



# Big Data and the Future Actuary Report Summary

Traditional Chinese (大數據與精算的未來報告摘要)





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## Big Data and the Future Actuary Report Summary

### (大數據與精算的未來報告摘要)

Access to big, non-traditional data has, is, and will affect every industry in the market, as well as usher in a few new ones. In insurance, access to big data means the relationship between insurers and their customers is increasingly complex and intimate. On the positive side, this encourages insurers to innovate and find ways to deliver value across the customer lifecycle. However, it also invites questions of privacy, transparency, and what constitutes taking data access ‘too far.’

對大型非傳統數據的運用已經、正在且即將影響各行各業，並推動產生一些新的行業。在保險業中，使用大數據意味著保險公司與客戶之間的關係正變得日益複雜和親密。從積極的一面來看，這會鼓勵保險公司進行創新並為客戶持續創造價值。但同時，也引發了隱私、透明度，以及數據使用的尺度界限等問題。

#### 2.1 USING NON-TRADITIONAL DATA IN TRADITIONAL WAYS (以傳統方式使用非傳統數據)

There’s no shortage of ways that big data influences and encourages innovation in the more traditional insurance processes. New niche products can target small segments of the population for a fraction of the cost. AI can simplify and improve accuracy in underwriting. Drone footage can determine which properties are more at risk in a natural disaster zone. The possibilities across the broader industry are seemingly limitless.

在更傳統的保險流程中，大數據可以在各個層面鼓勵創新。新的利基產品可以做到用低廉的價格針對一小部分消費者。AI 可以簡化承保流程並提高準確度。無人機錄像可以判定受自然災害風險更大的地區。大數據應用的可能性似乎是無限的。

Many forms of data that are not necessarily new to the insurance industry are changing. Whether that refers to the data’s complexity, accessibility, or the way it’s collected and analyzed completely depends on the data and the person/company collecting it. Data that will experience this kind of shift includes **demographic, financial, government, climate, medical, motor vehicle records, public records, and telematics.**

對於保險業的許多既有數據而言，形式正在發生變化。無論是數據的複雜性、可訪問性，還是數據的收集和分析方式，完全取決於數據本身以及收集數據的人員以及公司。經歷著這種轉變的數據包括**人口統計、財務、政府、氣候、醫療、機動車記錄、公共記錄和遠程信息處理。**

The industry will also have access to some relatively new kinds of data, particularly epigenetics data and digital behavioral data. **Epigenetics data** refers to information pertaining to ‘cellular age.’ This can predict how long one is likely to live, whether or not they’re likely to avoid common diseases, etc. **Digital behavioral data** is possibly the most valuable source of big data to insurance and comes in the form of wearables, apps, and online platforms that constantly track behavior, habits, location, and health. This data can be used in everything from risk pricing, fraud prevention, underwriting products, and more.

與此同時，業界還將獲得一些相對較新的數據，尤其是表觀遺傳學數據和數字化行為數據。**表觀遺傳學數據**是指與“細胞年齡”有關的信息。它可以預測一個人可能活多久，是否有可能避免常見疾病等。對於保險業而言，**數字化行為數據**則可能是最有價值的。這包括可穿戴設備、應用程序，以及不斷記錄用戶行為、習慣、位置和健康狀況的網絡平台。這些數據可應用於風險定價、預防欺詐、承保等。

With access to big data comes great responsibility. Insurers should be especially wary of predictive algorithms that have the potential to inherit societal discriminatory prejudices through machine learning. While significant advancements have been made, there is no agreed upon way to ensure AI and machine learning operate free of any bias. It is illegal for insurers to discriminate on the basis of race, religion, or national origin in the underwriting, pricing, and claims processes, making integrating these new technologies tricky.

非傳統大數據也同時給保險公司帶來了巨大的責任。保險公司應該特別警惕某些通過機器學習而繼承了帶有社會歧視或偏見的預測算法。儘管此方面已有重大進展，但目前仍沒有公認的方法來確保 AI 和機器學習在沒有任何偏見的情況下運行。在承保、定價和理賠過程中基於種族、宗教或國籍進行歧視是非法的，這使得保險行業整合新技術變得非常棘手。

On the more positive side of this equation, access to these big data sources provides endless opportunities for insurers to meaningfully engage their customers. Companies placing the customer at the center of business decisions regularly outperform those that don’t, and the insurance industry has the tools to enable this. Insurers that recognize this potential and act on it can provide continuous value, helping customers live healthier, happier, and wealthier lives.

從積極的方面來看，大數據為保險公司提供了無盡的與客戶互動的機會。以客戶需求為中心的企業通常在競爭時處於上風，而保險行業如今擁有工具和技術來支持大數據的發展。意識到大數據的潛力並採取行動的保險公司可以不斷創造價值，幫助客戶过上更健康、幸福、富有的生活。

## 2.2 USING NON-TRADITIONAL DATA IN NON-TRADITIONAL WAYS (以非傳統方式使用非傳統數據)

Outside of using non-traditional data to improve and innovate long-standing industry practices and processes, there are plenty of new ways for actuaries and insurers to push traditional boundaries. At the center of this is the idea that the insurance industry is moving away from a ‘detect and repair’ industry towards a more proactive ‘predict and prevent.’ Here are a few ways in which the insurance industry is actively working towards this shift:

除了使用非傳統數據來改善與創新既有的行業慣例和流程外，精算師和保險公司還可以利用許多新方式來突破傳統界限。其中心思想是，保險業正經歷從“發現和補救”至更主動的“預測和預防”模式的變革。保險業可通過以下幾種方式積極致力於這一轉變：

1. **Risk Management and Wellness Programs:** Perhaps the most intuitive way insurers can drive value for customers is risk management and wellness programs, which provide insights and incentives to help consumers improve their mental and physical well-being.
2. **Patient Management Programs for the Chronically Ill:** Partnerships between healthcare providers and insurers can develop patient management programs for customers suffering from chronic diseases.
3. **Value-Based Payment Models:** These next-generation payment contracts can directly link individual behavior with the management of chronic diseases, providing incentives for customers to improve their lives through lifestyle insights and suggestions.
4. **Pay-as-you-live and usage-based insurance:** These pricing solutions will benefit consumers through seamlessly interconnected insurance products, delivering continuous value through insights on health, wealth, and safety.
5. **Internet of things integration**
6. **Covering new risks**

1. **健康管理計劃：**保險公司為客戶創造價值的最直觀的方法就是健康管理計劃，它提供了專業指導和激勵措施，可以使消費者的身心健康得到改善。
2. **慢性病患者管理計劃：**醫療機構與保險公司可以合作為患有慢性疾病的客戶制定管理計劃。
3. **互惠式模型：**這種保險形式可以將客戶行為與健康管理直接聯繫起來，通過日常指導和獎勵來鼓勵客戶養成健康的生活方式。
4. **先使用後付費模式：**這種模式通過無縫銜接的保險產品為客戶提供有形和無形的價值與保障。
5. **利用物聯網互聯互通**
6. **承保新的風險**

### 2.3 BECOMING AN ACTUARY OF THE FUTURE (精算師職業的未來)

Access to non-traditional, big data does more than shift the insurance industry, it changes what it means to be an actuary. The actuary of the future will be part mathematician, part data scientist, part digital strategist, part computer programmer, and part design thinker, integrating all these skills to make the most of new technologies and partnerships alike. New data sources will provide a wealth of both structured and unstructured data that will allow actuaries with the right programming skills to develop algorithms capable of efficiently working with massive datasets.

大數據不僅改變保險業，還改變了精算師職業的意義。未來的精算師將是數學家、數據科學家、數字戰略家、程序員和設計思想家的結合體，精算師將整合所有這些技能以充分利用新技術和跨行業合作的成果。新的數據源將提供大量的結構化和非結構化數據，具有編程技能的精算師從而可以開發高效處理海量數據的算法。

More than anything, the actuaries of tomorrow will see their role shift towards the customer in ways it never has before. As the insurance industry becomes simultaneously more customer centric and proactive, products, programs, and services will reflect a more engaged customer base, ready to be engaged throughout the duration of their policies through meaningful, value-driven initiatives. Actuaries will be at the center of this shift.

與過去不同，未來的精算師會將客戶視為導向。隨著保險業更加積極主動地向“以客戶為中心”轉型，保險產品和項目將與客戶在各個層面展開互動，全程以卓越服務為客戶創造價值並提升體驗。精算師正是推動這一變革的中堅力量。

請點開以下網址查閱完整的研究報告：

The full research report can be found here: <https://www.soa.org/resources/research-reports/2019/big-datafuture-actuary/>.

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With roots dating back to 1889, the [Society of Actuaries](#) (SOA) is the world's largest actuarial professional organization with more than 31,000 members. Through research and education, the SOA's mission is to advance actuarial knowledge and to enhance the ability of actuaries to provide expert advice and relevant solutions for financial, business and societal challenges. The SOA's vision is for actuaries to be the leading professionals in the measurement and management of risk.

The SOA supports actuaries and advances knowledge through research and education. As part of its work, the SOA seeks to inform public policy development and public understanding through research. The SOA aspires to be a trusted source of objective, data-driven research and analysis with an actuarial perspective for its members, industry, policymakers and the public. This distinct perspective comes from the SOA as an association of actuaries, who have a rigorous formal education and direct experience as practitioners as they perform applied research. The SOA also welcomes the opportunity to partner with other organizations in our work where appropriate.

The SOA has a history of working with public policymakers and regulators in developing historical experience studies and projection techniques as well as individual reports on health care, retirement and other topics. The SOA's research is intended to aid the work of policymakers and regulators and follow certain core principles:

**Objectivity:** The SOA's research informs and provides analysis that can be relied upon by other individuals or organizations involved in public policy discussions. The SOA does not take advocacy positions or lobby specific policy proposals.

**Quality:** The SOA aspires to the highest ethical and quality standards in all of its research and analysis. Our research process is overseen by experienced actuaries and nonactuaries from a range of industry sectors and organizations. A rigorous peer-review process ensures the quality and integrity of our work.

**Relevance:** The SOA provides timely research on public policy issues. Our research advances actuarial knowledge while providing critical insights on key policy issues, and thereby provides value to stakeholders and decision makers.

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