Don’t Get Left Behind

Why Property Insurance Underwriters Must Embrace AI Now

ARTURO

Introduction

The insurance industry has traditionally been slow or even adverse to embracing new digital technologies. In fact, research suggests that many insurance carriers are willing to concede that they are slow to adopt digital approaches,* but the tide has turned in the past five to seven years. Since 2015, over $2.7 billion has been invested* in Insurtech, and nearly 47% of insurance firms anticipate spending on data, machine learning (ML), and artificial intelligence (AI) technologies to meet customer demand and remain competitive.

Additionally, there has been a shift in underwriting recently as customers migrate to digital channels. Insurers are pursuing digital initiatives to improve the customer experience, use data and analytics in key processes, introduce new digital products and services, and optimize operating costs through AI-driven automation.

In this white paper, we discuss how AI technologies will shape the future of the Property & Casualty (P&C) insurance industry, particularly across property underwriting. We describe the implications of machine learning and predictive data modeling on underwriting and explain why insurance underwriters should embrace AI now.

Source 1: https://www.computerweekly.com/news/252488548/Insurers-accept-they-were-slow-to-adopt-digital
Source 2: https://www.businesswire.com/news/home/20200701005415/en/Global-Insurtech-Market-2020-to-2025---Growth-Trends-and-Forecast---ResearchAndMarkets.com#:~:text=Insights%20on%20Investments%20into%20Insurance%20Tech%20Companies&text=Overall%20investment%20in%20InsurTech%20start,at%20its%20peak%20in%202015

The Crucial Role of Property Underwriting

Before we dive into AI's implications on underwriting, we consider the role of insurance underwriters, their pain points, and their data needs.

The Role of the Property Underwriter

In simple terms, P&C insurance underwriters decide whether and to what extent to insure a property. To be successful, they need access to critical property data so that they can identify risks, offer loss control recommendations, price appropriately, and manage renewals. Ultimately, they care about property characteristics and conditions and how they might change, year in and year out.

There are Three Distinct Aspects of Underwriting

1 Pre-fill at the Point of Quote

2 Post Bind Inspection and Preventative Loss Control

3 Renewals

Underwriting executives are typically concerned about the accumulation of exposure and the risk profile of the business while seeking to acquire new customers and retain existing ones. Each area of underwriting is distinct and crucial. Below are the key pain points associated with each aspect of underwriting.

Pain Points at Point of Quote

Pre-fill data is used to speed up the quoting process, but the existing information generated by pre-fill is often inaccurate, limiting the data's effectiveness. Therefore, underwriters must ask customers to fill in the property information themselves, yet policyholders usually won't know their exact roof material or the precise condition of the roof. This has many underwriters wondering, "If you're paying data aggregators, and their pre-fill data is incorrect, what are you paying them for?"

Inaccurate pre-fill data ultimately leads to a poor customer experience and a high cost of acquiring new customers. Insurance carriers can lose out on potential revenue because the typical consumer doesn't know the condition of a property characteristic, such as roof material. Consequently, the user abandons the screen or the agent's call, and the lead is lost. Customers simply want a quote today—and within minutes.

Pain Points at Preventative Loss Control

At this stage, underwriters must identify what has changed since the initial quote and consider the impacts and associated risks of those changes over time. For example, underwriters have to identify environmental or physical changes that raise red flags and then mitigate their risks

either in the policy or through action from the owner. Changes that are important to underwriters include physical additions, such as a new swimming pool and whether that pool has a fence. In another example, a large tree hangs over a house. How much has it grown in height and breadth, and does that growth present additional risk? Property underwriters must detect changes and manage loss control throughout the policy period and at renewal.

Pain Points at Renewals

The insurance industry experiences a 10%–15% policy churn rate. Monitoring changes to the overall risk characteristics of the property portfolio using data and analytics allows insurance carriers to concentrate on retaining the properties that present the least risk. Such insights can focus attention on identifying and retaining high-value business to ensure better combined ratios.

The Data Needs of Underwriters

Over 50 discrete physical characteristics may need to be taken into account in an underwriter's overall risk management process. Examples of these characteristics include:

- Roof type, material and condition
- Roof shape, exposure and complexity
- Presence of swimming pools, outbuildings and trampolines
- Number of stories and solar panels
- Evidence of yard debris
- Proximity analysis for flood or fire zones

Ultimately, underwriters require flexibility in gathering data to allow them to filter the attributes that are crucial to assessing risk, and each underwriting element has distinct data needs. Using limited property data instead of true images and analysis or using pre-fill data from aggregators raises real concerns for insurance carriers that could result in dissatisfied customers or incorrect pricing.

How AI is Transforming Underwriting

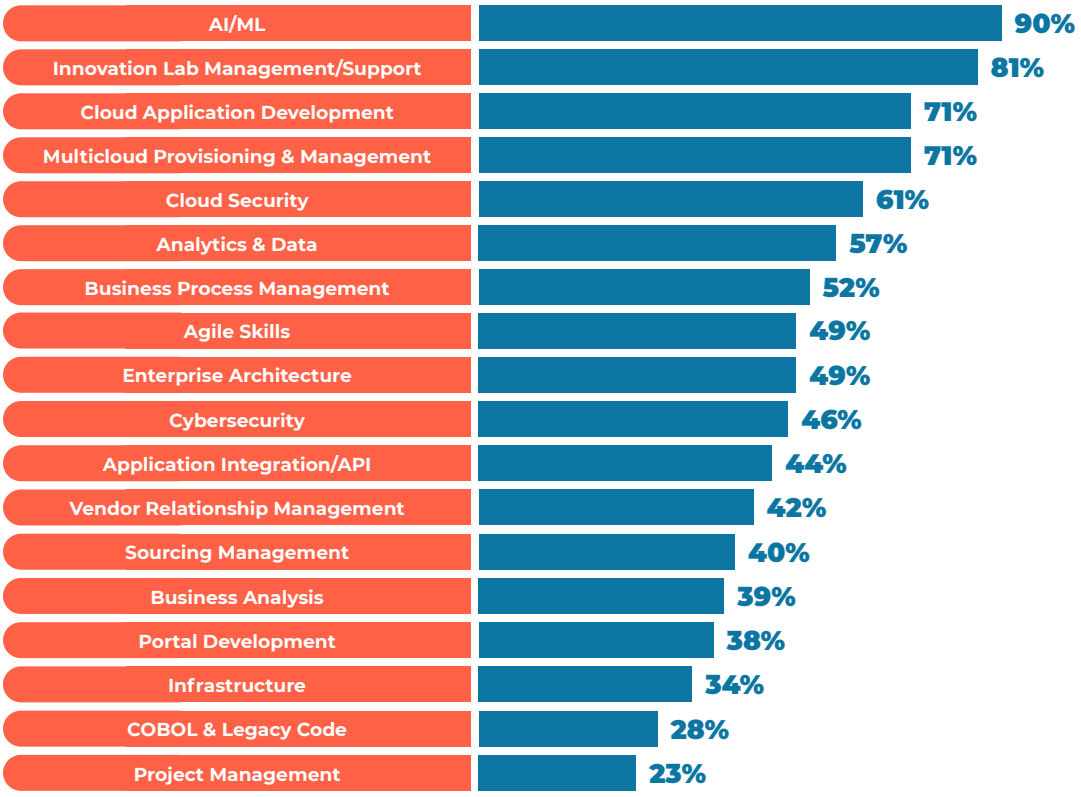
*"By YE24, investment in AI-enablement of knowledge workers will rise by **40%** as insurers shift from automation to human support initiatives."* — Gartner

Insurance industry leaders recognize the talent gap as the biggest obstacle to leveraging the opportunities presented by AI and ML. In a Gartner survey, **90%** of respondents affirmed this as a top priority.

Figure 2. Top Talent Gaps Cited by Insurance CIO's

Rating Resource Capabilities

Percentage of insurance respondents to rate capability as "Significantly insufficient" or "Lacking in places"



n=60 insurance respondents, excludes "N/A(No need for this skill)"
Q: How would you rate your resource capabilities in the following areas?
2021 Gartner CIO Survey | Base varies by row | ID: 736126

Source: Gartner, Predicts 2021: The Insurance 'New Normal' Requires new Approaches to Talent, November 2020

Gone are the days of manual underwriting for property and casualty insurance. With the infusion of AI-based technologies and machine learning data models, insurers are demanding that underwriting be increasingly automated, with the previously manual, data-limited approach evolving into an automated, standardized, and more objective process. Potential policyholders can view a quote in a matter of seconds when insurance carriers have access to sophisticated technologies that are built into their internal business workflows and processes. This new data set can be coupled with configurable application programming interfaces (APIs) and internal, historical data analytics. Underwriters can use advanced analytic models that reduce costs and save time at each underwriting stage. Predictive, stochastic, probabilistic, and prescriptive analytics are all useful for underwriters, who are often the group with the greatest unmet need.

From John-Isaac “jC” Clark | CEO Arturo

At Arturo, we’re transforming how businesses understand physical properties by applying AI and machine learning to remotely sensed data collected on and around properties. Because we can fetch available property images and return an analysis in seconds, we are often initially used in time-sensitive transactions that involve a human waiting for the result, be it a consumer requesting a new quote for a homeowner’s insurance policy or an underwriter validating the accuracy of a property’s policy information that came from an agent.

In all these use cases, we access current, high-resolution imagery of the property, generally taken within the past 90 days and from multiple sources and providers. In around seven seconds, we return up to 50+ discrete characteristics of the property. For the consumer, we may identify that you have a pool, a trampoline, or solar panels and assess the current condition of your roof to get you the best price. For the underwriter, we note whether the pool is fenced and whether the tree canopy is well maintained and away from the roof or building (in areas prone to wildfires) to better assess the risk factors present.

We have seen many use cases in which Arturo customers find value including:

1. Finding all properties that have poor conditions (for risk identification) or those that have excellent conditions (for marketing). Once pockets of hidden risk have been identified in a portfolio, develop mitigation strategies to reduce churn while lowering the propensity for claims (for portfolio risk management) or can further diversify those risks through reinsurance strategies.
2. Analyzing every property in a large area after a catastrophe to predetermine the amount of damage or loss and quickly aid both homeowners and assessors on the ground (for claims management and automation).
3. Creating a more efficient pricing model (pricing).
4. Analyzing each property whose policy is due for renewal to make sure that a property with a major concern or risk is not automatically reinsured without remediation (for renewals) or to offer a discount (for retention) to avoid churn on low-risk properties.

Finally, Arturo has developed a feedback process that we’ve dubbed Full-Loop Deep Learning to consistently measure and improve our model performance through customer and consumer interaction. While this should represent “table stakes” in any machine learning business, the reality is that this is very rare in market offerings today. We want our customers to understand that this automated self-measurement and improvement is central to how we deliver machine learning and is integral to our approach. This technology, delivered via configurable APIs, means Arturo easily integrates with existing processes and systems to improve outcomes across the underwriting value chain.

Implications of AI Across Key Property Attributions

Policyholders (i.e., consumers) typically don't know what material their roof is made of, when it was last replaced, or how to define its condition. Missing, incomplete, or obsolete data poses the threat of incorrect pricing and undisclosed risk, but AI-powered data insights, combined with multi-source imagery and predictive analytics, have the power to improve property attributions across the four areas described below. This set of prioritized physical attributions offers the greatest potential for positive change using AI technologies.

Roof Attribution

Underwriters need access to a roof attribution that includes the roof's shape, materials, type, slope, number of panels, pitch, and the presence of skylights. Underwriters may need to understand roof material split, shape and variation of roof, such as flat or another combination. Roof pitch data alerts underwriters to potential problems caused by wind and may be a factor to weigh when considering proximity to other weather perils. In detecting factors associated with hail damage, the presence of skylights may provide a useful indicator of potential future risk. Broken skylights could indicate internal damage to the property that resulted from a specific weather event.

Roof Condition Attribution

The roof condition attribution includes characteristics such as missing shingles, damage, poor repair, and staining. Some other providers offer a roof condition rating that indicates a roof is in "good," "moderate," or "poor condition." This classification has shortcomings, as the rating tells you nothing about the preexisting roof condition.

Arturo's approach offers far richer detail and granularity. Specifically, we identify a host of conditional factors, the specific roof areas (down to the panel level) where those conditions are present, and the percentage of roof area affected by the conditions. Additionally, the true quality of a roof cannot be gleaned entirely from a single image, so Arturo also supports temporal roof analysis, allowing our customers to access multiple years of imagery data to assess and understand changes in quality, condition, maintenance, and repair over time.

Parcel Attribution & Change Detection

Parcel attribution concerns what surrounds a property and what has changed through and during the underwriting process. These changes and associated risks may relate to the adjacency of neighboring properties as well as to the property site itself. The characteristics include the presence of new structures, such as sheds, trampolines, additional outbuildings, and in-ground or above-ground pools. Having access to up-to-date property characteristic data is crucial to managing the property portfolio as well as to accurately detecting insurable risks. For example, an additional building, such as a shed, may feature poor materials or not be built to code, leading to future structural damage. If a new pool was built, underwriters need to know whether it is enclosed.

Some providers offer 'risk' scores from third party sources, which are static and do not reflect true risk and peril with high variance. Arturo's technology supports change detection that properly verifies the location and propensity of such risk over time. By accessing current and historical imagery across a portfolio, underwriters can better define the aggregation

and concentrations of change detection for quoting and pricing purposes. With temporal change detection, insurance carriers can better understand both the preexisting and current conditions as well as the at-risk elements of the portfolio.

A Properties Defensible Space

Detecting vegetation involves not only the property's trees, scrub, and so on but also the proximity and risk associated with surrounding properties, tree canopies, and associated built-up vegetation heights. On the United States' East Coast, a tree overhanging a roof can cause algae buildup that could further imperil roof conditions. Such a roof would return a high risk score as it actually has a propensity to correlate with a poor condition in the future when other variables are considered. On the West Coast, underwriters need to be aware of flammable brush during the fire season. For example, classifying the height of trees identifies not only the trees prone to 'fall in' conditions but also the volume of vegetation that presents greater risk in times of high wind and dry conditions. Underwriters need an accurate picture of such defensible zones (within 100 to 200 meters of a property). Up-to-date, vegetation-specific data analytics helps underwriters mitigate preventable risk.

Neighborhood Views

Within a neighborhood, there is a strong desire for summary statistics that show the diversity or consistency of a given area, whether a mature neighborhood or a new housing development added to the edge of an existing settlement. Being able to see such trends across the property characteristics and conditions of a given location or in the vicinity of new or existing policyholders greatly aids insurance carriers in analyzing their risk. Arturo partners with some of today's leading insurance carriers across the US, Canada, and Australia, constantly seeking feedback from our clients on which physical property attributions matter most in order to enhance our data models and improve decision-making across the underwriting process.

The Benefits of AI For Insurance Carriers

"In 2021, data analytics and AI will be at the forefront of organizational efforts to turn crisis into opportunity and recovery." — Gartner

AI has the power to reduce variability across underwriting by utilizing complete, accurate, and predictive analytics. With the power of AI, insurance carriers can use highly accurate property characteristics to streamline the quoting process from the start.

The Benefits of AI Across Point of Quote Include:

1 Accurate and instant pre-fill data—no more relying on incomplete or incorrect property information.

2 The ability to make accurate decisions instantly. Underwriters can offer the best quote in a matter of seconds with information automatically derived from the most recent property images using multi-source imagery and on-demand property analytics.

3 Improved customer conversion rates and improved customer experience—underwriters can offer policyholders quotes they can trust.

The Benefits of AI Across Renewals Include:

1 Precise risk management. With full external knowledge of a property, underwriters experience less undisclosed risk and make informed, improved decisions when assessing risk.

2 Improved customer retention. Typically, insurance carriers experience a 10%–15% customer churn rate, but underwriters can reduce that with highly accurate data.

3 Accurate property conditions. AI-based analytics, relying on the most accurate and up-to-date images from multiple imagery providers, shows how a property's conditions have changed over the time of data reception.

The Benefits of AI Across Loss Control Include:

1 Fewer in-person inspections. Insurance carriers can reduce the need for costly inspections with up-to-date and accurate insights.

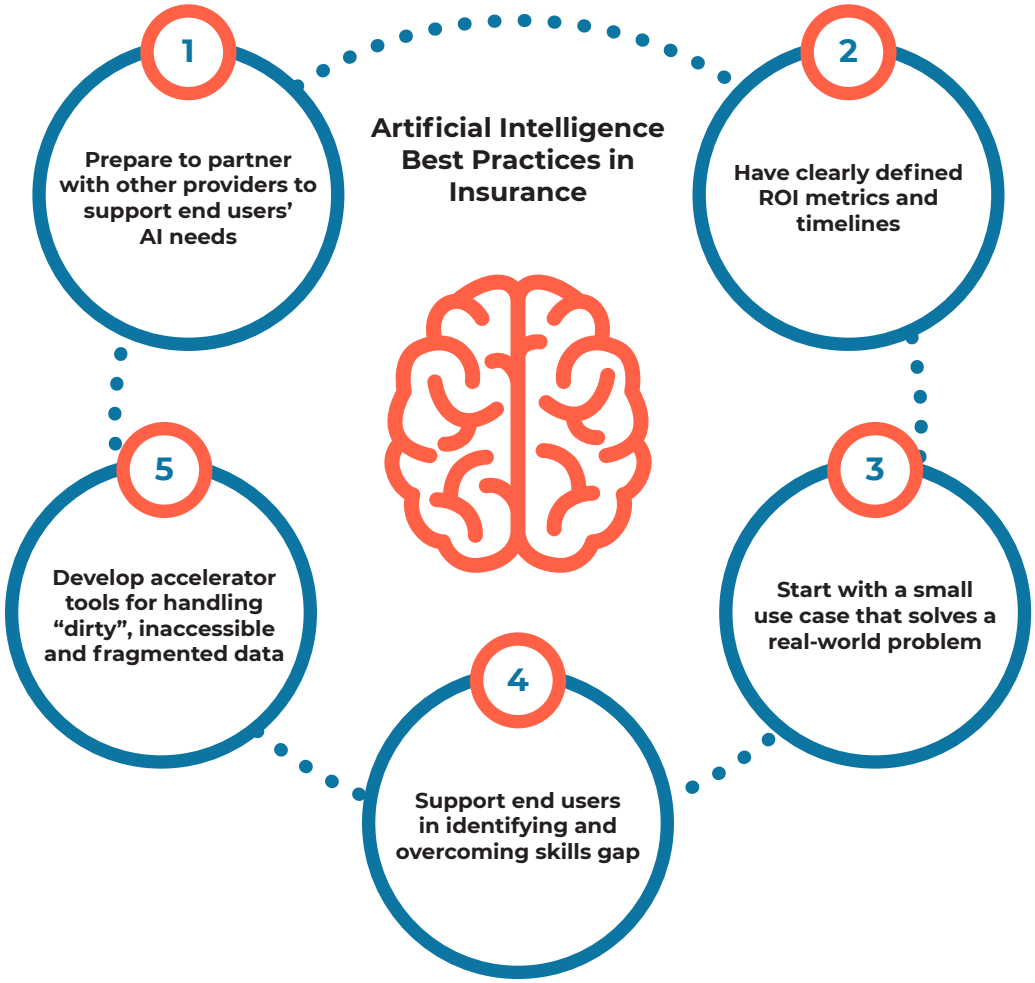
2 Improved ROI. Underwriters can get the same property analytics of in-person inspections at a fraction of the cost and in a fraction of the time.

Source: Gartner, 2021 Planning Guide for Data Analytics and Artificial Intelligence, October 2020

Conclusion

Figure 2. Top Talent Gaps Cited by Insurance CIO's

Five Lessons for AI Product Managers in The Insurance Industry



Source: Gartner, Artificial Intelligence in Insurance: 5 Lessons From Early Adopters for Product Managers, October 2019

According to Gartner, the first step in implementing AI-based technologies is partnering with an outside provider. Arturo's AI property analytics technology empowers insurance carriers with on-demand deep learning models that derive the most accurate current property characteristics from multi-source imagery via configurable APIs.

Now is the time for property underwriters to embrace AI to improve decision-making across the key aspects of underwriting—identifying risks, offering loss control recommendations, pricing appropriately, and managing renewals.

GET A DEMO OF ARTURO'S UNDERWRITING SOLUTION


ARTURO