral blame will be directed toward the AI system, rather than the human participants, thereby creating what has been referred to as the "responsibility gap."²³ Such anthropomorphic qualities also lessen blame to developers or operators, who will usually avoid blame, even with some responsibility for having trained or operated the absurd system. Moreover, psychological mechanisms such as automation bias overtrust in an AI system and algorithmic aversion, disengaging with an AI system upon realizing it made errors, reinforce social skepticism of AI systems as if humans didn't make errors. As blame becomes disbursed between humans, a developer, a system operator, or an actual AI system, courts and insurers grapple with determining who is liable, along with the inevitable ambiguity and delay in settlement. The somewhat more complicated situation of opaque AI decision-making processes, otherwise referred to as "black boxes," demonstrates

²³ <u>https://www.devdiscourse.com/article/technology/3202492-ais-moral-dilemma-fixing-the-blame-game-in-tech-failures</u>

the need for utilizing probabilistic causation theory to establish liability policy design. Insurers must consider the ethical implications and practical complications instigated by psychological blame and need to see collective liability intermixed into claims processes to ensure fairness and transparency. Tailored to socio-legal systems like India, where trust and ethical governance factor highly into public perception.²⁴

With these unique psychological and legal circumstances in mind, there are strong arguments to provide particular insurance arrangements tailored to the socio-legal framework in India.

IX IMAGINING A MODEL INDIAN AI INSURANCE REGIME

An integrated AI insurance scheme for India needs to bring together innovation incentives and risk management. First, compulsory requirements of insurance need to be introduced in the high-risk AI sectors of healthcare AI, autonomous mobility, and algorithmic credit scoring, like compulsory motor vehicle insurance under the Motor Vehicles Act, 1988. The insurance entitlement must be determined according to the ethical design certification, ethical data governance standards, and ethical impact assessments of the AI company, on parameters resonant with the OECD principles on ethics of AI. Premiums must be adaptive, rooted in policy's original terms, explainability through algorithms, rigid audits, and security safeguards. Legally, the policies should spell out "autonomous decision" and, forthrightly, the insured risk of a program malfunction, unintentional consequences, and data-informed discrimination. In case of systemic risks or system-wide failures, an AI Risk Pool, with a partial government backstop in the form of a public-private partnership by regulation through IRDAI's charter, would eliminate liability, solvency, or affordability issues. The regulations could track the frameworks demonstrated in the Environmental Liability Directive (EU) and the Civil Liability for Nuclear Damage Act, 2010 (India); such measures would extend strict liability to the AI provider irrespective of evidence of negligence. Such a system would position India as an international leader in the regulation of AI based on risk-based insurance. However, building such a regime requires sustained institutional collaboration between regulatory authorities and the technology industry.

²⁴ <u>https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0314559</u>

X <u>INSTITUTIONAL COLLABORATION: IRDAI AND THE</u> <u>TECHNOLOGY SECTOR</u>

To establish a successful AI insurance model, the Insurance Regulatory and Development Authority of India (IRDAI) must lead a multi-stakeholder collaboration forum that involves AI developers, insurance providers, legal professionals, consumer rights organizations, and cybersecurity specialists. A Regulatory Sandbox approach similar to the United Kingdom's Financial Conduct Authority (FCA) sandbox can be used exclusively for AI products. Employing test environments under management, true proof of failure, near-misses, and claim rates of AI systems can be gathered without exposing consumers to inappropriate risk. Iterative such testing would enable interactive policy design and pricing strategies tailored to real AI risk rather than mathematical models. Moreover, industry codes of conduct may be created collectively to establish insurability criteria, whereby coverage is available only to those entities that pass basic safety and ethical standards. Together, this collective effort will create a feedback mechanism where insurance information constantly provides input to enhanced AI design, and safer AI, in return, leads to reduced insurance rates.

XI CONCLUSION

Artificial Intelligence is revolutionizing sectors and, in turn, the ecosystem of laws and morals in which society operates. In a country like India, where the momentum for AI adoption in healthcare, transport, finance, and public delivery, just to name a few, is starting to gain traction, the legal question of civil liability cannot remain unanswered. By way of example, insurance law is a viable, near-term bridge for this issue since it can seek to do multiple good things, including providing insurance payouts to victims, incentivising ethical design in AI use cases and imposing a layer of risk discipline on use of AI, even in advance of the emergence of complex forms of legislation. India has the potential to create a compelling future-proof regime of liability, created by various methodologies including treating AI-driven businesses as a new class of insurable risk, and designing insurance products that deal with ethical and dynamic behaviours; public-private sector collaborations providing pooling arrangements or collaborative risk pools for specific AI use case scenarios; and lastly, to collaborate with institutions through collaboration using a sandboxing environment. This will build a framework to help India understand and create solutions that otherwise have the potential to facilitate catastrophe. The global heatmap shows that, despite other countries moving incrementally, India has the innovative opportunity to also establish its watershed legal precedent and reputational advantage, especially with other developing economies. Lastly, if we are going to rely on AI and AI systems to make significant and life-altering decisions on our behalf based on the outputs of the machine learning component, we should also ensure these systems and related organizations are obligated to be economically and legally liable through robust insurance schemes. In doing this, we can protect society, whilst also unleashing the full potential of social and economic value creation enabled by AI, but with responsibility.

