

White Paper



P&C Industry Managing Claims Expense & Risk with Models & Humans

Property Casualty Insurance Industry Review:
Service providers offer insurers algorithmic models to
improve human data analysis of risk and pricing.

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Introduction

The insurance industry to effectively manage claims expense and properly assess risk to secure economically viable income have a growing need for algorithmic data models from service providers. An approach emerging is to use insurance quantitative and qualitative mathematical data analysis models that enable technical and non-technical underwriting.

There is an “arms race” among insurers to secure large volumes of data to create business intelligence output by innovative technology from service providers. For example insurers that write insurance policies about homes, small and large businesses, automobiles and general

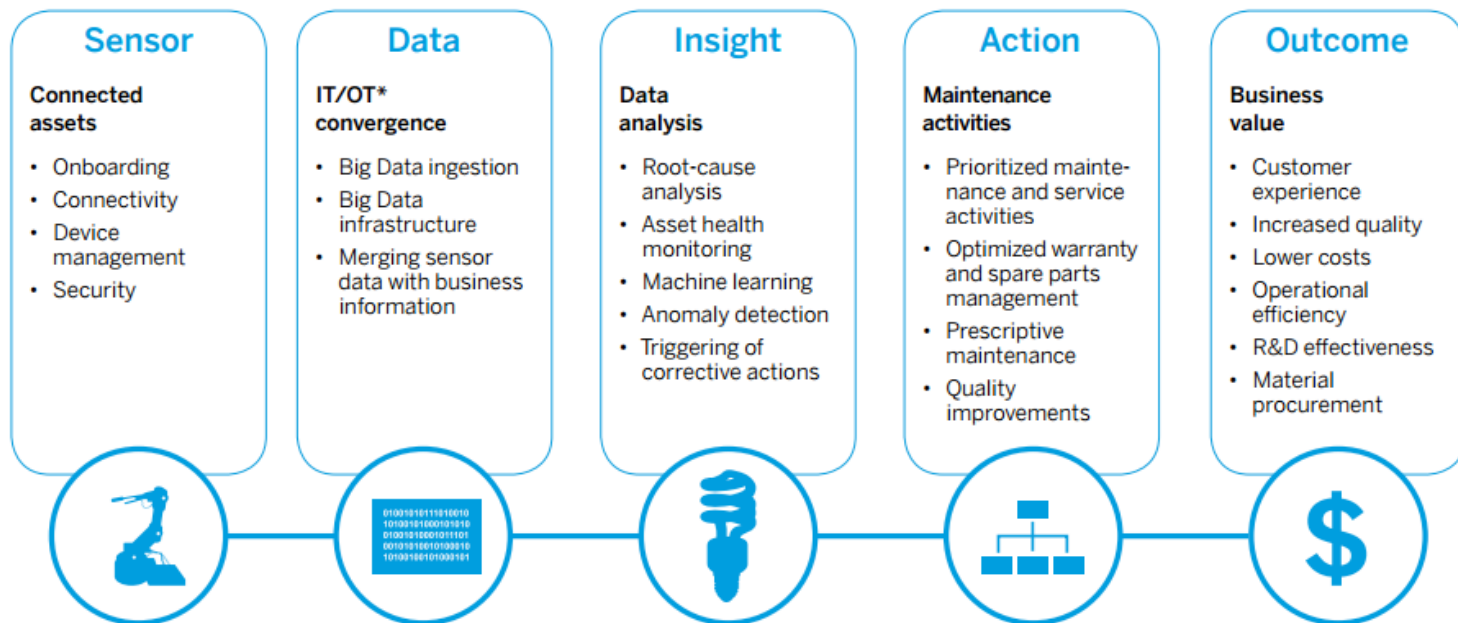
commercial risk lines. Want to collect thousands if not millions of claims that are input to data analysis applications that generate readable risk patterns and trends that impact rate setting.

In total, insurers and service providers that operate around insurance operating platforms for claims, policy and underwriting operations are turning to the pairing of business intelligence models and human underwriters. The expectation is that sophisticated data management will create better pricing of policies with an unexpected advantage – increasing the likelihood to predict claims and losses by customer profile.



Algorithmic Applications to Assess Risk & Premiums

Surround applications that connect to insurers insurance operating systems include algorithmic models that analyze insurance risk. These models or tools can track, aggregate important data points that determine how much to price policies.



* OT = operational technology

Quantitative Data Science Leads to Predictive Claims Expense

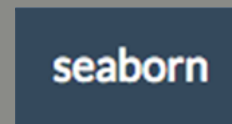
Quantitative analysis specializes in the application of mathematical and statistical methods – such as numerical or quantitative techniques – to financial and risk management problems. An insurer that effectively interprets a customer's risks and historical

patterns and trend data can actually suggest changes in policies or practice to reduce risk. For example, if Worker's Compensation expense experience is leading to high rates of pharmacy claims, the administration of medical services could be better aligned.

Degree Of Complexity	High	Low
No.of Assets Built	Low	High
Data Management & Reporting <ul style="list-style-type: none"> • Data Duality • Data Federation • Data Integration • Data Governance 	Advanced Analytics <ul style="list-style-type: none"> • Campaign Analytics • Data Mining Predictive Analytics • Customer Lifecycle - Acquire, Grow, Retain • Customer loyalty & cohort Analytics 	BIG Data Consulting & Analytics <ul style="list-style-type: none"> • Cloud used analysis clusters • Streaming and Reaffirm Data • Social Media Data Analytics • LOB analytical widgets • Dynamic KPIs & Alerts
<ul style="list-style-type: none"> • BI & Reporting • Enterprise DW / Marts 	<ul style="list-style-type: none"> • Classification & Segmentation • Market Basket Analysis • Scorecards and KPIs 	<ul style="list-style-type: none"> • Claims Data Analytics • Claim Aging and Timing analytics • Settlement / Loss Ratios • Claims Forecasting • Claims Process efficiency measures
<ul style="list-style-type: none"> • Executive Summaries • Regulatory Reports 	<ul style="list-style-type: none"> • Hypothesis Testing • Standard Reports 	<ul style="list-style-type: none"> • Modernizing Datawarehouses • Legacy Data Transformations

Visualization Tools And Technique

Data Sciences for Insurance Industry



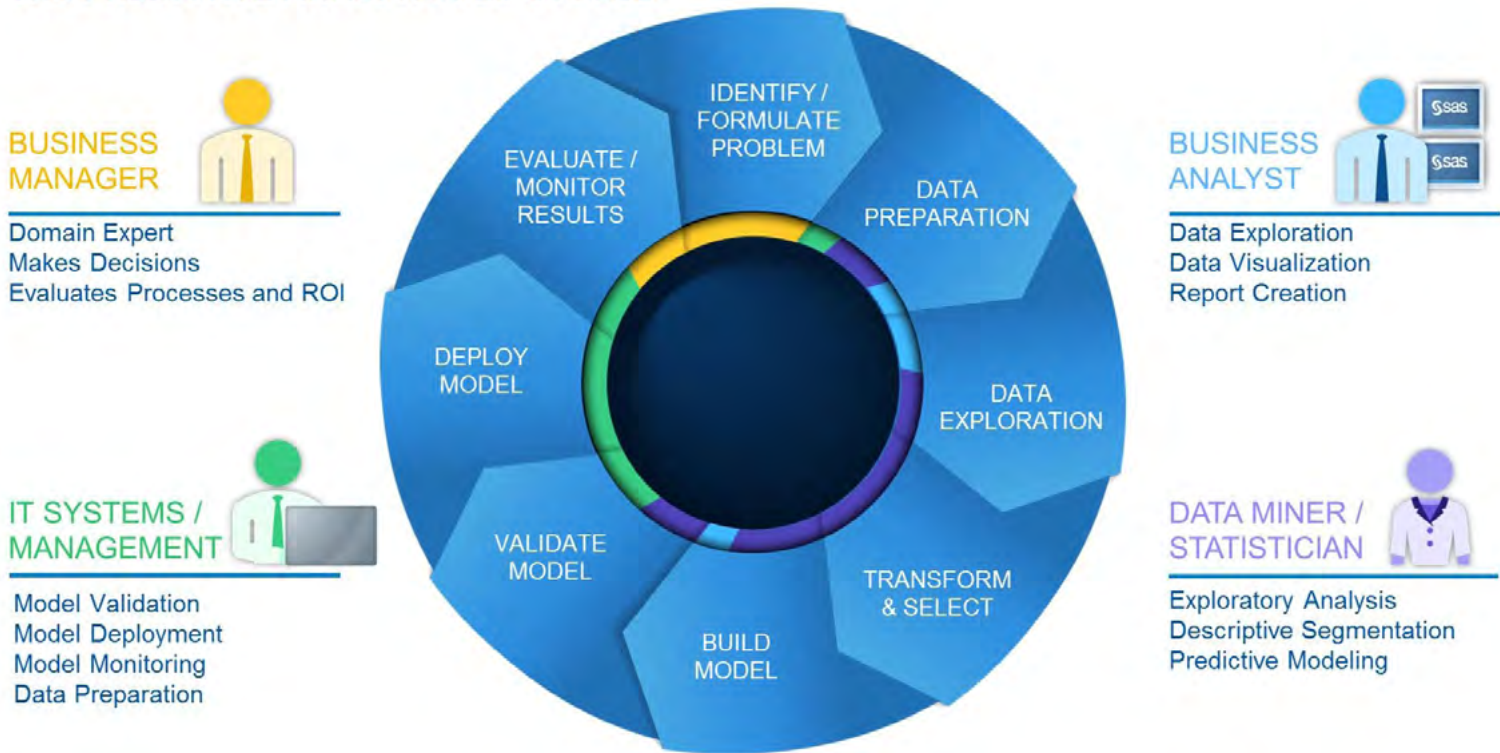


Service Applications that Tap into IoT Data Stores

Predictive Analytics uses historical data to identify patterns and trends to predict future unknown outcomes. The competitive landscape and technology trends have forced insurers to apply predictive modeling since up to 80% of premium revenue is spent on claims. Predictive analytics has become an automated commodity.

It is becoming widely accepted that predictive analytics will impact the way insurers conduct their business. Advancing data analysis will better inform insurers about key financial data such as claims characteristics. That will drive decision making to price a policy for example higher or lower than what the computer rating system average price shows.

THE PREDICTIVE ANALYTICS LIFECYCLE



Applying Advanced Data Analysis & Modeling

There are opportunities to automate and transform policy pricing and claims expense management. Setting the policy price and coverage limits is a highly complex and specialized function in the entire insurance life cycle. Competitive policy pricing is sharp and better understanding the customers ever changing risk experience, through usage of analytics in decision making can be a client differentiator. Current business trends that drive the

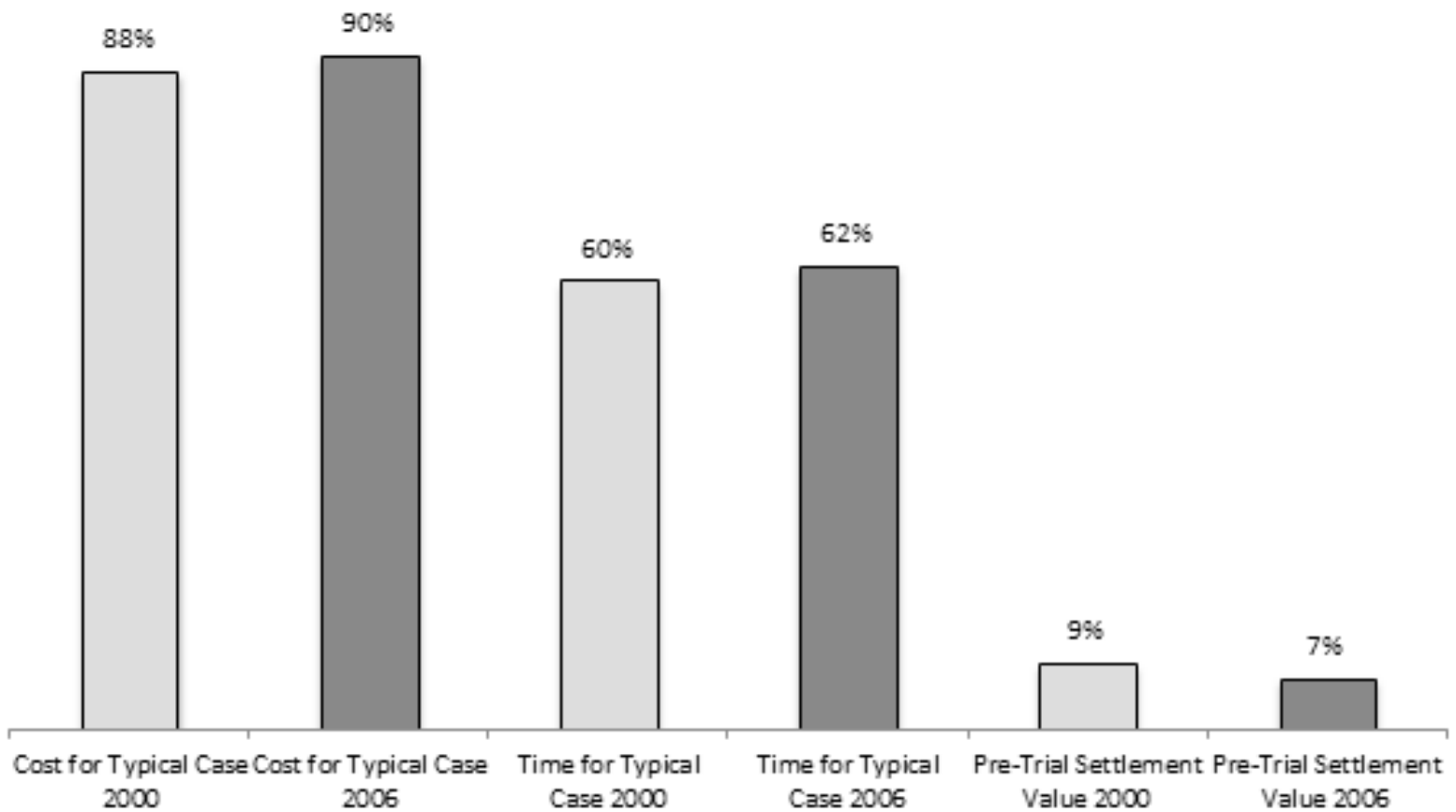
need for better data management: To assist in effective decision making by providing a comprehensive view of information To support the legacy migration to new platforms To integrate with predictive and prescriptive analytics for better underwriting decisions To increase growth by enabling underwriter productivity with real time dashboards and collaboration Automation of data movement will serve users across all business operations, i.e. claims to actuarial.



Collect and Aggregate Technology Sources for Visualization

Standard data sourcing is useful for consistency and unlike self surveying. Typically users are dependent on multiple platforms that lack proper data clarity.

Proper survey and classification of data across all of these channels makes it capable to pinpoint root cause and avoid data quality issues.



Typical Insurer Case in Fact

A large multi-line insurer, will need solutions to complete FNOL and other financial transactions. That result in significant improvement of managing claims expense and pre-work around pricing policy administration.

Solutions include establishment of a command center to preemptively monitor their applications and systems.

Constant use of algorithmic data models and enterprise platform tools that can assist the client

to improve time to complete FNOL adjudication, and use historic data to predictability re-price future premiums.

Service provider deliverables include proprietary adaptive methodology by use of data science. Financial performance will improve with these types of data enhancements: profile reports, lineage reports, integration of master and business catalogs and simplify data flow diagram. All present them selves in visualization dashboards and the like.

We excel in the areas of :



Marketing & Sales

Insurance product positioning and Sales Management and customer retention analysis.



Risk & Underwriting

Data and number crunching in Risk scoring and processing systems for insurance underwriting process.



Actuarial Analysis

Building advanced statistical models using SAS, R and Python on Pandas.



Claim Processing

Analysis and dashboarding for claim processing and administrative systems



Physiographic Analysis

Processing and analyzing Behavioral and demographic data for insurance domain



Fraud Detection

Outlier and Fraud analysis using standard statistical tools ,processes, and advanced probabilistic models.

Inniti Advantage @Insurance

As experienced service provider to the insurance industry, we understand Insurance business processes very well in Life, Health and P&C areas of insurance. We highly appreciate the data intensive nature and criticality of accuracy, agility in data management and transformational data modeling in the domain.

With deep domain knowledge in all aspects of insurance, coupled with acumen in data processing and governance Inniti can will strive to be the an able partner in our client's continued progress in business.



Conclusion

The insurance industry is extremely dependent on “quant” type data solutions from service providers that effectively use data science. In order to determine how much to charge for insurance and dynamically consume claims expense and pricing methodologies. Data analysis with computer models and human analysts, i.e. underwriters and actuaries remains king to ensure that insurers operating margins, assets and P&L meet all company stakeholders.

Service providers and insurers are co-committed to use financial quants and even IoT tracking method (web sensors, weather satellites, construction material designs, medical claims expense, credit ratings) to exploit machine

learning computer power to synthesize financial data. In an effort to expand business intelligence “comprehension of insurance costs” that can or will use data to derive policy pricing or risk.

In an attempt to label these data model human enabling service offerings. It’s operating system exists due to computational mathematical deciphering of data that puts the insurer to be in a position to predict the likelihood of accidents, losses and FNOL claims. Then be able to extend these new understandings of insurance cost drives to request if not demand change to insured’s behavior, structures or policies of procedures to reduce or control probability of future losses.