# DIGITAL TRANSFORMATION IN THE UK INSURANCE INDUSTRY

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## Background

The insurance sector in the UK and worldwide is being disrupted at great speed by the application of General-Purpose Technologies (GPTs) – driven by machine learning and Artificial Intelligence (AI) – to core areas of the business that have not changed for hundreds of years. In particular, digital technologies and AI are fundamentally transforming long-standing actuarial practices, including how we understand and underwrite risk; bringing rapid improvements that will make new data insights available to insurers, whilst also helping them to improve interoperability, resolve information asymmetries, and engage in business model innovation, such as the automation of claims procedures that may be more efficiently handled by AI Agents. As significantly, the insurance industry is being revolutionised by Open Finance (OF) and smart data initiatives that are likely to prove fundamental in the future and which are, for this reason, the main focal point for our research contribution to DIGIT Lab (Work Package 2).

## Opportunities for Digital Transformation via Data Liquidity

The insurance industry is foundational to the UK economy acting as a key enabler of socio-economic resilience, while also providing long-term financial sustainability for the economy, underpinning personal security, business continuity, and public infrastructure by absorbing and distributing risk. Much of the work of the insurance industry relies on 'data liquidity' – or the ability to convert data generated from insurance transactions into opportunities for value creation. However, in the insurance industry, data sources are frequently locked away in silos or stored in outdated legacy systems, limiting their full potential. In addition to being siloed, the sector continues to rely heavily on document-based processes across various operations, from customer on-boarding and underwriting (evaluating risk profiles) to claims management and client engagement.

The growing accessibility of key GPTs means that value can be unlocked from these data points. A new generation of 'no-code platforms' and machine learning technologies is converting unstructured data into usable formats, paving the way for increased 'data liquidity '– the ability of digital information to be shared and traded efficiently between parties. This development is especially advantageous for tech companies that can acquire, integrate, transform, and capitalise on data assets.

## Research Focus

While data access has traditionally flowed in a single direction, from incumbents to new players, our research for Digit Lab has included observing instances where start-ups introduced external data sources to benefit incumbents. In some cases, ventures re-purposed information held in legacy formats by established insurers, converting it into structured data to enable new services or streamlined processes. Others, particularly those with experience in similar industries (like banking) or access to novel data sources (e.g., satellite or weather data), offer insurers improved underwriting capabilities by combining these datasets with sophisticated algorithms.

Across all scenarios of data types and flow directions, the value of data is evident to all parties involved. At a micro level, it fosters the creation of innovative business models, reduces operational costs, and enhances service delivery for both data providers and consumers. More importantly, it delivers broader social value by promoting transparency, accountability, and informed decision-making, while also democratising access by aligning with users' needs. On a macro scale, increased data liquidity transforms data into a dynamic asset that fuels digital transformation and drives economic growth, not just within insurance but across the broader financial ecosystem, laying the groundwork for a more connected and inclusive Open Finance landscape.

## Open Finance (OF)

Open Finance (OF) builds upon the foundation of Open Banking (OB), extending its reach across the broader financial ecosystem. For the insurance industry, it opens up new possibilities by facilitating access to a wider array of financial data sources and enabling more seamless collaboration across the financial sector. It aims to create a more transparent, interoperable, and consumer-centric financial framework. In this framework, it is predicted that the insurance data holders or Third-Party Providers (TPPs) will no longer be a standalone entity but part of a broader financial service architecture. This means that different entities in the insurance ecosystem could expand their business offerings, as well as be required to adapt to changing data control with their current and future clients.

The advantages of OF for the insurance industry are expanding the scope of data sharing in two key ways: first, by integrating data from diverse financial services, i.e., including underwriting, claims, and risk assessment data, and second, by empowering consumers with greater control over their data. As highlighted by Xu and Dukes (2022), this increased transparency and control can help alleviate consumer concerns, encourage engagement, and enable more personalised, data-driven insurance products and services. With richer datasets and improved customer insights, insurers can offer tailored coverage, dynamic pricing, and better decision-support tools.

By harnessing advanced data-sharing technologies, OF paves the way for innovation across the financial industry, supporting not only enhanced operational efficiency but also broader goals such as financial inclusion and risk transparency. At the same time, regulators are still working to establish robust frameworks to safeguard data privacy and consumer rights in this new, more connected landscape (Arnal and Andersson, 2024).

It is also important to note that broader data regulatory evolution is currently undergoing in the UK and EU, where "smart data" — or digital data generated through engagement with digital platforms and systems - is in the process of being formally regulated. The UK's Digital Information and Smart Data Bill (Duncan, 2024) will govern Open Finance initiatives, including those in the insurance sector, under broader smart data regulations (UKRI, 2024). While the bill applies across multiple domains, Open Banking remains the only live and mature smart data scheme to date. As such, the expansion of OB into OF, especially within insurance, represents both a critical innovation frontier and a practical test-bed for smart data regulation. The regulatory approaches established for OF in insurance are therefore poised to shape the future of data-driven innovation across other industries as well.

## Future Developments

The future of insurance in the UK is being reshaped by digital transformation, data liquidity, and regulatory technological changes. While the sector has traditionally relied on legacy systems and document-based work-flows, emerging technologies like AI, GenAI, and no-code platforms, including AI Agents, are enabling greater system interoperability and smarter risk assessment, creating better information systems that can benefit consumers with more customised premiums. These changes are unlocking new asset classes and business models, particularly within the industry, as well as cross-industry collaboration.

In the coming years, Open Finance will catalyse this industry by allowing insurers to integrate claims, underwriting, and even external data from sources such as weather forecasting or the client-specific personal data insurers hold, enhancing customisation, transparency, and customer control. As smart data regulations evolve under the UK's Digital Information and Smart Data Bill, insurers will be required to adopt more open, interoperable data practices.

However, challenges remain. Many firms in this complicated ecosystem still operate in a fragmented way, for example, when on-premises or operating in circumstances where firms struggle to connect to cloud computing platforms, with still unclear guidelines on risk-controlled development (or adoption) of AI systems. More so, innovation is often siloed, and long-term strategies for systemic risks, such as quantum threats are underdeveloped. Nonetheless, the convergence of technologies, growing data availability, better granularity, evolving policy, and cross-sector collaboration, should enable the UK insurance industry to transition from being a reactive innovator to a more proactive and flexible data-driven industry.

## References

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