Between Insurance and Finance: The Evolving Role of the Information Duty in the Digital Insurance Contract

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ABSTRACT

The ongoing digitalisation of the insurance market is reshaping the functional architecture of the insurance contract and generating new challenges for the law of information obligations. The deployment of algorithmic underwriting techniques, the availability of extensive and heterogeneous datasets and the pervasive use of predictive analytics have significantly altered the traditional informational asymmetries underpinning the common law duty of disclosure and its modern articulation in the Insurance Act 2015. The longstanding assumption that the proposer is the better-informed party and therefore burdened with the obligation to volunteer all material facts is increasingly displaced. The opacity and arbitrariness of insurers' inferential processes generate a new informational imbalance in which power derives not from ignorance but from surplus predictive capacity.

Within this transformed environment, the information duty can no longer be understood as a unilateral obligation of the assured. The article argues that it should be reframed as a relational principle, generating bilateral obligations of transparency, intelligibility and accountability. This argument is developed primarily by reference to English law and the UK regulatory framework. The FCA Handbook – through ICOBS 5 and 6, COBS 7 and PROD 4 – already imposes substantial information and advisory obligations on insurers; the Consumer Duty, introduced in PRIN 2A with effect from 31 July 2023, adds a prospective, outcomes-based standard that intersects directly with the challenges of algorithmic underwriting; and the UK GDPR and the Data Protection Act 2018 provide enforceable safeguards against purely automated decision-making. These domestic instruments are, however, imperfectly adapted to the specific challenges of algorithmic opacity, and the article identifies the lacunae that remain. In this context, recent European regulatory developments – including the EU AI Act, DORA, Solvency II and IFRS 17 – are examined not as directly applicable law but as normative reference points that illuminate the direction of a mature regulatory response and that UK regulators and courts may legitimately draw upon in the interpretive development of the existing domestic framework.

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The article further identifies meaningful convergences between the evolving information duty and the logic of financial regulation, where informational symmetry constitutes a foundational mechanism of market integrity and investor protection. The emerging landscape positions the information duty as an organising principle of the digital insurance contract at the intersection of insurance law, financial regulation and the governance of artificial intelligence.

1. Introduction

The digitalisation of the insurance market represents one of the most significant phenomena in the transformation of contemporary private law.[1] The systematic deployment of underwriting algorithms, the availability of datasets of ever-growing dimensions and variety, and the pervasive use of predictive analytics techniques have profoundly altered the informational architecture of the insurance contract, redrawing the knowledge asymmetries upon which the traditional regulation of disclosure obligations is founded. In this transformed context, the persona of the informed proposer – required, by virtue s 3(4)(a) of the Insurance Act 2015, to voluntarily disclose to the insurer every material circumstance which it knows or ought to know – is progressively giving way to a configuration in which it is the insurer, equipped with instruments of extraordinary inferential predictive power, that finds itself in a position of structural informational advantage.[2]

This inversion of informational asymmetry constitutes the starting point of the present contribution, which seeks to analyse the evolving role of the information duty in the digital insurance contract, with particular attention both to its foundations in English law and to the functional convergences that emerge with the regulation of financial markets. The analysis is conducted primarily by reference to English law and the UK regulatory framework. The duty of disclosure has received its most systematic statutory elaboration in English law, from section 18 of the Marine Insurance Act 1906 to the duty of fair presentation under section 3 of the Insurance Act 2015; and the domestic regulatory architecture – the FCA Handbook, the Consumer Duty, and the UK GDPR – already contains the normative materials from which a relational reconstruction of the information duty may be developed. Reference to the European regulatory framework is nonetheless

[1] For a general reconstruction of the digital transformation of the insurance market, see, P Marano and K Noussia (eds), *InsurTech: A Legal and Regulatory View* (Springer 2019); M Eling and M Lehmann, 'The Impact of Digitalization on the Insurance Value Chain and the Insurability of Risks' (2018) 43(3) Geneva Papers on Risk and Insurance 359. See also R Balasubramanian, A Libarikian and D McElhaney, 'Insurance 2030 - The Impact of AI on the Future of Insurance' (McKinsey & Company, 21 March 2021) https://www.mckinsey.com/industries/financial-services/our-insights/insurance-2030-the-impact-of-ai-on-the-future-of-insurance accessed 14 April 2026; R J Coleman, 'Risk Management Implications and Applications of Artificial Intelligence Within the (Re)Insurance Sector' (SCOR, March 2018) https://www.scor.com/sites/default/files/focus_scor-artificial_intelligence.pdf accessed 14 April 2026.

[2] T Kavanagh, *The Path to Modernity in the Law of Insurance: A Critical Analysis and a Conceptual Comparison of the Respective Judicial Developments on the Principle of Uberrimae Fides and the Duty of Disclosure in the UK and Ireland*(2023); G Meggitt, 'A Leap of Faith - InsurTech and the Doctrine of Uberrimae Fidei' (SSRN, 2018); P S Davies, 'The Basis of Contractual Duties of Good Faith' (2019) 1 Journal of Commonwealth Law.

necessary, though its function in the argument must be precisely understood: not as a source of directly applicable obligations, but as evidence of the direction in which a coherent regulatory response to algorithmic underwriting is developing, and as a legitimate source of normative vocabulary and institutional design principles for UK regulators and courts.

The central thesis of this contribution is that the information duty, in its digital configuration, can no longer be understood as a unilateral obligation of the insured, but should be reframed as a relational principle capable of incorporating the emerging expectations of algorithmic transparency, intelligibility of actuarial models and accountability for automated decision-making.[3] This reframed conception responds not only to requirements of substantive fairness in the relationship between the parties but is situated within a broader functional convergence between insurance law and financial regulation, in which informational symmetry constitutes a fundamental safeguard of market integrity and policyholder protection.[4]

For illustration, the article draws throughout on the long-term care ("LTC") insurance context. Algorithmic hyper-personalisation in LTC underwriting risks excluding elderly, disabled and chronically ill persons – precisely those for whom insurance coverage carries the greatest social value – thereby translating informational opacity into financial exclusion. The paper identifies four functions associated with the information duty in its digital configuration that are illustrated by the LTC insurance case study: (1) an allocative function, distributing informational obligations in proportion to each party's inferential capacity; (2) an accountability function, requiring the insurer to justify its automated decisions; (3) a market integrity function, ensuring transparency as a condition of effective competition; and (4) an evolutionary function, through which the insurance contract adapts to the expectations of a data-driven society.

2. The Duty of Disclosure in the Common Law and its Reformulation in the Insurance Act 2015

[3] The critical analysis carried out by M A Clarke, *Policies and Perceptions of Insurance Law in the Twenty-First Century* (OUP 2005)., appears today to be of particular relevance when read in light of the broader phenomenon of typological instability affecting the insurance contract. The author has indeed emphasized how the rules on the matter, often perceived as opaque or excessively technical, translate into a structural advantage for insurers, generating a widespread sense of imbalance and injustice both among contracting parties and in the perception of judges. In this context, Clarke has insisted on the need to "demystify" insurance law, bring it back within the framework of general principles of contract law, and make it accessible to all actors involved. Such a need is nothing but the reflection of a deeper systemic tension: insurance, as a typical legal form, finds itself today in a condition of instability that concerns not only the content of clauses or the regulatory framework, but the very physiognomy of the contractual type. Where Clarke identifies, on an empirical and perceptual level, the signs of a crisis of legitimacy of traditional insurance law, the notion of "constitutive moment" describes the most radical level of such change: no longer a mere need for reform or updating, but a process of redefinition of the function, structure, and systematic position of the insurance contract. In this sense, Clarke's reflection constitutes a critical anticipation of that broader transformation that today questions all legal systems, called upon to rethink insurance as an institution that is not only technical-legal, but also social and economic, capable of withstanding the new challenges of transparency, financialization, and digitalization.

[4] P Tereszkiewicz, 'Digitalisation of Insurance Contract Law: Preliminary Thoughts with Special Regard to Insurer's Duty to Advise' in Marano and Noussia (n 1) 130.

The duty of disclosure in the tradition of the English common law has its roots in the celebrated judgment of Lord Mansfield in *Carter v Boehm*,[5] in which he stated that a contract of insurance is a "*contract upon speculation*", in which each party is bound not to conceal circumstances that might influence the other party's assessment of the risk. The maxim of Lord Mansfield enunciates the principle of *uberrimae fidei* which, for over two centuries, constituted one of the key foundational principles of English insurance law.[6]

In its classic formulation, Lord Mansfield conceived the duty as a mutual one, binding both the assured and the insurer.[7] However, the insurer's correlative duty of disclosure was not fully embraced in subsequent case law, primarily because the remedy of avoidance – the standard consequence of breach – proved of little practical utility in the hands of the insured. As a result, the duty came to fall predominantly on the proposer, on the presupposition – economically reasonable in the historical context in which it developed – that the proposer is the party better informed as to the characteristics of the risk to be covered.[8] The Marine Insurance Act 1906 codifies the common law duty for marine insurance contracts, providing at section 18 that the assured must disclose to the insurer, before the conclusion of the contract, "*every material circumstance which is known to the assured*".

The case law has progressively clarified the content and limits of this duty. The House of Lords, in *Pan Atlantic Insurance Co Ltd v Pine Top Insurance Co Ltd*, held that the materiality of a circumstance must be assessed by reference to the influence it would exercise on the judgment of a prudent insurer, adopting the "*prudent insurer*" standard as the objective benchmark.[9]

The classical common law system has, however, exhibited over time significant tensions with the requirements of policyholder protection, particularly in consumer contracts. The rigorous application of the principle of *uberrimae fidei* and the consequent right of the insurer to avoid the contract in the event of *misrepresentation* or *non-disclosure*, even in the absence of fraud or actual loss, has produced results that are often inequitable, undermining confidence in the market and prompting corrective legislative intervention.[10]

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[5] *Carter v Boehm* (1766) 3 Burr 1905, 1909.

[6] On this topic, see R Hasson, 'The Doctrine of Uberrima Fides in Insurance Law: A Critical Evaluation' (1969) 32 MLR 615; H N Bennett, 'Mapping the Doctrine of Utmost Good Faith in Insurance Law' [1999] LMCLQ 165; T J Schoenbaum, *Key Divergences Between English and American Law of Marine Insurance: A Comparative Study* (1999); J Lowry and P Rawlings, *Insurance Law: Doctrine and Principles* (2005) 79; S Park, *The Duty of Disclosure in Insurance Contract Law*(Dartmouth 1996); J Birds and N J Hird, 'Misrepresentation and Non-Disclosure in Insurance Law: Identical Twins or Separate Issues?' (1996) 59 MLR 285; A A Tarr and J A Tarr, 'The Insured's Non-Disclosure in the Formation of Insurance Contracts: A Comparative Perspective' (2001) 50 ICLQ 577.

[7] *Carter v Boehm* (1766) 3 Burr 1905.

[8] J Lowry, 'The Duty of Fair Presentation: Convergence of Good Faith and Disclosure' [2016] LMCLQ 242. See also *Glicksman v Lancashire & General Assurance Society* [1927] AC 139 (HL) and *Schoolman v Hall* [1951] 1 Lloyd's Rep 139; J Birds, *Insurance Law in the United Kingdom* (4th edn 2018) 79; M A Clarke, *Policies and Perceptions of Insurance Law in the Twenty-First Century* (n 4) 112.

[9] *Pan Atlantic Insurance Co Ltd v Pine Top Insurance Co Ltd* [1994] 2 Lloyd's Rep 427 (HL).

[10] Law Commission and Scottish Law Commission, *Consumer Insurance Law: Pre-Contract Disclosure and Misrepresentation* (Law Com No 319, 2009); Law Commission and Scottish Law Commission, *Insurance Contract Law: Business Disclosure; Warranties; Insurers' Remedies for Fraudulent Claims; and Late*

The Consumer Insurance (Disclosure and Representations) Act 2012 and the Insurance Act 2015 represent the most significant reform of English insurance law in this century.[11] Adopted on the recommendation of the Law Commission and the Scottish Law Commission, it redesigns the architecture of pre-contractual obligations, replacing the pre-existing duty of disclosure with an obligation of "*fair presentation of risk*" (s. 3), articulated in three fundamental components: the disclosure of every material circumstance that the insured knows or ought to know; the presentation of the risk in a manner sufficiently clear to enable the insurer to formulate appropriate questions; and abstention from any misrepresentation.[12] Adopted on the recommendation of the Law Commission and the Scottish Law Commission, the Insurance Act 2015 redesigns the architecture of pre-contractual obligations in business insurance, replacing the pre-existing duty of disclosure with a duty of fair presentation of the risk. Under this model, the assured must disclose every material circumstance which it knows or ought to know, or, alternatively, provide the insurer with sufficient information to put a prudent insurer on notice that further enquiries are needed. The presentation must be reasonably clear and accessible, and any material representation of fact must be substantially correct. For these purposes, the assured's knowledge includes that of its senior management and of those responsible for arranging the insurance, as well as what would have been revealed by a reasonable search of the information available to it.[13]

In the relationship with consumers (consumer insurance), the Consumer Insurance (Disclosure and Representations) Act 2012 effects a more radical transformation. Consumers are no longer subject to any duty to volunteer information to the insurer. Instead, their obligation is confined to taking reasonable care not to make a misrepresentation to the insurer in response to questions posed during the pre-contractual stage.[14] The shift is therefore not merely one of degree but of kind: the initiative in eliciting relevant information passes entirely to the insurer, who must structure the questioning process accordingly.[15]

Payment (Law Com No 353, 2014). See also Z Bednarz and K Manwaring, 'Keeping the (Good) Faith: Implications of Emerging Technologies for Consumer Insurance Contracts' (2021) 43(4) Sydney LR 455; B Soyer, 'Use of Big Data Analytics and Sensor Technology in Consumer Insurance Context: Legal and Practical Challenges' (2022) 81(1) CLJ.

[11] Law Commission and Scottish Law Commission, *Consumer Insurance Law: Pre-Contract Disclosure and Misrepresentation* (Law Com No 319, 2009); Law Commission and Scottish Law Commission, *Insurance Contract Law: Business Disclosure, Warranties, Insurer's Remedies for Fraudulent Claims, and Late Payment* (Law Com No 353, 2014).

[12] Insurance Act 2015, ss 3(1)-(4). On the structure of the new duty of fair presentation, see R Merkin and Ö Gürses, 'The Insurance Act 2015: Rebalancing the Interests of Insurer and Assured' (2015) 78 MLR 1004, 1010.

[13] See Insurance Act 2015, s. 3(1), 3(3)(a)-(c), 3(4), 3(5).

[14] Consumer Insurance (Disclosure and Representations) Act 2012, s 2(1).

[15] Consumer Insurance (Disclosure and Representations) Act 2012, s 2(2). On the Principles of European Insurance Contract Law (PEICL), see J Basedow and others (eds), *Principles of European Insurance Contract Law* (PEICL) (2nd edn, 2016); M Clarke and H Heiss, 'Towards a European Insurance Contract Law? Recent Developments in Brussels' [2006] JBL 600; J Basedow, 'Verso una disciplina europea del contratto di assicurazione: ragioni, struttura e metodo' (2006) Danno e responsabilità 5; H Heiss, 'The Common Frame of Reference of Insurance Contract Law' (2009) 1 European Journal of Commercial Contract Law 2; C Armbrüster, 'The Principles of European Insurance Contract Law' (2010) Diritto ed economia delle assicurazioni 1029.

The 2015 reform further introduces a proportionate remedies regime. In the first instance, the insurer is only entitled to a remedy if the breach is a qualifying one: that is if the insurer shows that, but for the breach, the insurer would not have entered into the contract of insurance at all, or would have done so only on different terms.[16] Moreover, the remedies regime which distinguishes between deliberate and reckless breaches on the one hand, and non-deliberate/non-reckless breaches on the other. The remedy for qualifying deliberate and reckless breaches is avoidance, and the insurer need not return the premium.[17] The remedy for a qualifying non-deliberate/non-reckless breach depends on whether the insurer in question would, but for the breach: (1) not have entered into the contract at all in which case the remedy is avoidance; (2) have entered into the contract on different terms in which case the contract is to be treated as if it had been entered into on those different terms if the insurer so requires; and/or (3) have charged a higher premium in which case the insurer may reduce proportionately the amount to be paid on a claim.[18]

This reform suggests a significant evolution in the function of the information duty: from an instrument primarily concerned with the unilateral protection of the insurer towards a more balanced framework shaped by reciprocal expectations of loyalty, cooperation and reasonable inquiry.[19]

The question that the digital transformation poses to the English legal order is therefore whether the existing framework of the Insurance Act 2015 is capable of accommodating these new informational expectations through interpretive development, or whether further legislative or regulatory intervention is required. In this regard, the FCA's Consumer Duty (PS22/9, 2022) constitutes a significant regulatory development that must be considered. The Consumer Duty introduces a Consumer Principle requiring firms to act so as to deliver good outcomes for retail customers, supplemented by cross-cutting rules that oblige firms to: (a) act in good faith towards retail customers; (b) avoid causing foreseeable harm to retail customers; and (c) enable and support retail customers to pursue their financial objectives. These obligations are articulated across four outcome areas – products and services, price and value, consumer understanding, and consumer support – and impose on insurers a proactive standard of conduct that significantly exceeds the minimum disclosure obligations established under the CIDRA 2012. The Consumer Duty therefore represents a further layer of regulatory expectation that interacts with, and in certain respects transcends, the statutory framework, and its implications for the pre-contractual information regime in the digital context warrant careful consideration.[20] The answer proposed in this article is that the duty of fair presentation under section 3, read in conjunction with the residual good-faith structure of the Insurance Act 2015, the FCA's regulatory framework, and the emerging requirements of algorithmic accountability under the UK GDPR and the Data Protection Act 2018,

[16] Insurance Act 2015, s 8(1).
[17] Insurance Act 2015, Sch 1, para 2.
[18] Insurance Act 2015, Sch 1, paras 3-6.
[19] G Howells and C Twigg-Flesner, 'Consumer Protection in the Digital Age: Challenges and Opportunities' (2022) 45 Journal of Consumer Policy 1; Marano and Noussia (n 2); D A Zetzsche, D W Arner and R P Buckley, 'The Future of Data-Driven Finance and RegTech: Lessons from EU, UK and Asia' (2020) 83(2) Law and Contemporary Problems 125.
[20] Financial Conduct Authority, *FCA Handbook*, PRIN 2A 'The Consumer Duty', especially PRIN 2A.2 and PRIN 2A.5.

may be understood as providing sufficient normative flexibility to support a relational reconstruction of the information duty, provided that courts and regulators are willing to develop that framework in a more substantively reciprocal direction.[21]

3. The Algorithmic Revolution and the Reversal of Informational Asymmetries

The digital transformation of the insurance market has produced a silent but profound revolution in the methods of risk assessment and pricing.[22] Insurance undertakings today possess instruments of data analysis of extraordinary sophistication: machine learning algorithms capable of processing datasets of enormous dimensions,[23] natural language processing (NLP) systems for the analysis of unstructured information sources, and predictive models capable of inferring individual characteristics from behavioural, geographical, temporal and relational signals.[24]

This technological evolution has profoundly altered the distribution of relevant information in the underwriting process. In the past, the informational asymmetry founding the duty of disclosure reflected a precise empirical reality: the proposer had direct knowledge of the characteristics of the risk (*e.g.,* health conditions, building structure, driving habits), whereas the insurer lacked such knowledge and had to rely on the declaratory loyalty of the contracting party. Today this premise is radically altered: the insurer can acquire, process and exploit information that the proposer itself does not possess or is not able to articulate, inferring risk characteristics from statistical correlations between apparently heterogeneous variables.[25]

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[21] On the UK approach to AI regulation, see DSIT, *A Pro-innovation Approach to AI Regulation* (CP 815, 2023). On algorithmic accountability under the UK GDPR, see in particular UK GDPR, art 22 and Data Protection Act 2018, s 14, which provide safeguards in respect of solely automated decision-making with significant effects.

[22] On certain adverse consequences for clients arising from this tendency, see M van Bekkum, F Zuiderveen Borgesius and T Heskes, 'AI, Insurance, Discrimination and Unfair Differentiation: An Overview and Research Agenda' (2025) 17(1) Law Innovation and Technology 177; M Infantino, 'Big Data Analytics, Insurtech and Consumer Contracts: A European Appraisal' (2022) 30(4) European Review of Private Law 613; A Filabi and S Duffy, 'AI-Enabled Underwriting Brings New Challenges for Life Insurance: Policy and Regulatory Considerations' (2021) Journal of Insurance Regulation; A Cevolini and E Esposito, 'From Pool to Profile: Social Consequences of Algorithmic Predictions in Insurance' (2020) 7(2) Big Data & Society 1; A E R Prince and D Schwarcz, 'Proxy Discrimination in the Age of Artificial Intelligence and Big Data' (2020) 105(3) Iowa LR 1257.

[23] IVASS, 'Indagine sull'utilizzo degli algoritmi di Machine Learning da parte delle imprese assicurative nei rapporti con gli assicurati' (February 2023) https://www.ivass.it/pubblicazioni-e-statistiche/pubblicazioni/altre-pubblicazioni/2023/indagine-algoritmi/Esiti_Indagine__Algogovernance.pdf accessed 14 April 2026.

[24] D A Zetzsche and others, 'From FinTech to TechFin: The Regulatory Challenges of Data-Driven Finance' (2017) 14(2) New York University Journal of Law & Business 393, who analyse how the use of big data and machine learning in insurance modifies the informational balance between insurer and insured, broadening the spectrum of information considered "material".

[25] From a technical standpoint, the insurance mechanism is founded on a complex economic operation consisting in the collection by an insurance undertaking of a mass of homogeneous risks and the redistribution of the assumed risks among the insured belonging to the same risk class. The class is identified by the homogeneity of underwritten risks of the same type. Cf. K S Abraham, 'Efficiency and Fairness in Insurance Risk Classification' (1985) 71(3) Virginia LR 403; L McFall, 'Personalizing Solidarity? The Role of Self-Tracking in Health Insurance Pricing' (2019) 48(1) Economy and Society 52. Furthermore, it should be noted

The phenomenon of the "datafication" of insurance risk – the transformation of behaviours, relationships and individual characteristics into data susceptible to algorithmic processing – has produced a new category of actuarially relevant information that escapes the traditional logic of disclosure.[26] This information is not "known" to the proposer in the classical sense: it emerges from the processing of weak signals and statistical correlations that only the insurer, equipped with the necessary technical instruments, is able to exploit.

The impact of algorithmic underwriting manifests itself with particular intensity in the product design phase, notably in the discharge of the obligations imposed on insurance manufacturers to: (i) establish and maintain a product approval process for each insurance product before it is marketed or distributed; (ii) identify, with specificity, the target market of end customers for whom the product is designed; and (iii) define an appropriate distribution strategy consistent with that target market. These obligations are imposed, in the EU framework, by Article 25 of Directive (EU) 2016/97 on insurance distribution (IDD) and further elaborated in the EIOPA Guidelines on Product Oversight and Governance (POG).[27] In the United Kingdom, equivalent obligations are set out in Chapter 4 of the FCA Handbook, PROD Product Intervention and Product Governance Sourcebook (PROD 4).[28] Through unsupervised clustering techniques and predictive analyses based on behavioural and sociodemographic data, artificial intelligence enables insurance undertakings to construct market segmentations of unprecedented granularity, identifying with increasing precision both the positive market – customers for whom the product is suitable – and the negative market.[29] However, this statistical precision generates legal risks of considerable magnitude: the correlations identified by the algorithm may reflect or amplify pre-existing biases in historical data, generating indirect discrimination or exclusionary outcomes for certain groups of customers, even in the absence of explicit sensitive variables.[30]

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that incorrect risk assessment, particularly if systematic and relating to material exposures, may compromise the solvency of insurance undertakings, since claims payable would exceed available capital resources. This gives rise to the public interest dimension of insurance regulation, as such undertakings, similarly to banking and financial institutions, perform an essential function of risk reallocation, the inefficiency of which would negatively impact the entire economic system.

[26] C J Bredthauer, 'The Ethics of Behaviour-Based Insurance Models' (2025) Health Policy; A Cevolini, 'Social Consequences of Algorithmic Prediction in Insurance' (2020) Big Data & Society 1.

[27] Directive (EU) 2016/97 (IDD), art 25, paras 1-2; EIOPA, 'Approach to the Supervision of Product Oversight and Governance' (2020) point 3; EIOPA, 'Preparatory Guidelines on Product Oversight and Governance Arrangements by Insurance Undertakings and Insurance Distributors' (EIOPA-BoD-16/071) Guideline No 1. See also IVASS Regulation No 45/2020, arts 6-7.

[28] FCA Handbook, PROD 4 (Product Governance), in particular PROD 4.2 (product governance obligations of manufacturers) and PROD 4.3 (target market identification and distribution strategy). See also FCA, 'PS16/3 - Product Governance: Amendments to the Handbook' (2016).

[29] P Marano, 'L'intelligenza Artificiale nella Realizzazione e Distribuzione dei Prodotti Assicurativi: Verso una Compliance Integrata tra AI Act, IDD e POG' (2025) 2(I) Rivista di Diritto Bancario 281; M Loi and M Christen, 'Navigating Ethical Trade-Offs in Fair Algorithmic Design for the Insurance Sector' (2021) 34 Philosophy & Technology 1061.

[30] Marano (n 29) 281. See also I Žliobaitė, 'A Survey on Measuring Indirect Discrimination in Machine Learning' (ACM Computing Surveys, October 2015) https://arxiv.org/abs/1511.00148 accessed 14 April 2026; NIST, 'Towards a Standard for Identifying and Managing Bias in Artificial Intelligence' (NIST Special Publication 1270, 2021) 6 https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.1270.pdf accessed 14 April 2026; OECD, *Artificial Intelligence in Society* (OECD Publishing 2019) 60; F Holstege and others, 'Auditing a Dutch Public Sector Risk Profiling Algorithm Using an Unsupervised Bias Detection Tool'

In this perspective, compliance with POG obligations can no longer be limited to the static documentation of product characteristics but must extend to the description and validation of the algorithmic segmentation logic, subjecting it to ex ante control and periodic review within the product approval file.

3.1. The Paradox of Opacity: Predictive Surplus and the Intelligibility Deficit

Algorithmic underwriting generates a new type of informational paradox, which may be defined as the "paradox of opacity". On the one hand, insurance undertakings possess a predictive capacity without precedent: machine learning models are able to discriminate between risk classes with a precision far superior to that of traditional actuarial methods. On the other hand, this predictive capacity is often opaque even to those who deploy it: machine learning models, in particular those based on deep neural networks, produce predictive outputs whose internal logic is difficult to reconstruct in terms comprehensible to human operators.[31]

The "black box" phenomenon – widely discussed in the technical and legal literature – describes precisely this condition in which the inferential power of the model is accompanied by the unintelligibility of the decision-making processes that govern it.[32] This paradox has significant consequences for insurance law.

In the first place, it generates a new form of informational asymmetry, structurally different from the traditional one: no longer an asymmetry founded on the parties' different proximity to the relevant sources of information, but an asymmetry of inferential capacity, in which the insurer's superiority derives not from the possession of additional data but from the capacity to extract predictive value from these data points by means of advanced processing techniques.

Secondly, the paradox of opacity raises fundamental questions of accountability: if the insurer is unable to explain why an algorithm has attributed a certain risk profile to a given proposer, how can the contracting party verify the correctness of the assessment, challenge an adverse decision, or exercise its own rights? Algorithmic opacity also produces potentially discriminatory distributive effects that traditional anti-discrimination law struggles to intercept.[33] Predictive models trained on historical data may incorporate and perpetuate pre-existing discriminatory patterns: a statistical correlation between postcode and claims

(2025) https://arxiv.org/abs/2502.01713 accessed 14 April 2026; J Buolamwini and T Gebru, 'Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification' (2018) 81 Proceedings of Machine Learning Research 1.

[31] Regulation (EU) 2024/1689 (AI Act), art 10(2)(a)-(c); AI Act, art 13.

[32] Y Bathaee, 'Artificial Intelligence Black Box and the Failure of Intent and Causation' (2018) 31(2) Harvard Journal of Law & Technology 890; F Pasquale, *The Black Box Society: The Secret Algorithms that Control Money and Information*(Harvard UP 2015); N Diakopoulos, 'Algorithmic Accountability Reporting: On the Investigation of Black Boxes' (Tow Center for Digital Journalism, Columbia University, 2013).

[33] IAIS, 'Application Paper on the Use of Digital Technology in Inclusive Insurance' (November 2018) 11 https://www.iais.org/uploads/2022/01/181112-Application-Paper-on-the-Use-of-Digital-Technology-in-Inclusive-Insurance.pdf accessed 14 April 2026; OECD, 'Recommendation of the Council on Artificial Intelligence' (adopted 2019, updated 2025).

frequency, for example, may reflect structural social inequalities that anti-discrimination law aims precisely to eliminate.

This paradox manifests itself with particular acuity in the context of stress tests and scenario analysis, traditionally based on deterministic models built on static assumptions. The introduction of artificial intelligence instruments – generative models, deep neural networks, reinforcement learning techniques – enables more sophisticated simulations of complex, multivariate scenarios, but introduces a dangerous methodological opacity: black-box models may produce apparently coherent results, yet lacking a transparent causal justification, with the risk that scenario analyses are formally compliant but substantively incapable of detecting systemic risks, emerging behavioural dynamics or unintended distributive effects.[34] At the normative level, the AI Act's response is articulated primarily through Article 9, which requires providers of high-risk systems to adopt a documented risk management system, updated throughout the entire lifecycle of the system, and Article 61, which provides for post-market surveillance encompassing systematic mechanisms for the collection and analysis of data relating to the system's operation in real-world conditions.

At the practical level, the normative response to the paradox of opacity finds one of its most significant points of arrival in the concept of "algorithmic legibility" of the automated decision. Through a systematic interpretation of Articles 13, 14 and 22 GDPR and Recital 71 – and, in the United Kingdom, of the corresponding provisions of the UK GDPR and section 14 of the Data Protection Act 2018, which replicate the same framework in domestic law – scholarly opinion has developed the thesis that the controller must conform not only to a standard of formal transparency but also to "standards of acceptability, relevance and reliability" of the decision: the right to know the reasons for an algorithmic decision constitutes a pillar of algorithmic due process, antecedent to its effective contestability.[35] This construction has received significant confirmation in the case law of the Court of Justice of the European Union. In *OQ v Land Hessen (SCHUFA Holding)*, the Court adopted an expansive approach to the scope of application of Article 22 GDPR, holding that the concept of "decision" encompasses the automated calculation of a probability score that is determinative for the final decision taken by a third party, and that the fragmentation of automated processing across multiple entities in the value chain does not exclude the applicability of the Regulation's guarantees[36]. It should be noted, however, that following the United Kingdom's withdrawal from the European Union, judgments of the Court of Justice no longer constitute binding authority before UK courts, though they may

[34] T Baker and B Dellaert, 'Regulating Robo Advice across the Financial Services Industry' (2018) 103 Iowa LR 713; M Berman and S Knight, 'Big Data and Insurance: Implications for Regulation and Consumer Protection' (2015) 40(2) Geneva Papers on Risk and Insurance 341; P Marano, 'Insurance Law and Big Data: The Right to Be Informed and the Duty of Disclosure' in Marano and Noussia (n 1) 79.

[35] G Comandé, 'Leggibilità algoritmica e consenso al trattamento dei dati personali' (2022) 2 Danno e responsabilità (where it is argued that legibility is connected to the transparency of the algorithm 'such as to give the data subject comprehensible indications of the logic by which conclusions are inferred, and not abstruse technical indications'); L Edwards and M Veale, 'Slave to the Algorithm? Why a Right to an Explanation Is Probably Not the Remedy You Are Looking For' (2017) 16 Duke Law & Technology Review 18; S Wachter, B Mittelstadt and L Floridi, 'Why a Right to Explanation of Automated Decision-Making Does Not Exist in the General Data Protection Regulation' (2017) 7(2) International Data Privacy Law 76.

[36] Case C-634/21, *OQ v Land Hessen (SCHUFA Holding)* EU:C:2023:985.

retain persuasive value in the interpretation of equivalent provisions of the UK GDPR.[37] In the insurance sector, where algorithmic scoring systems frequently constitute a determining prerequisite of the underwriting decision, this orientation opens the way to a significant expansion of the contracting party's rights as against all persons participating in the automated decision-making process, including AI system providers and distribution platforms.

4. The Information Duty as a Relational Principle

The analysis of the transformations induced by the digitalisation of the insurance market suggests that the information duty can no longer be configured as a unilateral obligation falling exclusively on the proposer. The factual premises on which this traditional configuration was founded – the contracting party's informational superiority with respect to the specific characteristics of the risk – have been profoundly altered by the advent of algorithmic underwriting. It is therefore necessary to rethink the information duty as a relational principle, capable of incorporating obligations of transparency, intelligibility and accountability incumbent upon the insurer. This is not to suggest that English insurance law already recognises a free-standing duty of algorithmic explanation owed by insurers to proposers. Rather, the claim advanced here is that the combined effect of the Insurance Act 2015, the FCA Handbook, the Consumer Duty and data protection law makes such a development doctrinally plausible and normatively desirable.

This reconstruction is not without precedent in insurance doctrine. Even in the common law tradition, the duty of *uberrimae fidei* has been interpreted as a bilateral principle, binding both parties to the contract to conduct themselves with the utmost good faith. Lord Mansfield's formulation in *Carter v Boehm* (1766) 3 Burr 1905 expressly recognised a correlative duty resting upon the underwriter. More recent scholarship has taken up and developed this bilateral dimension, reading in the Insurance Act 2015 a significant step towards a conception of the insurance contract founded on reciprocal expectations of collaborative loyalty.[38] This doctrinal trajectory finds a complex, and not always consistent, reflection in the evolving case law. In *Equitas Insurance Ltd v Municipal Mutual Insurance Ltd*[39], the Court of Appeal treated good faith as capable of bearing upon the conduct of the parties beyond the narrow pre-contractual stage, though the decision stops short of recognising any generalised duty of insurer-side transparency of the kind argued for in this article.

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[37] *Ibid*. The Court held that the notion of 'decision' encompasses the automated calculation of a probability score relating to a person's capacity to honour future payment obligations, qualifying as a decision within the meaning of art 22 GDPR where it is determinative for the granting of credit by a third party. Article 29 Data Protection Working Party, 'Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679' (3 October 2017).

[38] The bilateral dimension of the duty of uberrimae fidei was affirmed by Lord Mansfield in *Carter v Boehm* (1766) 3 Burr 1905, 1909: 'the same obligation of concealment does not rest upon the underwriter'. See R Merkin and Ö Gürses, 'The Insurance Act 2015: Rebalancing the Interests of Insurer and Assured' (n 11); J Lowry and P Rawlings, 'Insurers, Claims and the Boundaries of Good Faith' (2005) 68(1) MLR 82; H N Bennett, 'Mapping the Doctrine of Utmost Good Faith in Insurance Contract Law' (n 8); J Lowry, P Rawlings and R Merkin, *Insurance Law: Doctrines and Principles* (4th edn, OUP 2019).

[39] *Equitas Insurance Ltd v Municipal Mutual Insurance Ltd* [2019] EWCA Civ 718.

More recently, however, the courts have confirmed that insurers retain the right to rely strictly on policy conditions even where doing so produces markedly inequitable outcomes. In *Makin v Protec Security Group Ltd*,[40] the High Court considered, inter alia, whether a claims condition providing that breach "will entitle [the insurer] to refuse to deal with the claim" required the insurer to exercise that power in good faith, rationally and consistently with its contractual purpose. The claimant, a third party proceeding under the Third Parties (Rights Against Insurers) Act 2010, argued that the insurer's refusal to indemnify for late notification was subject to the *Braganza* principle.[41] The court rejected that argument, holding on the true construction of the clause that the insurer was not vested with a discretionary power of the relevant kind, but was instead contractually entitled to refuse indemnity upon breach of the notification condition. Similarly, in *Cowie's Executrix-Dative v Vitality Corporate Services Ltd (t/a Vitality Life)*,[42] the Outer House of the Court of Session emphasised that the introduction of the Consumer Insurance (Disclosure and Representations) Act 2012 did not displace the insurer's duty of utmost good faith, which may in principle extend to the insurer's treatment of a claim under the policy. The court nevertheless made clear that this duty falls short of imposing on the insurer a generalised quasi-fiduciary obligation to preserve and advance the interests of the insured in preference to its own. Once a claim has been made, the insurer is entitled to maintain the position that it is not liable and to take reasonable steps to protect that position, provided that it does not act with malicious or dishonest intent. In contrast, *Makin* says that the insurer's duty is to exercise contractual powers rationally, in good faith, and consistently with the contractual purpose.[43]

In the digital era, this dimension acquires new and specific content: alongside the traditional duty of the proposer to present the risk fairly and completely, there emerges a corresponding duty of the insurer to render intelligible its own decision-making processes.

This duty of algorithmic intelligibility is not only a requirement of substantive fairness but constitutes also a functional prerequisite for the contracting party's informed exercise of its own contractual rights. It should be noted, moreover, that such a duty is not entirely without foundation in the existing regulatory framework. The FCA Handbook already imposes upon insurers a series of information obligations that, properly construed, anticipate certain dimensions of algorithmic intelligibility. Under ICOBS 6, insurers are required to provide customers with information that is clear, fair and not misleading regarding the essential characteristics of the product and the conditions of coverage, in sufficient time before conclusion of the contract to enable an informed decision. Where the terms of coverage, the pricing structure, or the decision to accept or decline a risk are determined by automated processes, compliance with ICOBS 6 may arguably require a degree of transparency as to the logic underlying those determinations. Similarly, COBS 7 imposes disclosure obligations in the context of insurance mediation activities – including as to the basis of any recommendation – which acquire particular significance where algorithmic tools inform or generate the

[40] *Makin v Protec Security Group Ltd* [2025] EWHC 895 (KB).
[41] *Braganza v BP Shipping Ltd* [2015] UKSC 17.
[42] *Cowie's Executrix-Dative v Vitality Corporate Services Ltd (t/a Vitality Life)* [2025] CSOH 52 [192]-[194].
[43] F Arnold-Dwyer, '2025 Review of UK Insurance Law Developments' (2026) 7 *VersR* 408.

advice provided to the customer. These existing obligations are now further reinforced by the FCA's Consumer Duty (PS22/9, 2022), which introduces a cross-cutting requirement that firms ensure retail customers achieve the outcome of genuine *consumer understanding*: firms must not merely disclose information but must take active steps to verify that customers are in a position to understand the nature of the product and the basis upon which decisions affecting them have been made.[44] The duty of algorithmic intelligibility proposed in this article may therefore be understood as giving systematic doctrinal articulation to obligations that are already, at least in embryonic form, embedded in the existing regulatory infrastructure. Without an adequate understanding of the criteria and parameters employed by the insurer in the assessment of risk, the contracting party is not in a position to challenge an adverse decision effectively, to propose appropriate alternative policies suited to its own profile, or to make informed comparisons between the offerings of different market operators.

4.1. Algorithmic Transparency, Accountability and the Rights of the Contracting Party

The concept of algorithmic transparency, developed primarily in the context of the regulation of personal data and artificial intelligence, is progressively penetrating insurance law as well, where it assumes a specific significance connected to the nature of the contractual relationship and the power asymmetries that characterise it. Algorithmic transparency, in the insurance context, is articulated in several dimensions: *ex ante* transparency, relating to the criteria and variables employed in the underwriting process; procedural transparency, concerning the logic and mechanisms of the automated decision-making process; and *ex post* transparency, regarding the explanation of individual decisions taken in respect of the contracting party.

These various dimensions of transparency translate into rights of the contracting party that the current and emerging normative framework is recognising with increasing intensity. The GDPR, at Article 22, recognises the right not to be subjected to decisions based exclusively on automated processing of personal data that produce legal or similarly significant effects.[45] Articles 13 and 14 of the same Regulation require the controller to provide "meaningful information about the logic involved" in automated decision-making processes.[46] The Artificial Intelligence Act (Regulation (EU) 2024/1689), now entering its phase of full application, introduces for high-risk artificial intelligence systems obligations of transparency, documentation and human oversight that further expand the expectations of intelligibility incumbent upon insurance undertakings. It should be noted, however, that the AI Act is an instrument of EU law and does not apply in the United Kingdom, which has instead adopted a pro-innovation, sector-based regulatory approach

[44] FCA Handbook, ICOBS 6 (Product Information Requirements); FCA Handbook, COBS 7 (Insurance Mediation); FCA, *PS22/9 - A New Consumer Duty* (n 21) para 4.3 (consumer understanding outcome). See also FCA, *FG22/5 - Final Non-Handbook Guidance for Firms on the Consumer Duty* (n 21) s 11.
[45] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data (General Data Protection Regulation) [2016] OJ L119/1 ('GDPR'), art 22.
[46] GDPR, arts 13(2)(f) and 14(2)(g).

to AI governance, entrusting supervisory responsibilities to sectoral regulators such as the FCA. The AI Act nonetheless remains relevant to UK-based insurers active in the EU market, since its territorial reach is not confined to operators established within the Union. For present purposes, Article 6, read together with Annex III, point 5, is of central importance, because it prima facie brings within the high-risk regime AI systems used for risk assessment and pricing in relation to natural persons in life and health insurance. That proposition, however, must now be treated with some caution. In its letter of 14 April 2026, EIOPA called for clarification that generalised linear models and comparable actuarial techniques should not be treated as falling within the AI Act at all, or at least should not be classified as high-risk, when used in life and health underwriting. The clear thrust of EIOPA's intervention is that the application of the AI Act in the insurance sector should remain proportionate and should not duplicate controls already supplied by the existing framework of insurance and data-protection law.[47] Article 13 requires that high-risk AI systems be designed and developed in such a way as to ensure sufficient transparency to enable deployers to interpret and use their outputs appropriately, with accompanying technical documentation enabling informed and competent use. Article 14 imposes an obligation of effective human oversight, requiring that natural persons responsible for the deployment of the system be in a position to understand, monitor and, where necessary, intervene to correct or override automated outputs. Article 12 mandates automatic logging of the system's operation, ensuring the traceability of decisions for the purposes of *post-hoc* accountability.[48]

4.2. Automated Distribution: Robo-Advisers, Algorithmic Profiling and Dynamic Pricing

The deployment of artificial intelligence in insurance distribution processes introduces further and specific implications for the information duty, manifesting in at least three distinct and interconnected domains: the use of robo-advisers and chatbots, the algorithmic profiling of customers for the purposes of suitability assessment, and the adoption of dynamic pricing systems.[49]

Regarding the first domain, the proliferation of automated systems for pre-contractual interaction with customers has profoundly altered the informational structure of the distribution phase.[50] Chatbots and robo-

[47] Regulation (EU) 2024/1689, art 6 and Annex III, para 5; EIOPA, 'Letter to EU institutions on AI Act and EU Insurance legislation proposal for clarifying application of the AI Act' (13 April 2026, published 14 April 2026).

[48] Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) [2024] OJ L 2024/1689 ('AI Act'), arts 6, 9, 12, 13, 14 and Annex III, point 5(b). On the UK approach to AI regulation, see DSIT, *A Pro-innovation Approach to AI Regulation* (CP 815, 2023).

[49] P Kofman, 'Scoring the Ethics of AI Robo-Advice: Why We Need Gateways and Ratings' (2025) 198(1) Journal of Business Ethics 21; B Scherer and S Lehner, 'What Drives Robo-Advice?' (2025) 80 Journal of Empirical Finance 101574; B G C Dellaert, T Baker and E J Johnson, 'Regulating Robo-Advice for Consumers' Financial Decisions: The Interplay between Algorithm Quality and Digital Choice Architecture' (2024) 10(2) Behavioral Science & Policy 1; A Oehler and M Horn, 'Does ChatGPT Provide Better Advice than Robo-Advisors?' (2024) 60 Finance Research Letters 10489.

[50] EIOPA Preparatory Guidelines (n 27) Guideline No 10. See also EIOPA, 'Approach to the Supervision of Product Oversight and Governance' (n 27) point 5.1; EIOPA Consultative Expert Group on Digital Ethics in

advisers, powered by language models or recommendation algorithms, are used to provide pre-contractual information, assist in product selection and formulate personalised recommendations. While on the one hand they enhance the efficiency and accessibility of the service, on the other hand they raise crucial questions in terms of suitability, transparency and accountability: a system trained on incomplete or outdated datasets risks misleading the customer, transforming the interaction into an opaque and impersonal process that compromises the principle of informed consent.[51] In this domain, the information duty should require the insurer to guarantee the quality and currency of automated interaction systems, providing mechanisms for human intervention in cases where the algorithm detects uncertainty or informational conflict.[52] Under the Insurance Distribution Directive[53] and the UK-equivalent provisions in the FCA Insurance Conduct of Business Sourcebook[54] and Conduct of Business Sourcebook,[55] the primary risk is that automated systems may be unable to ensure compliance with requirements on advice, suitability and customer knowledge, particularly for complex products such as IBIPs (insurance-based investment products).[56]

As regards algorithmic profiling, the adoption of semantic analysis techniques, voice recognition or biometric detection makes it possible to infer information about the risk profile, preferences and level of comprehension of the customer, with significant implications for the assessment of suitability and product-needs alignment.[57] However, these systems pose novel risks of discrimination and manipulation: automated profiling must be compatible with the obligation, imposed by Article 20 IDD, and in the United Kingdom by ICOBS 5, to

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Insurance, 'Artificial Intelligence Governance Principles: Towards Ethical and Trustworthy Artificial Intelligence in the European Insurance Sector' (Report, 2021) 57.

[51] EDPB-EDPS, 'Joint Opinion 5/2021 on the Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act)' (June 2021) paras 30-35. See also A Lior, 'Insuring AI: The Role of Insurance in Artificial Intelligence Regulation' (2022) 35(2) Harvard Journal of Law & Technology 479.

[52] The three components of human oversight under the AI Act, understanding of the system's operation, monitoring throughout its lifecycle, and human intervention enabling suspension or correction, are identified by M Ho-Dac and B Martinez, 'Contrôle humain de l'Intelligence Artificielle et normalisation technique' (2024) https://hal.science/AO-DROIT/hal-04631259v1 accessed 14 April 2026. On the non-overlapping nature of AI and human cognitive processes, see F Capriglione, 'Law and Economics: The Challenge of Artificial Intelligence' (2021) 10(2) Law and Economics Yearbook Review 198.

[53] Directive (EU) 2016/97 of the European Parliament and of the Council of 20 January 2016 on insurance distribution (recast) [2016] OJ L26/19 ('IDD').

[54] FCA Handbook, ICOBS 5-6.

[55] FCA Handbook, COBS 7.

[56] The undertaking must ensure that algorithmically selected channels also comply with the standards of professionalism, information and suitability required by the IDD. Where the channel is not a licensed intermediary (e.g. platforms operating as introducers), the undertaking must ensure that there is no distribution activity in the technical sense, or that such activity occurs in a compliant manner and under its own responsibility. See P Marano, 'Regulating Digital Insurance Platforms in the EU: Legal Frameworks and Future Directions' (2024) IV Rivista di Diritto Bancario 1049; IVASS Regulation No 40/2018, arts 58-60. Art. 13, para. 1, AI Act provides that high-risk systems must be accompanied by a clear disclosure on the use, logic and function of the system, accessible to end users. This obligation has a functional correspondence with the transparency requirements set out in art. 20 of the IDD and in arts. 58 and 60 of IVASS Regulation No. 40/2018.

[57] Marano (n 29) 296. See also EIOPA Preparatory Guidelines (n 28) Guideline No 8; EIOPA, 'Approach to the Supervision of Product Oversight and Governance' (n 27) point 6

ascertain the demands, needs and, where applicable, the financial situation and objectives of the customer before concluding the contract, to gather the information necessary for an appropriate assessment of suitability. Undertakings must furthermore ensure that the algorithm employs relevant data obtained with the customer's consent and used in a proportionate manner in accordance with Articles 5 and 6 GDPR and, in the United Kingdom, the corresponding provisions of Articles 5 and 6 UK GDPR and the Data Protection Act 2018.[58] In cases where profiling produces legal effects or significantly affects the individual, the safeguards of Article 22 GDPR – and, in the United Kingdom, Article 22 UK GDPR read in conjunction with section 14 of the Data Protection Act 2018 – apply, requiring the right to an explanation and to human intervention, making it essential that systems are designed from the outset to allow technical verifiability, contestation and review of algorithmic decisions.[59]

A profile of particular concern is constituted by the so-called proxy discrimination, whereby apparently neutral variables – postcode, consumption habits, level of education, social media behaviour – reproduce the predictive power of protected personal characteristics, generating indirect discrimination without the algorithm making explicit reference to such characteristics.[60] It is this dynamic, the conversion of socioeconomic proxies into actuarial exclusion, that renders the long-term care sector the most legally and socially consequential arena for the application of the information duty in its relational configuration. This risk manifests itself in an especially acute form in the sphere of health and long-term care policies, where the

[58] On the demands and needs obligation under the IDD, see IDD, art 20; for IBIPs, see also IDD, arts 30 and 30a. The UK equivalent is set out in FCA Handbook, ICOBS 5 (Demands and Needs) and, for insurance-based investment products, COBS 9 (Suitability) and COBS 10 (Appropriateness). On data protection requirements applicable to automated profiling, see GDPR, arts 5-6 and, in the UK, UK GDPR, arts 5-6 read in conjunction with Data Protection Act 2018, s 14. On the risks connected to the use of systems based on biometric data and the dangers of algorithmic manipulation, see AI Act, Recital 44; EDPB-EDPS Joint Opinion 5/2021 (n 46) paras 30-35. On the principle of fairness and non-discrimination in AI governance, see EIOPA Consultative Expert Group on Digital Ethics in Insurance (n 45) principle of fairness and non-discrimination.

[59] R Binns and M Veale, 'Is That Your Final Decision? Multi-Stage Profiling, Selective Effects, and Article 22 of the GDPR' (2021) 11(4) International Data Privacy Law 319; L Tosoni, 'The Right to Object to Automated Individual Decisions: Resolving the Ambiguity of Article 22(1) of the General Data Protection Regulation' (2021) 11(2) International Data Privacy Law 145; G Malgieri, '"Just" Algorithms: Justification (Beyond Explanation) of Automated Decisions Under the General Data Protection Regulation' (2021) 1(1) Law and Business 16.

[60] AI Act, art 10 (requiring that data used for the training, validation and operation of high-risk AI systems be relevant, sufficiently representative, free from errors and non-discriminatory); AI Act, Recital 38 (highlighting that AI systems must avoid, where possible, discriminatory effects of a systemic nature, even if indirect). This principle is consistent with Charter of Fundamental Rights of the European Union, art 21 (non-discrimination) and with the obligation to treat clients fairly under IDD, art 17. See also IAIS, 'Issues Paper on the Use of Big Data Analytics in Insurance' (November 2020) 17 https://www.iais.org/uploads/2022/01/IAIS-Issues-Paper-on-the-Use-of-Big-Data-Analytics-in-Insurance.pdf accessed 14 April 2026; S Landini, E Giusti and T Franquet Sugranes, 'Predictive Analytics and Artificial Intelligence in Insurance Contracts and Risk Culture' (2023) 12(2) Law and Economics Yearbook Review 207; EIOPA, 'Supervisory Statement on Differential Pricing Practices in Non-Life Insurance Lines of Business' (EIOPA-BoS-23/020, 16 March 2023) https://www.eiopa.europa.eu/publications/supervisory-statement-differential-pricing-practices-non-life-insurance-lines-business_en accessed 14 April 2026; S Barocas, M Hardt and A Narayanan, *Fairness and Machine Learning* (2020) 55-56, 59.

statistical correlation between socioeconomic indicators and the probability of dependency may lead to the systematic exclusion of elderly persons, disabled persons and those with chronic conditions – that is to say, precisely those for whom insurance coverage has the greatest social value.[61] At the normative level, the prohibition on social scoring under Article 5(1)(c) of the AI Act – as interpreted by the European Commission Guidelines of February 2025[62] – requires the insurer to reinforce the causal link between the risk factors considered and the outcome of the algorithmic decision, demanding both contemporaneity between the behaviour or personal characteristic and the insured risk, and proportionality between the gravity of the conduct and the algorithmic assessment.[63] In turn, Article 5(1)(b) prohibits systems that exploit the vulnerabilities of an individual arising from age, disability or social or economic situation, with the objective or effect of materially distorting that person's behaviour so as to cause significant harm, thus precluding targeting practices that exploit the contracting party's position of vulnerability in order to increase premiums or to steer them towards less suitable products.[64]

The adoption of dynamic pricing systems, finally, introduces a third dimension of the informational problem: where the insurance premium updates in accordance with the insured's behaviour as recorded by telematics devices or wearables, the predictability of the contractual value becomes itself a material piece of information to which the customer has the right to receive in a clear and comprehensible form.[65] The risk that opaque premium variations reflect spurious correlations or indirect discrimination, observed both by the UK Financial Conduct Authority and by EIOPA in their respective statements on differential pricing practices, renders the insurer's information duty not only a guarantee of individual transparency but a fundamental safeguard of market fairness. Accordingly, the predictability of the insurance value must be preserved

[61] EIOPA, 'Big Data Analytics in Motor and Health Insurance: A Thematic Review' (2019), where the European regulator had anticipated certain developments of AI in the insurance sector, identifying as principal areas of use: pricing and underwriting, sales and distribution, management of the contractual relationship, and fraud detection.

[62] European Commission, *Guidelines on Prohibited Artificial Intelligence Practices Established by Regulation (EU) 2024/1689* (4 February 2025) paras 129-131 (on art 5(1)(b)) and paras 154 ff (on art 5(1)(c)). It should be noted that the Guidelines are non-binding; authoritative interpretation of the AI Act's provisions is reserved for the Court of Justice of the European Union. Particularly relevant for the present purposes is the Commission's express identification of the use of spending and financial data by insurers to determine eligibility for life insurance as a paradigmatic instance of unacceptable social scoring within the meaning of art 5(1)(c).

[63] AI Act, arts 5(1)(b) (prohibition of systems exploiting vulnerabilities), 5(1)(c) (prohibition of social scoring) and 5(1)(g) (prohibition of biometric categorisation to infer protected characteristics); European Commission, *Guidelines on Prohibited Artificial Intelligence Practices* (n 57).

[64] B Soyer, 'Use of Big Data Analytics and Sensor Technology in Consumer Insurance Context: Legal and Practical Challenges' (2022) 81(1) CLJ; Bednarz and Manwaring (n 13) 455; M Eling and others, 'The Impact of Artificial Intelligence along the Insurance Value Chain and on the Insurability of Risks' (2021) 46 Geneva Papers on Risk and Insurance 397.

[65] FCA, *General Insurance Pricing Practices: Feedback to CP20/19 and Final Rules* (PS21/5, May 2021); EIOPA, 'Supervisory Statement on Differential Pricing Practices in Non-Life Insurance Lines of Business' (EIOPA-BoS-23/020, 16 March 2023) https://www.eiopa.europa.eu/publications/supervisory-statement-differential-pricing-practices-non-life-insurance-lines-business_en accessed 14 April 2026.

through pre-established variation limits and rebalancing mechanisms, to avoid regressive effects, covert discrimination or informational distortions.[66]

4.3. The Consumer Duty (PRIN 2A) and the Governance of Algorithmic Decision-Making

The most significant domestic development in the governance of information obligations in the UK insurance market is the introduction of the Consumer Duty by the Financial Conduct Authority, effective from 31 July 2023, now incorporated in PRIN 2A of the FCA Handbook.[67] The Consumer Duty does not merely supplement the pre-existing regulatory architecture: it reorients its normative logic, shifting the regulatory standard from a compliance-based model of minimum disclosure to an outcomes-based model of positive customer welfare. This reorientation has direct and far-reaching implications for the information duty in the context of algorithmic underwriting.

The Consumer Duty rests on a Consumer Principle, set out in PRIN 2A.1, which requires all firms to act to deliver good outcomes for retail customers.[68] This Principle is operative and enforceable, and it is supplemented by three cross-cutting rules that define its substantive content. Firms must act in good faith towards retail customers; they must avoid causing foreseeable harm; and they must enable and support retail customers to pursue their financial objectives.[69] These rules apply across the full lifecycle of the product, from design through distribution to post-sale support and claims management.

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[66] FCA, *General Insurance Pricing Practices Market Study Final Report* (MS18/1.3, September 2020); FCA, *General Insurance Pricing Practices: Feedback to CP20/19 and Final Rules* (PS21/5, May 2021) (introducing, inter alia, a ban on price-walking and enhanced product governance requirements). For the EU framework, see EIOPA, 'Supervisory Statement on Differential Pricing Practices in Non-Life Insurance Lines of Business' (EIOPA-BoS-23/020, 16 March 2023) https://www.eiopa.europa.eu/publications/supervisory-statement-differential-pricing-practices-non-life-insurance-lines-business_en accessed 14 April 2026. On the broader regulatory scrutiny of dynamic pricing in the UK, see also Competition and Markets Authority, 'Dynamic Pricing: Project Update' (June 2025) https://www.gov.uk/cma-cases/dynamic-pricing-project accessed 14 April 2026. See also IAIS, 'Application Paper on the Use of Digital Technology in Inclusive Insurance' (7 November 2018) 11 https://www.iais.org/uploads/2022/01/181112-Application-Paper-on-the-Use-of-Digital-Technology-in-Inclusive-Insurance.pdf accessed 14 April 2026; OECD, 'Recommendation of the Council on Artificial Intelligence' (adopted 2019, updated 2024); IAIS, 'Issues Paper on the Use of Big Data Analytics in Insurance' (November 2020) 17.

[67] FCA Handbook, PRIN 2A (Consumer Duty), in force from 31 July 2023; FCA, *PS22/9 - A New Consumer Duty* (2022); FCA, *FG22/5 - Final Non-Handbook Guidance for Firms on the Consumer Duty* (2022).

[68] FCA Handbook, PRIN 2A.1.1 R (the Consumer Principle).

[69] FCA Handbook, PRIN 2A.2.1 R (act in good faith); PRIN 2A.2.2 R (avoid causing foreseeable harm); PRIN 2A.2.3 R (enable and support retail customers to pursue their financial objectives). These are the three cross-cutting rules supplementing the Consumer Principle.

The cross-cutting rules operate in conjunction with four outcome areas – products and services, price and value, consumer understanding, and consumer support – each of which generates specific and demanding obligations that intersect directly with the concerns addressed in this article.[70]

Consumer understanding is the outcome most directly relevant to algorithmic transparency. PRIN 2A.3.1 requires firms to ensure that their communications, including all pre-contractual information, product documentation and pricing communications, support and enable retail customers to make informed financial decisions.[71] The obligation is not satisfied by formal disclosure: the FCA has made clear in its Finalised Guidance FG22/5 that firms must take active steps to verify that customers achieve genuine understanding, and that the complexity of the information conveyed must be assessed against the cognitive capacities of the target market.[72] Where underwriting criteria, pricing structures or decisions to accept or decline risk are determined by automated processes, this obligation cannot be satisfied without some degree of transparency as to the logic underlying those determinations. A customer who receives an adverse underwriting decision without any explanation of the algorithmic criteria that generated it cannot be said to have achieved the consumer understanding outcome: they lack the informational basis to evaluate the decision, to seek an alternative product, or to exercise their right to contest the outcome through the insurer's complaints process.

Price and value generates a further dimension of relevance. PRIN 2A.4.1 requires firms to ensure that the price paid by a retail customer is reasonable in light of the overall benefits of the product.[73] Applied to algorithmically determined premiums, this obligation implies that the pricing logic must be capable of being justified by reference to causally relevant risk factors, a requirement that resonates directly with the AI Act's prohibition of social scoring under Article 5(1)(c) and with the FCA's own concerns about differential pricing practices, as documented in PS21/5.[74] Where an algorithmic model prices a customer on the basis of socioeconomic proxies that are statistically correlated with protected characteristics but causally unrelated to the specific insured risk, compliance with the price and value outcome is difficult to demonstrate, precisely because the firm cannot establish that the detriment imposed on the customer is justified by a benefit commensurate with its cost.

Consumer support requires firms to provide support that meets the needs of retail customers throughout the lifecycle of the product.[75] In the context of algorithmic underwriting, this obligation has a direct bearing on the insurer's capacity to explain adverse decisions and to provide a mechanism of effective human review. The mere availability of a complaints procedure is insufficient: the Consumer Duty demands that the firm be

[70] The four outcome areas are set out in FCA Handbook, PRIN 2A.3 (consumer understanding), PRIN 2A.4 (price and value), PRIN 2A.5 (consumer support) and PRIN 2A.2 (products and services). For an overview of the Duty's structure, see FCA, *FG22/5* (n 1) section 3.
[71] FCA Handbook, PRIN 2A.3.1 R.
[72] FCA, *FG22/5* (n 1) section 8 (consumer understanding outcome), paras 8.3-8.12.
[73] FCA Handbook, PRIN 2A.4.1 R.
[74] FCA, *PS21/5 - General Insurance Pricing Practices* (2021); Regulation (EU) 2024/1689 (AI Act), art 5(1)(c) (prohibition of social scoring). On the FCA's concerns about differential pricing, see also FCA, *MS18/1.3 - General Insurance Pricing Practices Market Study Final Report* (2020).
[75] FCA Handbook, PRIN 2A.5.1 R.

capable of providing a substantive explanation of the decision, which presupposes that the firm itself has access to an intelligible account of the algorithmic logic that generated it. This creates an internal governance requirement – the obligation to maintain human-readable documentation of the underwriting model – that may, over time, generate a corresponding right of the customer to demand such documentation in the context of a complaint or dispute.[76]

Products and services imposes obligations at the design stage that interact with the POG framework and, increasingly, with the AI Act requirements for high-risk systems. PRIN 2A.2 requires firms to ensure that their products are designed to meet the needs, characteristics and objectives of customers in their target market, and that they do not harm customers outside the target market.[77] Applied to algorithmic product design, this obligation requires firms to be able to demonstrate that the segmentation logic embedded in their underwriting models is genuinely responsive to the needs of the intended market, and that it does not generate systematic exclusion of categories of customer who would benefit from the coverage. The long-term care context examined in this article is perhaps the most acute illustration of this problem: algorithmic hyper-personalisation that renders LTC coverage unaffordable or inaccessible for elderly, disabled or chronically ill persons cannot be reconciled with a products and services outcome that demands genuine alignment between product design and customer welfare.

Two aspects of the Consumer Duty merit particular emphasis in the present context. First, the Consumer Duty introduces a prospective standard of conduct: firms are required to identify and address foreseeable harm *before* it materialises, not merely to remedy harm after the fact.[78] This prospective orientation is directly relevant to algorithmic systems, where the potential for discriminatory or exclusionary outcomes can often be identified through model documentation and impact assessment at the design stage, well before the system is deployed in individual underwriting decisions. The obligation to avoid foreseeable harm thus provides a normative basis, within the existing domestic framework, without recourse to EU law, for requiring firms to conduct algorithmic impact assessments of the kind mandated by the AI Act's Fundamental Rights Impact Assessment under Article 27.[79]

Second, the Consumer Duty applies to the *firm as a whole*, not merely to the distribution function. Manufacturers of insurance products, including those who design the underwriting algorithms deployed in the market, bear direct responsibility for compliance with the Duty in respect of the retail customers who will

[76] FCA, *FG22/5* (n 1) section 10 (consumer support outcome), paras 10.3-10.9. On the insurer's obligation to maintain intelligible records of automated decision-making as a precondition for effective complaints handling, see also UK GDPR, art 22(3) (right to obtain human intervention and to contest the decision).
[77] FCA Handbook, PRIN 2A.2.1 R (products and services outcome). See also FCA Handbook, PROD 4 (Product Governance), which imposes equivalent obligations on insurance manufacturers in respect of target market identification and distribution strategy.
[78] FCA Handbook, PRIN 2A.2.2 R. See FCA, *FG22/5* (n 1) section 6 (avoiding foreseeable harm), paras 6.3-6.11.
[79] Regulation (EU) 2024/1689 (AI Act), art 27 (Fundamental Rights Impact Assessment for deployers of high-risk AI systems). On the parallel between the Consumer Duty's foreseeable harm standard and the FRIA obligation, see section 6.1 below.

ultimately be affected by their products. The FCA has confirmed in FG22/5 that manufacturers cannot discharge their obligations under the Duty by reference to the acts or omissions of distributors: the responsibility is non-delegable.[80] This is of considerable significance in the context of algorithmic underwriting, where the design of the model may be carried out by a specialist technology provider or captive insurer, and the deployment of the model may be carried out by a network of distribution platforms. The Consumer Duty's allocation of non-delegable responsibility to the manufacturer provides a domestic legal foundation for the attribution of accountability that the AI Act seeks to achieve through its provisions on deployer and provider liability under Article 26.[81] The Consumer Duty therefore operates, within the existing UK domestic framework, as a significant normative basis for the obligations of algorithmic intelligibility and accountability argued for in this article.[82] Its relevance to algorithmic underwriting should not be understated: the FCA has already produced a substantial body of rules, guidance,[83] implementation reviews and supervisory materials under the Duty, and has opened investigations into suspected breaches, including in the insurance sector.[84] What remains underdeveloped is not the Duty itself, but its specific application to automated underwriting and decision-making systems. That application has not yet generated a sufficiently mature body of public supervisory, ombudsman or judicial reasoning to crystallise the Duty's implications in doctrinal terms. Nor is enforcement exclusively supervisory in character: although the Principles do not themselves found an action for damages, section 138D of FSMA 2000 preserves private actions for breach of certain actionable FCA rules, with the result that the Duty may also exert influence within private law enforcement pathways.[85]

These are limitations that the FCA and, ultimately, the courts will need to address as algorithmic underwriting becomes more pervasive. The analysis advanced in this article suggests that, when they do so, the Consumer Duty provides a more tractable domestic instrument for operationalising the relational information duty than either the good faith infrastructure of the Insurance Act 2015[86] or the general provisions of the UK GDPR,[87] precisely because its outcomes-based orientation is better suited to the systemic and prospective character of the regulatory challenge that algorithmic underwriting presents.

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[80] FCA, *FG22/5* (n 1) section 4 (scope and application), paras 4.16-4.24 (manufacturers' responsibilities in the distribution chain).
[81] Regulation (EU) 2024/1689 (AI Act), art 26 (obligations of deployers of high-risk AI systems).
[82] Financial Conduct Authority, *FCA Handbook* vol PRIN, PRIN 2A 'The Consumer Duty'.
[83] The FCA has indicated that it will continue to develop guidance on the application of the Consumer Duty to specific sectors and contexts: FCA, *PS22/9* (n 1) para 1.21. As of the date of writing, no dedicated guidance on the application of the Duty to algorithmic underwriting has been published.
[84] FCA, 'Consumer Duty: publications and resources'; FCA, 'Enforcement Watch 1' (26 March 2026).
[85] Financial Services and Markets Act 2000, s 138D; Financial Conduct Authority, *FCA Handbook* vol PRIN, Sch 5 'Rights of action for damages'.
[86] Insurance Act 2015, s 17 (residual good faith principle).
[87] UK General Data Protection Regulation (as retained in UK law by the European Union (Withdrawal) Act 2018); Data Protection Act 2018, s 14.

5. Convergence with Financial Regulation

The progressive approximation of the insurance contract to the logic of financial products represents one of the most significant phenomena in the evolution of the contemporary financial services market.[88] The "financialisation" of insurance – understood as the progressive hybridisation of traditionally insurance functions with those of investment and savings accumulation – has generated new product forms (linked policies, structured products, pension solutions with an insurance component) that are situated in a borderland between the two sectors, rendering the line of demarcation between insurance regulation and financial regulation increasingly indistinct.

In this context, the function of the information duty is enriched by a systemic dimension that transcends the individual contractual relationship. In financial regulation, informational symmetry is not only a guarantee of individual protection for the contracting party but constitutes a fundamental safeguard of the integrity of the market as a whole. The logic of the Market Abuse Regulation,[89] MiFID II[90] and the provisions on inside information rests precisely on the assumption that fair and timely access to relevant information is a necessary condition not only for the protection of individual investors but for the correct functioning of the allocative mechanisms of the market. This systemic dimension of information is progressively penetrating insurance law as well, where the opacity of algorithmic underwriting processes may generate adverse selection effects at the systemic level.

Regulation (EU) No 1286/2014 on PRIIPs represents one of the most significant examples of informational convergence between insurance law and financial law.[91] Applicable to "Packaged Retail and Insurance-based Investment Products", it introduces the obligation to produce a standardised information document (Key Information Document – KID) which must contain, in simple and comprehensible form, the essential information on the product, including risk characteristics, costs and expected performance. In the United Kingdom, the PRIIPs Regulation was retained in domestic law following Brexit through the Packaged Retail and Insurance-based Investment Products (Amendment) (EU Exit) Regulations 2019 (SI 2019/403), with the FCA assuming responsibility for its supervision and enforcement. The UK regime has since diverged from the EU framework in certain respects, and is currently undergoing further reform: the Financial Services and

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[88] R. Feng, M. Li, *Distributed Insurance: Tokenization of Risk and Reward Allocation*, SSRN Working Paper No. 4463804, May 30, 2023, available at: https://ssrn.com/abstract=4463804, http://dx.doi.org/10.2139/ssrn.4463804; I. Agur, G. Villegas Bauer, T. Mancini-Griffoli - M. S. Martinez Peria, B. Tan, *Tokenization and Financial Market Inefficiencies*, in *IMF FinTech Notes*, no. 2025/001, 2025.

[89] Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (Market Abuse Regulation - MAR) [2014] OJ L 173/1, in particular arts. 7 (definition of inside information) and 17 (public disclosure of inside information).

[90] Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments (MiFID II) [2014] OJ L173/349, in particular arts 24 (general principles and information to clients) and 25 (assessment of suitability and appropriateness).

[91] Regulation (EU) No 1286/2014 of the European Parliament and of the Council of 26 November 2014 on key information documents for packaged retail and insurance-based investment products (PRIIPs) [2014] OJ L352/1. For an in-depth analysis, see N Moloney, *EU Securities and Financial Markets Regulation* (3rd edn, OUP 2014) 810.

Markets Act 2023 provides for the replacement of UK PRIIPs with a new regime governing Consumer Composite Investments (CCIs), established by the Consumer Composite Investments (Designated Activities) Regulations 2024, under which the FCA is tasked with designing updated disclosure requirements.[92]

The PRIIPs model is relevant to the present analysis for at least two reasons. First, it blurs the distinction between insurance products and financial products for the purposes of the regime governing pre-contractual information obligations: where the insurance product incorporates an investment component, financial regulation applies alongside insurance regulation, without the formal classification of the product being able to determine a reduction in the level of informational protection. Secondly, it introduces a model of standardised and comparable disclosure that invites reflection on the adequacy of existing standards in the insurance context. It should be acknowledged that the FCA Handbook already imposes pre-contractual information obligations on insurers under ICOBS 6, requiring that information provided to customers be appropriate, clear, fair and not misleading. However, ICOBS 6 does not prescribe a standardised format enabling comparison across products, nor does it impose any obligation to render intelligible the underwriting criteria or pricing logic applied to a specific customer – which is precisely the dimension that becomes critical where those criteria are determined by algorithmic processes. The PRIIPs KID model, precisely because it requires the presentation of risk, cost and performance information in a fixed, comparable structure, may therefore offer a useful reference point for the development of more granular disclosure standards applicable to algorithmically underwritten insurance products, supplementing rather than replacing the existing ICOBS 6 framework.[93]

The analysis of the convergences between insurance law and financial regulation in the area of information obligations suggests the possibility of identifying the contours of a "common law of information" applicable to financial and insurance markets by reason of their progressive hybridisation. This common framework would be founded on certain cross-cutting principles: the legibility and comprehensibility of the information provided to the contracting party or investor; the comparability and standardisation of information documents; the proportionality of information obligations in relation to the complexity and risk of the product; and responsibility for misleading or incomplete information. In the digital context, these principles acquire a specific articulation connected to the use of algorithms and artificial intelligence systems in decision-making processes: transparency of risk metrics, intelligibility of actuarial models and accountability for automated decisions become essential components of the contracting party's right to information.[94]

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[92] Packaged Retail and Insurance-based Investment Products (Amendment) (EU Exit) Regulations 2019 (SI 2019/403); FCA, *PS22/2 - PRIIPs: Amendments to the Regulatory Technical Standards* (2022); Financial Services and Markets Act 2023, s 3 (repeal of UK PRIIPs Regulation); Consumer Composite Investments (Designated Activities) Regulations 2024.

[93] FCA Handbook, ICOBS 6 (Product Information Requirements), in particular ICOBS 6.1 (information to customers) and ICOBS 6.2 (providing product information).

[94] H Felzmann and others, 'Transparency You Can Trust: Transparency Requirements for Artificial Intelligence between Legal Norms and Contextual Concerns' (2019) Big Data & Society; Comandé (n 35), according to whom "the very draft regulation on artificial intelligence requires that human oversight measures (of which the information notice to the data subject cannot but form a part) must allow one to 'fully

This convergence finds further confirmation in the IDD framework and the Delegated Regulation (EU) 2017/2358 on POG, which require undertakings to ensure that products are designed, distributed and monitored in a manner consistent with the characteristics of the target market, according to criteria of transparency, fairness and customer protection.[95] In its interaction with financial legislation, this framework reveals that the convergence between the two sectors is not only a market phenomenon but a systemic choice that the European legislature has already made at the level of information obligations and policyholder protection.[96]

6. The UK Regulatory Framework and its Algorithmic Limitations: The Role of European Instruments as Normative Reference Points

The preceding analysis has identified the contours of an emerging duty of algorithmic intelligibility, grounded in the good faith infrastructure of the Insurance Act 2015,[97] the Consumer Duty introduced by PRIN 2A,[98] and the obligations of the UK GDPR and the Data Protection Act 2018.[99] The question that must now be confronted is whether this domestic normative infrastructure is adequate, either as it currently stands or through interpretive development, to address the challenges of transparency, accountability and non-discrimination that algorithmic underwriting presents; and, where it is not, what additional normative resources may properly inform its development.

The starting point must be the existing body of UK regulatory obligations, which is considerably more substantial than is sometimes acknowledged in the literature. The FCA Handbook imposes, through ICOBS

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understand the capabilities and limitations of the high-risk AI system' (art. 14 GDPR, para. 4, letter a)) alongside the transparency constraints specified in art. 13 GDPR as well as the guarantee of data quality and traceability of training (art. 10 GDPR)".

[95] Directive (EU) 2016/97 (IDD), arts 20 and 23 (pre-contractual information obligations).

[96] H Zhong, 'Implementation of the EU AI Act Calls for Interdisciplinary Governance' (2024) 45(3) AI Magazine 335, 335 ('This framework may consist of at least two essential elements: an interdisciplinary workflow or collaborative mechanism that can identify necessary expertise and coordinate experts' collaboration, and a set of compliance and ethical safeguards that offer effective management and supervision'). On the GRC approach, see N Racz, E Weippl and A Seufert, 'A Frame of Reference for Research of Integrated Governance, Risk and Compliance (GRC)' in B de Decker and I Schaumüller-Bichl (eds), *Communications and Multimedia Security* (Lecture Notes in Computer Science vol 6109, Springer 2010) 112 ('GRC is an integrated, holistic approach to organisation-wide governance, risk and compliance ensuring that an organisation acts ethically correct and in accordance with its risk appetite, internal policies and external regulations through the alignment of strategy, processes, technology and people, thereby improving efficiency and effectiveness'). See also OECD, *Risk and Regulatory Policy: Improving the Governance of Risk* (OECD Reviews of Regulatory Reform, OECD Publishing 2010) https://doi.org/10.1787/9789264082939-en.

[97] Insurance Act 2015, s 17.

[98] FCA Handbook, PRIN 2A (Consumer Duty), in force from 31 July 2023. See also FCA, *PS22/9 - A New Consumer Duty*(2022); FCA, *FG22/5 - Final Non-Handbook Guidance for Firms on the Consumer Duty* (2022).

[99] UK General Data Protection Regulation (as retained in UK law by the European Union (Withdrawal) Act 2018); Data Protection Act 2018, s 14 (safeguards in relation to solely automated decisions with significant effects).

5 and 6, COBS 7 and PROD 4, a dense web of information and advisory obligations applicable to insurers operating in the UK market and capable of generating, through interpretive development, significant constraints on algorithmic conduct.[100] The Consumer Duty, analysed in the preceding section, adds to this architecture a prospective and outcomes-based standard of positive customer welfare that intersects directly with the concerns of this article. The UK GDPR and the Data Protection Act 2018, which replicate in domestic law the EU GDPR's protections against automated decision-making, provide a further layer of individual safeguards that are directly enforceable in UK courts. The Solvency UK framework, established under the Financial Services and Markets Act 2023 and further developed in PRA Policy Statement PS2/24, preserves the core governance and actuarial accountability requirements of the former Solvency II Directive in a form adapted to the UK market.[101] And the FCA's operational resilience framework, set out in Policy Statement PS21/3, provides a functionally analogous basis for ICT governance requirements of the kind addressed, in the EU context, by DORA.[102]

The assessment of this framework, however, is that it contains significant lacunae when confronted with the specific challenges of algorithmic underwriting. ICOBS 6 requires that information provided to customers be appropriate, clear, fair and not misleading; but it does not prescribe a standardised format enabling comparison across products, and it imposes no obligation to render intelligible the underwriting criteria or pricing logic applied to a specific customer by an algorithmic system. ICOBS 5 and COBS 7 require the assessment of demands, needs and suitability; but they were designed for a distribution environment in which the relevant information was generated by human advisers and communicated through identifiable channels, not for one in which a robo-adviser trained on historical datasets generates recommendations whose internal logic is opaque even to those who deploy it. PROD 4 requires undertakings to define a target market and to monitor product performance on a continuous basis; but it does not require undertakings to document, validate or explain the algorithmic segmentation logic through which the target market is identified and updated in real time. The Consumer Duty advances considerably beyond these earlier instruments. Its doctrinal significance in the present context lies not in any absence of regulatory elaboration, since the FCA has already issued extensive rules, guidance, implementation reviews and supervisory materials under the Duty, but in the fact that its specific implications for algorithmic underwriting and automated decision-making in insurance remain only partially worked out. Nor is enforcement purely supervisory in character:

[100] FCA Handbook, ICOBS 5 (Identifying Client Needs and Advising); ICOBS 6 (Product Information Requirements); COBS 7 (Insurance Mediation); PROD 4 (Product Governance).
[101] Financial Services and Markets Act 2023, Pt 4. See further PRA, *PS2/24 - Review of Solvency II: Adapting to the UK Insurance Market* (2024). The substantive governance obligations are transposed in the Conditions Governing Business Part of the PRA Rulebook, in particular paras 2.2-2.4 (system of governance), 3.1-3.7 (risk management), 4.1-4.2 (internal audit), 5.1 (actuarial function) and 7.1-7.3 (outsourcing).
[102] FCA and PRA, *PS21/3 - Building Operational Resilience* (2021). For the EU framework, see Regulation (EU) 2022/2554 of the European Parliament and of the Council of 14 December 2022 on digital operational resilience for the financial sector (DORA) [2022] OJ L333/1, applicable from 17 January 2025.

although the Principles do not themselves give rise to an action for damages, section 138D of FSMA 2000 preserves private actions for breach of certain actionable FCA rules.[103]

These lacunae are not unique to the UK: they reflect the structural difficulty of applying regulatory frameworks designed for a pre-algorithmic information environment to a fundamentally transformed technological reality. The question of how to fill them cannot be answered from within the domestic framework alone. It is in this context — and only in this context — that the European regulatory developments examined in the remainder of this section acquire their proper normative function in the present analysis: not as directly applicable law, and not as a solution to a problem that English law has failed to address, but as evidence of the direction in which a mature and coherent regulatory response to algorithmic underwriting is developing, and as a source of normative vocabulary and institutional design principles that UK regulators and courts may legitimately draw upon in the interpretive development of the existing domestic framework.

Three distinct grounds justify this approach. First, the practical ground: UK-authorised insurers that write business into the EU single market are directly subject to the AI Act, the EU GDPR and the IDD in respect of their EU-facing operations, and must already implement the compliance architectures those instruments require. The practical experience of doing so will inevitably inform their UK governance arrangements, creating a de facto convergence that the domestic regulatory framework must be capable of accommodating. Second, the institutional ground: the FCA has itself signalled, in DP23/4 on Artificial Intelligence and Machine Learning and in its approach to the Consumer Duty, an engagement with the normative vocabulary of transparency, accountability and human oversight that is directly continuous with the conceptual framework of the European instruments.[104] The domestic and European regulatory trajectories are, in this respect, parallel rather than divergent. Third, the interpretive ground: the UK GDPR, as retained EU law, must be interpreted in a manner consistent with the pre-Brexit case law of the Court of Justice of the European Union, which remains a legitimate – though no longer binding – reference point for domestic courts, as confirmed by the Court of Appeal in *TuneIn Inc v Warner Music UK Ltd*[105] and by the European Union (Withdrawal) Act 2018, section 6(1).[106] The CJEU's expansive reading of Article 22 GDPR in *OQ v Land*

[103] Financial Conduct Authority, *FCA Handbook* vol PRIN, PRIN 2A 'The Consumer Duty'; FCA, 'Consumer Duty: publications and resources'; FCA, 'Enforcement Watch 1' (28 January 2026); Financial Services and Markets Act 2000, s 138D; Financial Conduct Authority, *FCA Handbook* vol PRIN, Sch 5 'Rights of action for damages'.
[104] FCA, *DP23/4 - Artificial Intelligence and Machine Learning* (2023). On the UK pro-innovation approach to AI governance more broadly, see DSIT, *A Pro-innovation Approach to AI Regulation* (CP 815, 2023).
[105] European Union (Withdrawal) Act 2018, s 6; *TuneIn Inc v Warner Music UK Ltd* [2021] EWCA Civ 441; Case C-634/21, EU:C:2023:985.
[106] European Union (Withdrawal) Act 2018, s 6(1) (providing that a UK court or tribunal is not bound by any principles laid down or decisions made by the European Court on or after IP completion day, but may have regard to them so far as relevant); *TuneIn Inc v Warner Music UK Ltd* [2021] EWCA Civ 441.

*Hessen (SCHUFA Holding)*EU:C:2023:985, discussed in section 6.4 below, therefore retains persuasive authority before UK courts in the interpretation of the equivalent provisions of the UK GDPR.[107]

It is the thesis of this article, and it should be emphasised that this is a normative proposition rather than an established principle of positive English law, that the logic of the relational information duty articulated in the instruments examined below, taken together, may provide a sufficiently precise conceptual framework to inform the interpretive development of the Insurance Act 2015 by courts and regulators willing to give substantive content to the good faith infrastructure of that Act. Whether English courts will in fact adopt such an approach remains to be seen. The argument advanced here is one of doctrinal possibility. Its foundations, however, are firmly domestic.[108]

6.1. *The AI Act and the Transparency Requirements for High-Risk Systems*

Regulation (EU) 2024/1689 on artificial intelligence (the AI Act), which entered into force on 1 August 2024, introduces a comprehensive normative framework for the governance of artificial intelligence systems, founded on a risk-based approach.[109] The Regulation has been entering into application in stages: the provisions on prohibited practices became applicable on 2 February 2025, and those governing general-purpose AI models on 2 August 2025. The obligations applicable to high-risk AI systems under Annex III –

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[107] Case C-634/21, *OQ v Land Hessen (SCHUFA Holding)* EU:C:2023:985. This judgment does not constitute binding authority before UK courts: European Union (Withdrawal) Act 2018, s 6(1). It may nonetheless retain persuasive value in the interpretation of the equivalent provisions of the UK GDPR, in accordance with the approach confirmed in *TuneIn Inc v Warner Music UK Ltd* [2021] EWCA Civ 441 (n 8).

[108] DSIT, *A Pro-innovation Approach to AI Regulation* (CP 815, 2023); HM Treasury, *Review of Solvency II: Consultation*(2022); Financial Services and Markets Act 2023, Pt 4; FCA and PRA, *PS21/3 - Building Operational Resilience* (2021); FCA, *DP23/4 - Artificial Intelligence and Machine Learning* (2023).

[109] Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) [2024] OJ L 2024/1689 ('AI Act'), Annex III, point 5(b) (including among high-risk AI systems those 'intended to be used for risk assessment and pricing in the case of natural persons in relation to life and health insurance'); AI Act, arts 9 (risk management system), 14 (human oversight) and 17 (quality management system); AI Act, Recital 73 (requiring that persons responsible for oversight have the competence, training and authority necessary to effectively discharge that function). For commentary, see N Rangone and L Megale, 'Risks Without Rights? The EU AI Act's Approach to AI in Law and Rule Making' (2025) 3 European Journal of Risk Regulation 1; O Svitych, 'Blind Transparency: A Critical Discourse Analysis of the EU AI Act' (2025) 4 Critical Policy Studies 1; L S Stewart, 'The Regulation of AI-Based Migration Technologies under the AI Act: (Still) Operating in the Shadows?' (2024) 30 European Law Journal 122; M Ceccon and others, 'Underrepresentation, Label Bias, and Proxies: Towards Data Bias Profiles for the EU AI Act and Beyond' (2025) 292 Expert Systems with Applications 128266; I Kusche, 'Possible Harms of Artificial Intelligence and the EU AI Act: Fundamental Rights and Risk' (2024) 5 Journal of Risk Research 1; A Calero Valdez and others, 'The European Commitment to Human-Centered Technology: The Integral Role of HCI in the EU AI Act's Success' (2024) 23(2) I-com 249; S Ramos and J Ellul, 'Blockchain for Artificial Intelligence (AI): Enhancing Compliance with the EU AI Act through Distributed Ledger Technology: A Cybersecurity Perspective' (2024) 5 International Cybersecurity Law Review 1; I-C Ciurea, 'The Impact of the EU AI Act on the UN Sustainable Development Goals for 2030 - A Text Analysis' (2024) 18(1) Proceedings of the 18th International Conference on Business Excellence 2857.

the category most directly relevant to algorithmic underwriting – are scheduled to apply from 2 August 2026 under the original timetable, though this deadline is subject to significant uncertainty: the Commission's proposed Digital Omnibus on AI (COM(2025) 836), currently under the ordinary legislative procedure, proposes to condition the application of high-risk obligations on the availability of harmonised standards and supporting guidance, with a backstop date of 2 December 2027 for Annex III systems; as of the date of writing, no final agreement has been reached.[110] Annex III to the Regulation expressly includes among high-risk AI systems those used for the assessment of creditworthiness and insurance pricing, imposing on such systems particularly stringent obligations in the areas of transparency, documentation, human oversight and risk management.[111]

The system of obligations thus established for high-risk systems delineates a normative architecture of considerable significance for insurance undertakings.[112] Article 9 requires the adoption of a risk management system that accompanies the entire lifecycle of the system, enabling the identification and evaluation of known and foreseeable risks, including those arising from technical malfunctions, behavioural deviations or unforeseen discriminatory effects.[113] Article 10 requires that the data used for the training and operation of systems be relevant, representative and non-discriminatory, imposing control over dataset quality as an essential technical prerequisite for preventing distortive effects and indirect algorithmic discrimination. Article 12 requires the automated logging of operational records – understood as structured chronological registers of events generated during system operation – ensuring the traceability of operations and constituting a necessary condition for the exercise of ex post oversight by corporate compliance functions.[114]

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[110] European Commission, *Proposal for a Regulation Amending Regulation (EU) 2024/1689 as Regards the Simplification of the Implementation of Harmonised Rules on Artificial Intelligence (Digital Omnibus on AI)*, COM(2025) 836 (19 November 2025). See also European Parliament, Committee on the Internal Market and Consumer Protection and Committee on Civil Liberties, Justice and Home Affairs, *Report on Digital Omnibus on AI*, 2025/0359(COD) (18 March 2026).

[111] A Lior, 'Insuring AI: The Role of Insurance Artificial Intelligence Regulation' (2022) 35(2) Harvard Journal of Law & Technology 468, proposes using insurance not only as an indemnification tool, but as a governance mechanism capable of guiding the behaviour of undertakings that develop or use artificial intelligence systems. AI, by enhancing risk assessment techniques, thereby indirectly affects the very modalities of insurance regulation, prompting an adaptation of the traditional frameworks of liability and ex ante risk management.

[112] EIOPA, 'Consultation Paper on Opinion on Artificial Intelligence Governance and Risk Management' (10 February 2025).

[113] IVASS has highlighted the need to rigorously oversee automated distribution methods and advisory functions entrusted to digital tools, requiring the introduction of specific control and documentation protocols in the product file. In the IVASS, 'Annual Report 2023' (2023) 60; IVASS, 'Indagine sull'utilizzo degli algoritmi di Machine Learning da parte delle imprese assicurative nei rapporti con gli assicurati' (n 24), the need is indeed affirmed to "adapt organisational and managerial models, so as to develop critical capacities and careful governance of data and algorithms"; while evaluations are underway on the possible effects of the AI Act "for example in terms of model validation and compliance with policies for high-risk systems, control over externally acquired data and the application to the insurance sector of the principles of non-discrimination, safeguarding the necessary differentiation in risk pricing".

[114] EIOPA, 'Consultation Paper on Opinion on Artificial Intelligence Governance and Risk Management' (n 74) § 2.6. See also EIOPA, 'Discussion Paper on Artificial Intelligence Governance' (EIOPA-BoS-22/368, 2022).

Providers of high-risk AI systems are also required to ensure, pursuant to Article 13, that the system is accompanied by clear, comprehensible and meaningful information on the logic, functionalities and limitations of the system, accessible to end users.[115] Article 14 establishes the obligation of effective human oversight which – in the distribution context – does not imply real-time verification of every output generated by the system, but the assurance that the system operates within the legal and ethical limits defined by sectoral regulation: human oversight mechanisms are designed to validate compliance with legal and ethical standards, not to replicate or substitute the functionality of the AI system.[116] Finally, Article 61 provides for post-market surveillance which must include systematic mechanisms for the collection and analysis of data relating to the system's operation in real-world conditions, requiring a reconfiguration of the monitoring function within insurance undertakings.

With regard to the operational responsibilities of insurance undertakings in their capacity as deployers, Article 26 of the AI Act articulates a system of obligations of considerable intensity. The undertaking is required to adopt technical and organisational measures adequate to ensure that systems are used in accordance with the instructions; to entrust human oversight to natural persons endowed with appropriate competence, training and authority; to ensure, to the extent that it exercises control over input data, the relevance and representativeness thereof; to monitor the operation of the system, identifying any risks to fundamental rights; and to retain automatically generated logs for a period of not less than six months. To these obligations is added that of AI literacy (Article 4 of the AI Act), which requires undertakings to ensure a sufficient level of AI literacy among the personnel involved in the operation of algorithmic systems.[117] With regard to prior impact assessment, Article 27 of the AI Act introduces the obligation of a Fundamental Rights Impact Assessment (FRIA) for deployers of high-risk systems, which consists in a description of the processes in which the system will be used, the categories of persons affected, the specific risks of harm and the human oversight measures adopted. Paragraph 4 of the same article establishes a coordination with Article 35 GDPR, clarifying that the DPIA provided for therein, if comprehensive of the same elements, absorbs the obligation to conduct a FRIA.[118]

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[115] AI Act, arts 13 (transparency and provision of information to operators), 14 (human oversight) and 15 (accuracy, robustness and cybersecurity). G Malgieri and G Comandé, 'Why a Right to Legibility of Automated Decision-Making Exists in the General Data Protection Regulation' (2017) 7 International Data Privacy Law 243.

[116] P Marano, 'Regulating Digital Insurance Platforms in the EU: Legal Frameworks and Future Directions' (2024) IV Rivista di Diritto Bancario 1030.

[117] AI Act, art 26 (obligations of deployers of high-risk AI systems, including the duty to adopt adequate technical and organisational measures, to entrust human oversight to persons with appropriate competence and authority, to ensure the relevance and representativeness of input data, to monitor the operation of the system and to retain automatically generated logs for a period of at least six months); AI Act, art 4 (AI literacy obligation).

[118] AI Act, art 27 (fundamental rights impact assessment, requiring: a description of the processes in which the system will be used; the period of use; the categories of persons concerned; the specific risks of harm; a description of human oversight measures; and measures to be taken should such risks materialise); AI Act, art 27(4) (coordination with DPIA under GDPR, art 35). See also EIOPA Consultative Expert Group on

Of particular relevance to insurance law is the regime governing AI practices prohibited by Chapter II of the AI Act. Among those that most significantly impinge upon the conduct of insurance activities, Article 5(1)(b) prohibits the use of systems that exploit the vulnerabilities of an individual arising from age, disability or social or economic situation, with the objective or effect of materially distorting that person's behaviour in a harmful manner; Article 5(1)(c) prohibits the practice of so-called social scoring, that is, the evaluation or classification of natural persons on the basis of social behaviour or personal characteristics, where such a score results in detrimental treatment in contexts unrelated to those in which the data were originally generated, or in treatment that is otherwise unjustified or disproportionate; and Article 5(1)(g) prohibits biometric categorisation aimed at inferring protected characteristics. As clarified by the European Commission Guidelines of February 2025, insurance profiling conducted with AI is permissible on condition that the algorithm considers data that are causally relevant to the insured risk and that the detriment arising therefrom is proportionate to the conduct considered: the prohibition thereby requires the insurer to reinforce the causal nexus between the risk factors and the outcome of the algorithmic decision.

6.2. DORA and the Management of Digital Operational Risk in Insurance Undertakings

Regulation (EU) 2022/2554 on digital operational resilience for the financial sector (DORA), applicable from 17 January 2025, introduces systemic obligations for the management of ICT operational risk for insurance and reinsurance undertakings.[119] It should be noted at the outset that DORA does not apply in the United Kingdom; the functionally analogous framework is established by the FCA and PRA Policy Statement PS21/3 on operational resilience, which imposes comparable requirements on UK-regulated firms in respect of ICT governance and business continuity.

DORA is structurally oriented towards prudential supervision and systemic resilience rather than contractual transparency, and it would be incorrect to characterise it as a direct source of contractual information obligations. Its relevance to the present analysis is therefore indirect and should be stated as such. The documentation and auditability requirements imposed by DORA, including the ICT asset register, the incident classification and reporting obligations, and the digital operational resilience testing framework, create an internal governance infrastructure that, as a matter of practical consequence, generates documentary records of the algorithmic systems deployed in underwriting processes. It is the thesis of this article that this infrastructure may, over time, provide a technical substrate upon which regulators and courts could build

Digital Ethics in Insurance, 'Artificial Intelligence Governance Principles: Towards Ethical and Trustworthy Artificial Intelligence in the European Insurance Sector' (Report, 2021).

[119] Regulation (EU) 2022/2554 of the European Parliament and of the Council of 14 December 2022 on digital operational resilience for the financial sector (DORA) [2022] OJ L333/1, applicable from 17 January 2025, arts 8-13 (ICT risk management framework) and arts 28-30 (third-party ICT arrangements and information register). For the UK equivalent, see FCA and PRA, *PS21/3 - Building Operational Resilience* (2021).

more specific obligations of disclosure towards contracting parties, but this remains a normative argument rather than a conclusion supported by existing authority.[120]

6.3. Solvency II and IFRS 17: Governance of Predictive Tools and Actuarial Transparency

The Solvency II Directive (Directive 2009/138/EC)[121] and the accounting standard IFRS 17, which entered into force in 2023,[122] introduce requirements of transparency and governance which, although primarily oriented towards prudential supervision and market disclosure, produce significant indirect effects on the quality and intelligibility of algorithmic underwriting processes. Solvency II requires insurance undertakings to have in place an effective governance system that ensures the sound and prudent management of the business, including the actuarial function, the risk management function and the internal audit function.[123] The application of these requirements to algorithmic underwriting systems requires undertakings to be able to document, control and explain the functioning of their own predictive models.[124]

IFRS 17 introduces, in turn, financial reporting requirements that oblige insurance undertakings to represent in a more transparent manner the assumptions underlying their own actuarial models, including the hypotheses relating to the distribution of risk and the probability of a claim. This greater actuarial transparency, although directed primarily to accounting, governance and market-reporting purposes, may indirectly improve the internal intelligibility and auditability of the modelling assumptions used by insurers, even if it does not in itself create a direct informational entitlement on the part of the contracting party."

6.4. The UK GDPR, the Data Protection Act 2018, and the Right Not to be Subject to Automated Decisions

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[120] DORA, arts 8 (identification and documentation of ICT assets), 10 (ICT-related incident management) and 24-27 (digital operational resilience testing).

[121] Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of insurance and reinsurance (Solvency II) [2009] OJ L335/1, arts 41-49 (governance system) and art 48 (actuarial function). On the actuarial function in the algorithmic era, see EIOPA Consultative Expert Group on Digital Ethics in Insurance (n 80) 18.

[122] IASB, *IFRS 17 - Insurance Contracts* (May 2017, mandatory for financial years beginning on or after 1 January 2023).

[123] Arts 41-49 of Directive 2009/138/EC (Solvency II) (n 84), which require the adoption of an effective and proportionate governance system, commensurate with the nature, scale and complexity of the risks, including autonomous and independent risk management, actuarial and compliance functions. In the United Kingdom, these obligations are transposed in the Conditions Governing Business Part of the PRA Rulebook, in particular: paras 2.2-2.4 (system of governance); paras 3.1-3.7 (risk management system); paras 4.1-4.2 (internal audit function); para 5.1 (actuarial function); paras 7.1-7.3 (outsourcing). The governance framework has been further developed under the Solvency UK reforms introduced by the Financial Services and Markets Act 2023; see PRA, *PS2/24 - Review of Solvency II: Adapting to the UK Insurance Market* (2024).

[124] PRA, *Supervisory Statement SS1/23 - Model Risk Management Principles for Banks* (2023) (applicable by analogy to insurers deploying algorithmic underwriting systems); FCA, *DP23/4 - Artificial Intelligence and Machine Learning*(2023). See also OECD, 'Principles on Artificial Intelligence' (2019) Principle 1.3.

Regulation (EU) 2016/679 (GDPR) constitutes the fundamental normative pillar of the contracting party's protection against underwriting decisions based on automated processing of personal data. Article 22 of the GDPR recognises the right of the data subject not to be subject to a decision based solely on automated processing, including profiling, which produces legal effects concerning the data subject or similarly significantly affects them.[125]

A profile of specific relevance to the insurance sector concerns the notion of personal data in the era of predictive systems.[126] The Article 29 Working Party has clarified that this notion must be interpreted broadly, such that information inferred by AI systems must be regarded as additional personal data beyond those originally collected: the data subject therefore has the right to access not only the input data but also the outputs deduced by the algorithm, whether intermediate or final.[127] With regard to health data – a category of particular relevance in the underwriting of life and long-term care policies – the same Working Party has established that such data must be treated as such in any case where "conclusions are drawn about the state of health or the health risks of a person", irrespective of the nature of the original data: AI systems that produce probabilistic assessments of the health status of a prospective insured – even by processing behavioural or environmental data apparently devoid of any health-related connotation – therefore generate outputs classifiable as health data, subject to the enhanced protection of Article 9 GDPR and to the requirement of the data subject's explicit consent.[128]

In the insurance context, this right translates into the guarantee that decisions on admission to coverage, pricing and claims settlement are not taken exclusively on an algorithmic basis, without adequate human oversight. The derogation under Article 22(2)(b) GDPR, which permits automated decision-making where "necessary for entering into, or the performance of, a contract", must be read restrictively and cannot justify the total elimination of human control in underwriting processes.[129]

Articles 13 and 14 GDPR require the controller to provide the data subject with "meaningful information about the logic involved" in automated decision-making processes, as well as "the significance and the

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[125] L Enqvist, '"Human Oversight" in the EU Artificial Intelligence Act: What, When and by Whom?' (2023) 15(2) Law Innovation and Technology 512.

[126] W Schäfke-Zell, 'Revisiting the Definition of Health Data in the Age of Digitalized Health Care' (2022) 12(1) International Data Privacy Law (arguing, by way of example, that the downloading of a particular application onto a mobile phone may also qualify as personal data relating to health). See also Article 29 Data Protection Working Party, 'Advice Paper on Special Categories of Data ("Sensitive Data"): Annex - Health Data in Apps and Devices' (April 2011).

[127] R Mortier and others, 'Human Data Interaction: The Human Face of the Data-Driven Society' (2014) MIT Technology Review.

[128] Article 29 Data Protection Working Party, 'Opinion 4/2007 on the Concept of Personal Data' (WP 136, 2007); Article 29 Data Protection Working Party, 'Advice Paper on Special Categories of Data ("Sensitive Data"): Annex - Health Data in Apps and Devices' (April 2011).

[129] Comandé (n 35), who has highlighted that the transparency required by the GDPR is "related to, but distinct from, the idea of transparent and explainable AI". The concept of AI explainability thus properly concerns the construction of the computational model of an AI system's operation and the correctness of the information to be provided to the public.

envisaged consequences of such processing".[130] This provision, though formulated in relatively broad terms and leaving open the debate on the precise content of the "right to an explanation", constitutes the normative basis for articulating an obligation of the insurer to render intelligible the criteria and variables that have determined the risk assessment of the individual contracting party.[131]

The progressive expansion of the scope of application of Article 22 GDPR – and, in the United Kingdom, Article 22 UK GDPR – by judicial interpretation introduces a further safeguard. In *OQ v Land Hessen (SCHUFA Holding)*, the Court held that the concept of "decision" in Article 22 GDPR encompasses the automated calculation of a probability score relating to a person's ability to meet future payment commitments, insofar as that calculation is determinative of the final decision taken by a third party.[132] It should be noted that, following the United Kingdom's withdrawal from the European Union, this judgment does not constitute binding authority before UK courts, although it may retain persuasive value in the interpretation of equivalent provisions of the UK GDPR. This follows from section 6 of the European Union (Withdrawal) Act 2018 and is consistent with the approach taken by the Court of Appeal in *TuneIn Inc v Warner Music UK Ltd*.[133] The Court further clarified that the fragmentation of automated processing across multiple entities in the value chain does not exclude the applicability of the Regulation, and that regard must be had to the weight effectively attributed to the algorithmic prediction in the overall decision-making process.[134] This orientation is directly relevant in the insurance sector, where scoring systems are frequently provided by third parties (captive insurers, data providers, InsurTech platforms) and used by the undertaking as a determining input in the underwriting decision: the fragmentation of the process does not exempt any of the parties involved from the obligation to guarantee the contracting party the right to effective human intervention, the right to express their view and the right to contest the decision. With regard to human oversight in the insurance context, it is useful to distinguish between two phases: the *ex ante* phase, required by Article 13 of the AI Act at the design and implementation stage of the system, in which oversight is of the "first degree" and structurally constitutive of the decision-making process; and the ex post phase, governed by Article 22(3) GDPR, in which oversight is of the "second degree" and merely corrective, operating at the stage of review of the decision already taken. For this second form of oversight to be effective – and not reduced to a purely formal safeguard – it is indispensable that the human operator possesses an adequate

[130] GDPR, art 13(2)(f) ('the existence of automated decision-making, including profiling, referred to in Article 22(1) and (4) and, at least in those cases, meaningful information about the logic involved, as well as the significance and the envisaged consequences of such processing for the data subject'). See also GDPR, Recital 71.
[131] R Guidotti and others, 'Local Rule-Based Explanations of Black Box Decision Systems' (2018) https://arxiv.org/abs/1805.10820 accessed 14 April 2026.
[132] Case C-634/21, EU:C:2023:985.
[133] Case C-634/21, *OQ v Land Hessen (SCHUFA Holding)* EU:C:2023:985. On the post-Brexit status of CJEU case law in UK courts, see European Union (Withdrawal) Act 2018, s 6(1); *TuneIn Inc v Warner Music UK Ltd* [2021] EWCA Civ 441.
[134] Malgieri and Comandé (n 77).

understanding of the logic of the system, which brings one back to the relevance of the "right to legibility" of the algorithmic decision.[135]

6.5. POG, IDD and the AI Act: Towards Integrated Compliance in the Lifecycle of the Digital Insurance Product

The convergence between the Product Oversight and Governance (POG) normative framework and the prescriptions of the AI Act delineates one of the most relevant and practically significant profiles for the present inquiry, illuminating the operational implications of the information duty in the context of the algorithmic design and distribution of insurance products.[136]

In the United Kingdom, the equivalent framework is established by PROD 4 of the FCA Handbook, which imposes analogous obligations on insurance manufacturers in respect of target market identification, distribution strategy and ongoing product monitoring. PROD 4 already requires undertakings to ensure that products are designed, marketed and distributed in a manner consistent with the needs of the identified target market, and to review products on a regular basis to identify any events that could materially affect those products and their distribution. These domestic obligations create a normative foundation for the integrated compliance model described below, to which the AI Act's requirements add a further layer of algorithmic specificity.

The POG framework – founded on the obligation to define the target market, to ensure coherence between product characteristics and customer needs, to select appropriate distribution channels and to monitor product performance on a continuous basis – constitutes a normative terrain already structured to accommodate the implications of the use of algorithmic systems.[137] In this perspective, the AI Act does not displace sectoral regulation but reinforces its demands for transparency, oversight and accountability, requiring undertakings to adapt their internal organisational structures to the decisional complexity that artificial intelligence entails.

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[135] Comandé (n 35); P de Hert and G Lazcoz, 'Radical Rewriting of Article 22 GDPR on Machine Decisions in the AI Era' (*European Law Blog*, 14 August 2024) https://www.europeanlawblog.eu/pub/radical-rewriting-of-article-22-gdpr-on-machine-decisions-in-the-ai-era/release/1 accessed 14 April 2026.

[136] The imposition of POG obligations upon all financial market operators is aimed at achieving harmonised conditions of user protection and governance of undertakings' activities, through coordination between sectoral supervisors (EBA and EIOPA) via ESMA (European Securities and Markets Authority). See HM Treasury, *A New Approach to Financial Regulation: Judgment, Focus and Stability - Summary of Consultation Responses* (July 2010) ('During the financial crisis, which in the UK involved a run on a high-street bank and part-nationalisation of two of the largest banks in the world, serious deficiencies in the UK's regulatory system were revealed … The coalition Government has therefore committed to fundamental reform of the framework for financial regulation'). See also FSA, *Feedback on Discussion Paper on Product Intervention* (June 2011).

[137] F Petrosino, 'Product Oversight and Governance's Actual Trends and Value for Money Provisions Within the IDD Framework' (2025) 25(1) Global Jurist 89; P Marano, 'The Contribution of Product Oversight and Governance (POG) to the Single Market: A Set of Organisational Rules for Business Conduct' in Marano and Noussia (n 1) 55; P Marano, 'Product Oversight and Governance: The EU Regulation and the Liabilities' in P Marano and I Rokas (eds), *Distribution of Insurance-Based Investment Products: The EU Regulation and the Liabilities* (Springer 2019) 59.

The two regimes, though converging in their protective purpose, operate however on different planes: the POG framework insists primarily on *ex ante* obligations relating to the coherence of the product with the target market, while the AI Act is characterised by a cyclical approach that includes robust ex post obligations, such as post-market surveillance (Article 61) and incident reporting (Article 62). This normative tension suggests the need for an integrated compliance model in which the compliance function assumes a bridging role between the horizontal law of artificial intelligence and sectoral insurance regulation.

At the operational level, the product approval file must contain not only the *ex ante* premises of the design, but also a description of the algorithmic segmentation logic, the parameters and triggers employed by AI systems for continuous monitoring, and the measures adopted to ensure the non-discriminatory nature of the profiling criteria.[138] The internal control and compliance functions must have access to the operational logs and be able to verify the consistency between the outputs generated by the system and the regulatory performance metrics. Any algorithmic updates or model recalibrations that alter the composition of the target market or the level of coverage provided must be subjected to a new POG assessment. The algorithmic selection of distribution channels must likewise be traceable, validated and subject to periodic review, ensuring that it does not lead to deviations from the suitability and transparency criteria required by sectoral regulation.

In this integrated governance architecture, the information duty operates as a linking principle between the different normative levels: it requires the undertaking to ensure that the algorithmic logic is documented, verifiable and intelligible not only for the internal control functions, but also – to the extent necessary to enable the informed exercise of their own rights – for the contracting party. The principle of proportionality does not exempt undertakings from this obligation but modulates its intensity according to the complexity of the system and the risk associated with its use.

6.6. Non-Discrimination and Financial Inclusion

The analysis of the European regulatory framework reveals how the principle of non-discrimination permeates the entire system of digital insurance regulation, assuming a cross-cutting character with respect to the various sources already examined. In the sphere of life and health insurance – and in a particularly acute manner in that of long-term care policies, characterised by a pronounced welfare dimension and destined for structurally vulnerable users – the deployment of AI systems may significantly increase the risk of discriminatory forms, both direct and indirect.[139] The former manifest themselves when the algorithmic decision is founded, expressly or implicitly, on prohibited factors (ethnicity, race, sex, disability); the latter – more insidious and more difficult to intercept – are realised through the mechanism of proxy discrimination, whereby apparently neutral variables reproduce the predictive power of protected personal characteristics,

[138] IVASS, 'Relazione annuale 2023' (2023) 60; IVASS (n 23).
[139] U Malvagna, 'Intelligenza artificiale e polizze long-term care: tra personalizzazione del rischio ed esclusione sociale' (2026) 1 Dialoghi di Diritto dell'Economia 49.

generating discriminatory outcomes without the system making explicit reference to such characteristics.[140] Directive 2000/43/EC implementing the principle of equal treatment between persons irrespective of racial or ethnic origin, and Directive 2004/113/EC implementing the principle of equal treatment between men and women in the access to and supply of goods and services, prohibit discrimination on grounds of ethnicity, race and gender respectively in the provision of insurance products. The latter Directive, as reformulated in the light of the judgment of the Court of Justice in *Test-Achats* (2011), precludes the use of gender as an actuarial factor in the absence of rigorous actuarial justification. The prohibition of discrimination on grounds of disability finds its foundation in Article 5 of the UN Convention on the Rights of Persons with Disabilities. It should be noted that the EU Charter of Fundamental Rights, including its Article 21 on non-discrimination, does not apply in the United Kingdom following Brexit. In the UK, the relevant framework is provided by the Equality Act 2010, which prohibits discrimination on grounds of race, sex, disability and other protected characteristics in the provision of services, including insurance contracts (s. 29).[141]

The discriminatory conduct associated with the use of AI does not confine itself to the pricing phase of the insurance contract, but permeates the entire value chain: from the advertising and targeting phase, in which AI may exploit the greater price elasticity of vulnerable categories (so-called differential pricing), to the product design phase, in which algorithmic hyper-personalisation may lead to the exclusion from the market of individuals with profiles deemed excessively costly; from the renewal phase, in which so-called price walking may disproportionately affect policyholders with low mobility (typically the elderly), to the claims management and fraud detection phases, in which spurious correlations between protected characteristics and behaviours may translate into inferior offers or unjustified presumptions of fraud.[142] In the long-term care sector, this dynamic assumes a particularly grave character: algorithmic hyper-personalisation may lead to the exclusion from the insurance market of elderly, disabled or chronically ill persons – that is to say, precisely those with the greatest need for care coverage – aggravating phenomena of financial and social

[140] M L Rego, 'Statistics as a Basis for Discrimination in the Insurance Business in Law' (2015) Probability and Risk 119.

[141] Directive 2000/43/EC of the European Parliament and of the Council of 29 June 2000 implementing the principle of equal treatment between persons irrespective of racial or ethnic origin [2000] OJ L180/22; Council Directive 2004/113/EC of 13 December 2004 implementing the principle of equal treatment between men and women in the access to and supply of goods and services [2004] OJ L373/37. On the gender discrimination prohibition in insurance, see Case C-236/09, *Association Belge des Consommateurs Test-Achats ASBL and Others v Conseil des ministres* EU:C:2011:100. United Nations Convention on the Rights of Persons with Disabilities, art 5 (equality and non-discrimination). For the UK framework, see Equality Act 2010, ss 4, 6, 9, 11 and 29. See also M L Rego, 'Insurance Segmentation as Unfair Discrimination: What to Expect in the Wake of Test-Achats' in *Proceedings of the 16th Annual Conference of the Insurance Law Association of Serbia* (AIDA Serbia 2015) 382; P Marano, 'Sex Discrimination in Private Insurance Contracts and the EU Law' in *Challenges in Harmonisation of the Serbian Insurance Law with the European/(EU) Insurance Law* (2012).

[142] IAIS, 'Draft Application Paper on the Supervision of Artificial Intelligence' (November 2024) 26; R Koulu, 'Proceduralizing Control and Discretion: Human Oversight in Artificial Intelligence Policy' (2020) 27 Maastricht Journal of European and Comparative Law; J Laux, 'Institutionalised Distrust and Human Oversight of Artificial Intelligence: Towards a Democratic Design of AI Governance under the European Union AI Act' (2024) 39 AI & Society.

exclusion with systemic repercussions for welfare systems. The principle of non-discrimination also bears upon the POG context:[143] Article 25 IDD requires that products be designed in a manner consistent with the needs of the target market, which implies that any mechanisms of algorithmic exclusion must be expressly assessed and justified in the product approval file.

With regard to best practices, EIOPA recommends, in high-impact cases, the use of intrinsically interpretable models (decision trees, linear regression) where the need for comprehensibility prevails over that of maximising accuracy, or alternatively black-box systems supported by supplementary explainable AI tools such as LIME[144] and SHAP.[145][146] Regarding direct control over the algorithm, a particularly relevant technique for countering indirect discrimination consists in the integration of protected variables in the training process so as to ensure that the other variables are considered for their direct predictive value rather than as proxies, before removing the effects of such integration.[147] Undertakings must also plan systematic record-keeping procedures and impact assessments (FRIA and DPIA) that enable the prior identification and mitigation of the most significant risks to the fundamental rights of vulnerable insured persons, including possible repercussions in terms of exclusion from the insurance market.

Comparative analysis of the principal life and long-term care products distributed in Italy, Europe and the principal non-European markets reveals that, at present, no LTC policies are known to the author that structurally integrate artificial intelligence in a fully algorithmic underwriting model incorporating data recorded by wearable devices in the determination of the premium and in the overall management of the insured risk.[148] The most advanced international experiences are situated predominantly in the sphere of service-based models oriented towards the provision of healthcare and assistance services, without yet configuring fully algorithmic LTC insurance schemes. The principal examples are the following. *Pulse by Prudential*, launched in 2019 across Asia and Africa, was an AI-powered mobile application offering 24/7 access to healthcare services, including an AI-powered symptom checker, digital health assessments for future disease risk, and online medical consultations; the platform has since been discontinued and replaced by Prudential's "Connected Care" strategy, which aims to embed the insurer in the entire healthcare journey, from appointments to payments, connecting customers, insurers, hospitals and doctors in a single digitally integrated experience. *Zurich LiveWell*, operating in Australia and subsequently expanded to over 27

[143] E W Frees and F Huang, 'The Discriminating (Pricing) Actuary' (2023) North American Actuarial Journal 2.
[144] LIME (*Local Interpretable Model-agnostic Explanations*) is a technique that generates local explanations of opaque model behaviour by approximating its outputs in the neighbourhood of a specific prediction through a simpler interpretable model.
[145] SHAP (*SHapley Additive exPlanations*) is a technique grounded in cooperative game theory that assigns to each input variable a marginal contribution to the individual prediction, thereby quantifying the relative influence of each factor on the algorithmic decision.
[146] EIOPA Consultative Expert Group on Digital Ethics in Insurance, 'Artificial Intelligence Governance Principles: Towards Ethical and Trustworthy Artificial Intelligence in the European Insurance Sector' (Report, 2021).
[147] M Lindholm and others, 'Discrimination Free Insurance Pricing' (2021) ASTIN Bulletin.
[148] OECD, 'Digital Tools for Health and Wellness in Insurance' (2024).

countries, is a wellness programme that rewards policyholders for engaging in physical, mental and social wellness activities, with premium discounts of up to 7.5% based on points accumulated through healthy behaviours tracked via wearable devices and health applications. *Ping An* (China) represents the most advanced integration of AI in insurance operations: nearly 60% of accident and health insurance claims are now automated, with some settled in as little as 51 seconds; its "*insurance + service*" model links insurance products to health and senior care ecosystems through the *Good Doctor* platform, which offers online consultations with AI integrated to aid data collection and diagnosis, and rewards clients with healthy lifestyles recorded via fitness trackers. *Nan Shan Life Insurance* (Taiwan) has similarly developed AI-assisted health management and claims processing tools integrated with insurance products. In all of these cases, however, the AI component operates primarily at the level of health service provision, claims management and behavioural incentivisation, rather than as a fully autonomous algorithmic underwriting system for long-term care risk assessment and pricing.[149] Wearable devices do not in themselves fall within the definition of an "AI system" for the purposes of Article 3(1) of the AI Act, but constitute continuous sources of biometric and behavioural data capable of feeding advanced predictive models; the potential positive externalities of such instruments – greater accuracy in risk assessment, behavioural incentives towards prevention, reduction of the burden on public healthcare systems – make the development of algorithmic LTC products plausible in the medium term, which renders all the more urgent the construction of a normative system capable of governing their implications in terms of financial inclusion and protection of fundamental rights.

7. The Information Duty as an Organising Principle of the Digital Insurance Contract

The analysis conducted in the preceding sections permits the proposal of a reconstruction of the information duty in the digital insurance contract as a multivalent organising principle, capable of orienting both the behaviour of the parties and the criteria for the interpretation and supplementation of the contract.

The four functions identified at the outset of this article, allocative, accountability, market integrity and evolutionary, can now be given their full doctrinal content in the light of the analysis conducted. In the first place, it discharges an allocative function, contributing to determining the distribution of risk between the parties in a manner proportionate to their informational capacity: the proposer is required to present the risk fairly and completely within the limits of the information it knows or reasonably ought to know; the insurer is required to render intelligible the criteria and models it uses in assessing the risk, to the extent that such intelligibility is necessary to enable the contracting party to exercise its rights in an informed manner.[150]

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[149] Prudential plc, *Pulse by Prudential: Investor Presentation* (November 2020); Prudential plc, *Annual Report* (2024); Zurich Australia, *LiveWell by Zurich* https://www.zurich.com.au/life-insurance/livewell accessed 14 April 2026; Ping An Insurance Group, *Annual Report* (2024); Ping An Health Technology Co Ltd, *Annual Report* (2024).

[150] A Schwartz and R E Scott, 'Contract Theory and the Limits of Contract Law' (2003) 113 Yale LJ 541.

In the second place, the information duty discharges an accountability function, requiring the insurer to be able to justify and explain its underwriting decisions, so as to ensure that they comply not only with technical-actuarial criteria but also with the principles of non-discrimination, proportionality and objective good faith. In the third place, it discharges a market integrity function, contributing to ensuring that the insurance market operates on bases of transparency and comparability such as to permit an efficient allocation of risk and effective competition among undertakings.[151] The opacity of algorithmic models, if not corrected by adequate disclosure obligations, may constitute a barrier to entry and an instrument of lock-in of contracting parties, with adverse effects on competition and market efficiency.

In the fourth place, the information duty discharges an evolutionary function, constituting the channel through which the insurance contract adapts to the technological and social transformations of its own context, progressively incorporating the new expectations of contracting parties in the areas of transparency, participation and control over the decision-making processes that concern them.

This reconstruction of the information duty as a multivalent organising principle requires, at the systematic level, an integration of normative sources – contractual, regulatory and jurisprudential – that gives rise to a coherent and proportionate framework. The POG framework, in its European and national articulations, and the AI Act prescriptions in respect of high-risk systems converge in delineating an integrated compliance architecture, in which ultimate decisional and distributive responsibility remains normatively and organisationally attributable to the insurance undertaking. The challenge, for the legislator and for the interpreter, consists in calibrating the transparency obligations in such a way as not to burden insurance undertakings with obligations disproportionate to the objectives pursued, whilst guaranteeing to contracting parties an effective capacity to understand and oversee the decisions that concern them.

8. Conclusion

The information duty in the digital insurance contract is today in a phase of profound transformation, the contours of which this article has sought to trace and assess critically. The factual premises on which its traditional configuration was founded – the informational superiority of the contracting party with respect to the characteristics of the risk, the capacity of the insurer to assess the risk only on the basis of the information provided by the proposer – have been radically altered by the advent of algorithmic underwriting and the availability of large heterogeneous datasets.[152] Yet to acknowledge this transformation is not, by itself, to

[151] E Ferran and others, *The Regulatory Aftermath of the Global Financial Crisis* (CUP 2012) 45.

[152] As observed by M Song, *Causation in Insurance Contract Law* (2nd edn, Informa Law from Routledge 2025) 231, «Warranties, in their origin, were designed to describe and limit the risk that insurers were willing to run. If the risk described to the insurers was not what they actually faced, it seemed just that they should be considered discharged from future liability. The severity of a breach of a promissory warranty indicates that the concept of promissory warranty in insurance law is a non-causal notion for determining the scope of insurance liability, because non-compliance with warranties will result in the termination of insurance liability regardless of the proximate cause of the loss.» See also R Merkin, 'Reforming Insurance Law: Is There a Case for Reverse Transportation?' [para 7.1].

resolve the deeper doctrinal and regulatory difficulties it engenders. A genuinely critical assessment of the relational reconstruction proposed in this article must grapple with the tensions internal to that reconstruction, the limits of the normative frameworks invoked in its support, and the systemic risks that the proposed convergence between insurance law and financial regulation may itself occasion.

8.1. The Limits of the Relational Reconstruction

The proposition that the information duty should be understood as a relational principle generating bilateral obligations of transparency and intelligibility rests, ultimately, on a normative choice about the allocation of legal risk in conditions of epistemic asymmetry. That choice is defensible, but it is not costless, and its implications deserve frank examination.

The first difficulty concerns the juridical basis for imposing on the insurer an affirmative duty of algorithmic intelligibility in the absence of explicit legislative mandate. The Insurance Act 2015 does not expressly impose on insurers a general duty to explain their underwriting methodologies to proposers. Its relevance lies instead in the more limited but still important fact that it preserves good faith as part of the conceptual background of insurance law while removing avoidance as an automatic remedy for breach. The relational reconstruction advanced in this article therefore depends not on section 17 alone, but on a broader interpretive synthesis involving section 3, the FCA's conduct rules, the Consumer Duty and data protection safeguards. The relational reconstruction proposed in this article argues that such an obligation can be derived from the good faith infrastructure of the Act, read in conjunction with the GDPR and AI Act requirements. That argument has considerable force as a matter of legal theory and of systematic interpretation. Yet it also presupposes a degree of judicial willingness to develop implied obligations from general principles that English courts have, historically, been reluctant to exercise in purely commercial insurance relationships. The extent to which the Consumer Duty introduced by the FCA in 2023 may provide a more hospitable normative basis for this development – through its requirements of consumer understanding and avoidance of foreseeable harm – merits attention that this article has not been able to give in full. The Consumer Duty, analysed in section 4.3 above, is directly oriented towards the quality of outcomes rather than the allocation of pre-contractual obligations, and provides a more tractable domestic instrument for operationalising the accountability function of the information duty than either the good faith infrastructure of the Insurance Act 2015 or the general provisions of the UK GDPR.

A second and related difficulty concerns the tension between algorithmic transparency and the legitimate protection of commercial confidentiality. Insurance undertakings invest substantially in the development of proprietary underwriting models; the requirement to render those models intelligible to contracting parties – or, at the limit, to disclose their methodological bases in litigation – may give rise to a structural conflict between the policyholder's right to an explanation and the insurer's right to the protection of trade secrets. The AI Act partly addresses this tension through its provisions on confidentiality of technical documentation under Article 78, which require competent authorities to treat commercially sensitive information with

appropriate discretion; but it does not resolve the conflict at the level of individual rights as against the insurer. This gap is significant: if the right to algorithmic legibility is reducible, in practice, to whatever the insurer chooses voluntarily to disclose without compromising its competitive advantage, the accountability function of the information duty becomes substantially illusory. The article's proposal that the information duty should operate as a "normative counterweight" to the insurer's predictive surplus therefore raises the question of enforcement mechanisms that are robust enough to resist this dilution – a question on which the existing literature, including this contribution, remains somewhat underdeveloped.

8.2. The Risk of Regulatory Accumulation and Systemic Incoherence

The regulatory landscape surveyed in this article – the AI Act, DORA, Solvency II, IFRS 17, the GDPR, the POG and IDD frameworks – is remarkable both for its breadth and for its structural heterogeneity. These instruments have been developed by different regulatory actors at different times in response to different perceived risks, and their interaction in the context of digital insurance is characterised by overlaps, lacunae and potential conflicts that an integrated compliance model, however sophisticated, cannot entirely dissolve.

Consider the interaction between the AI Act's requirement of human oversight under Article 14 and the GDPR's derogation for automated decisions necessary for the performance of a contract under Article 22(2)(b). On the one hand, the AI Act insists on effective human oversight as a non-negotiable condition for the deployment of high-risk systems; on the other, the GDPR permits, within limits, automated decision-making in contractual contexts without subjecting it to a systematic oversight requirement. The CJEU's expansive reading of Article 22 in SCHUFA partially closes this gap, but the precise scope of that judgment in the insurance context – particularly as regards the scoring systems provided by third-party InsurTech platforms and used as determinative inputs in underwriting decisions – remains to be worked out by national courts and data protection authorities. The risk is that undertakings navigate these overlapping requirements through formal compliance exercises that satisfy the letter of each instrument without achieving the substantive transparency that any of them individually, let alone collectively, is designed to ensure.

A deeper structural problem is that the regulatory framework operates predominantly at the level of ex ante obligations – system documentation, impact assessment, target market definition, transparency notices – rather than at the level of effective ex post remedies available to the contracting party whose interests have been prejudiced by an opaque or discriminatory algorithmic decision. The graduated remedies introduced by the Insurance Act 2015 are calibrated to the gravity of the proposer's breach, not to the consequences of the insurer's informational conduct. The AI Act does not confer private rights of action on individuals affected by non-compliant high-risk systems: enforcement is entrusted to market surveillance authorities, with the individual relegated to the indirect protection afforded by national implementation measures. DORA, similarly, is orientated towards systemic resilience rather than individual redress. The result is a framework that is normatively ambitious at the level of obligations but comparatively weak at the level of individual justiciable rights, a characteristic that is common to much of the European digital regulation of recent years

and that deserves critical attention as a design failure rather than a contingent gap to be filled by implementation.

8.3. The Long-Term Care Paradigm: Illuminating Case Study or Distorting Lens?

Throughout this article, the long-term care insurance context has served as an illustrative paradigm for the application of the information duty in its relational configuration. The choice is justified: LTC underwriting concentrates, in peculiarly visible form, the distributional stakes of algorithmic risk assessment – the risk that hyper-personalisation translates into systematic exclusion of the most vulnerable – and renders the social function of insurance particularly salient as a normative consideration. The argument that algorithmic underwriting in the LTC sector may produce outcomes that are not merely commercially inconvenient but fundamentally incompatible with the social and constitutional value of insurance access has genuine critical force.

Yet the paradigm also risks distorting the analysis in ways that should be acknowledged. The social stakes in LTC insurance are unusually high, and the vulnerability of the relevant population is unusually pronounced; the case for constraining actuarial freedom in this context is correspondingly stronger than in many other lines of business. To generalise from LTC to the information duty in the digital insurance contract as a whole risks importing into the general framework normative demands – a duty to ensure financial inclusion, an obligation to subordinate actuarial precision to social solidarity – that may be appropriate in welfare-adjacent insurance contexts but that sit uneasily with the commercial logic of other lines. Marine insurance, Directors' and Officers' liability, property catastrophe cover: these are contexts in which the parties are sophisticated commercial actors, the social inclusion dimension is minimal, and the case for bilateral transparency obligations of the kind proposed in this article is considerably weaker. The relational reconstruction requires calibration according to the nature of the contracting parties and the social stakes of the coverage in question – a calibration that the article gestures towards through the principle of proportionality, but that requires more systematic doctrinal elaboration if the proposed framework is to be defensible across the full spectrum of insurance relationships.

8.4. Convergence and its Discontents: Insurance Law and Financial Regulation

The article's central claim about a functional convergence between insurance law and financial regulation in the domain of informational obligations is compelling as a descriptive account of the regulatory trajectory and as a normative proposal for its future direction. The PRIIPs framework, the IDD requirements for insurance-based investment products, and the progressive assimilation of systemic transparency standards from financial market regulation represent genuine points of normative contact that the insurance law scholarship has been slow to theorise adequately. This article makes a significant contribution in doing so.

Nonetheless, the convergence thesis deserves critical scrutiny on at least two grounds. First, the functional logic of financial market regulation is not identical to that of insurance regulation, and the importation of the former's conceptual apparatus into the latter risks obscuring distinctions that matter for legal analysis. Financial regulation is predominantly preoccupied with market integrity and investor protection in liquid secondary markets, where information asymmetry translates directly into price distortion and market manipulation. Insurance regulation, by contrast, is fundamentally concerned with the bilateral risk transfer relationship and the long-term obligations of the undertaking to the policyholder; the systemic transparency concern, though real, is mediated through a contractual relationship with different structural characteristics from a securities transaction. The "common law of information" hypothesised in section 5 may therefore prove less unified in its principles than the article suggests, with the convergence operating at the level of regulatory vocabulary and institutional oversight rather than at the level of deep doctrinal structure.

Second, the convergence trajectory is not politically neutral. The progressive assimilation of insurance regulation to the logic of financial regulation tends to privilege the interests of sophisticated market participants and institutional investors, who have shaped the financial regulatory framework, over those of retail policyholders, whose interests are the primary concern of insurance regulation in its social function. The risk is that convergence imports, alongside its transparency benefits, the formalism and complexity of financial disclosure requirements that have been extensively criticised – in the PRIIPs context itself, with the documented failures of the KID in retail fund distribution – as generating information overload rather than informed choice. The lesson of that experience is that standardised disclosure requirements, however technically sophisticated, do not by themselves produce genuine informational symmetry: they produce a simulacrum of it, whose real beneficiaries are compliance functions and legal departments rather than policyholders. Any proposal to extend a PRIIPs-type model to algorithmic underwriting must engage seriously with this critique.

8.5. Towards a Normative Agenda

The critical observations advanced above are not intended to undermine the relational reconstruction proposed in this article but to identify the conditions under which it can be made defensible and effective. Several normative propositions emerge from the analysis.

First, the duty of algorithmic intelligibility requires a differentiated regime calibrated to the nature of the contracting party and the social weight of the coverage. In consumer insurance, and particularly in welfare-adjacent lines such as health, long-term care and compulsory third-party motor liability, a robust duty of intelligibility – including the right to a meaningful explanation of adverse underwriting decisions and the right to challenge them through a mechanism of effective human review – is normatively justified and should be developed through judicial elaboration of existing good faith and Consumer Duty principles in the English context, and through explicit legislative implementation of the AI Act guarantees in national law.

Second, the enforcement architecture must be redesigned to place effective individual remedies at its centre. The current framework's reliance on ex ante compliance obligations and supervisory enforcement, without corresponding private rights of action for individuals prejudiced by non-compliant algorithmic systems, represents a structural weakness that risks reducing the relational information duty to a regulatory aspiration rather than an enforceable individual right. The German experience with DSGVO enforcement through consumer protection organisations under section 80 of the BDSG, and the French model of algorithmic auditing conducted by independent technical experts in the context of Article 22 GDPR disputes, offer constructive precedents for institutional design that the English and European legislators should consider.

Third, the tension between algorithmic transparency and commercial confidentiality must be resolved through an institutional mechanism rather than left to ad hoc judicial management. The model of in camera disclosure to a technically qualified regulator or special master – already employed in competition law proceedings involving confidential economic analyses – could be adapted to insurance regulatory proceedings involving the examination of underwriting algorithms, enabling effective oversight without full public disclosure of proprietary methodologies.

Fourth, the LTC sector merits dedicated regulatory attention in the near term. As the article documents, fully algorithmic LTC underwriting products do not yet exist in the market; but the technological trajectory makes their development plausible within the medium term, and the legal framework needed to govern their implications for financial inclusion must be constructed before, not after, they arrive. A precautionary approach would recommend that EIOPA and national supervisors develop product-specific guidelines for LTC algorithmic underwriting, establishing minimum requirements for the causal relevance of risk factors, maximum limits on premium variation attributable to algorithmic scoring, and mandatory inclusion mechanisms for otherwise excluded risk profiles, before the market consolidates around models that may be practically difficult to reverse.

The construction of a digital insurance law genuinely capable of protecting contracting parties without compromising the efficiency and innovation of the market is, ultimately, a challenge that transcends the toolkit of any single legal tradition. The comparative perspective that combines the common law's pragmatic doctrinal incrementalism with the systematic ambition of Continental civil law and the regulatory architecture of European law is not merely intellectually enriching but practically indispensable. Neither the relational reconstruction of the information duty nor its institutional operationalisation can be accomplished within the resources of a single national legal order. The emerging landscape of digital insurance governance is irreducibly transnational, and the normative response must be capable of matching that scale. The information duty, understood as an organising principle of the digital insurance contract, provides the conceptual infrastructure for that response – provided that its proponents are willing to acknowledge, and to address with doctrinal rigour, the difficulties and trade-offs that the analysis has revealed.