

Whitepaper

Application of Advanced Analytics in Insurance Industry

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Application of Advanced Analytics in Insurance Industry

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Author's Bio

Madhur Virmani is a Senior Business Consultant in the Insurance Solution Group at Hexaware. Madhur has 13 years of experience in the insurance & IT industry across P&C, life and health insurance and reinsurance domain with large insurance and IT organizations. He is an engineering graduate with additional insurance qualifications such as a FIII, ACII. He carries a rich international experience in consulting, business analysis and designing IT solutions for leading global insurers in the US & Europe. He has served as a visiting faculty member at the National Insurance Academy, Pune, India and an examiner at the Insurance Institute of India, Mumbai, India. Madhur can be reached at madhurv@hexaware.com

1 Introduction

Insurance companies globally are faced with new challenges such as unforeseeable disasters, greater customer expectations, soft markets, new approaches to distribution, regulatory compliance and consolidation. These challenges are leading insurance organizations to improve profitability by reducing the length of underwriting cycles, the claims lifecycle, by providing real-time quotes, on-the-spot claim settlement and customized offerings. These business requirements are driving IT to deliver faster capabilities and offer ways to maintain and improve business performance metrics. However, insurers cannot achieve these objectives unless they have the means to develop useful information from the colossal amount of data they manage on a day-to-day basis.

The insurance market's success relies on how accurately risk is assessed. Insurance providers need to organize, analyze, and convert disparate, unstructured data into more meaningful information as well as having a business intelligence platform with an appropriate set of key performance indicators (KPIs) aligned to their corporate strategy in order to measure, monitor and manage their business performance.

However, insurance companies struggle with the challenges of managing the enormous amount of data they possess, which becomes a problem when combined with poor quality data. Insurers also face a challenge in regulating their claims costs, which a big portion of it can be controlled by detecting fraudulent claims early in the life-cycle and avoiding the payment of fraudulent claims.

This whitepaper provides an overview of an insurance analytics solution and highlights Hexaware's insurance analytics solution to cater to the needs of insurance organizations to provide services in measurement and forecasting of KPIs, identification of fraudulent claims and underwriting irregularities.

2 Key challenges for application of analytics in Insurance industry

Some of the key analytics and data related challenges faced by Insurance industry are:

Lack of quality data increases risks: A huge amount of data, if not maintained properly, poses challenges. Insurers also need to be regularly audited to adhere to data standards established. Traditionally, business intelligence has grown out of a history of regulatory reporting requirements. However, these are changing, with regulators continuously introducing new performance measurement and monitoring criteria. There is also a lack of consistency in reporting standards globally, which introduces reconciliation complexities. Improperly maintained and poor quality data adds to the problem.

Lack of a single, enterprise-wide view: For a business to make the right decision and achieve optimum performance, information has to flow across functional boundaries such as sales, marketing, claims, underwriting, and operations. Information also needs to be consolidated from both structured and unstructured sources within and outside of the organization. For example, in order to identify a potential fraudulent claim, a claims analyst needs information from various sources like a customer management database, policy administration system, external industry databases like ISO, LexisNexis, unstructured information from adjuster reports and social portals. The legacy system and history of mergers and acquisitions hinder the ability to get consolidated, quality data from various sources in a timely manner. There is ultimately a need for data consolidation and timely access. Most companies lack this cross-value-chain insight due to inconsistency, duplicity and siloed data encumbering optimal decisions.

Inability to derive intelligent information from available data: Information is residing in disparate core business applications, internal and external databases, hard documents, images, videos and telematics devices. This massive volume of data spread across the enterprise needs to be turned into intelligent and actionable information so insurers can effectively use it to analyze key business parameters, and adjust the strategic roadmap to successfully meet business objectives.

Inability to forecast key business metrics and detect fraudulent claims: Many insurers have successfully organized their data and get relevant information on the past performance of their KPIs. However, they still lack the ability to study the past trends and forecast the future performance of KPIs. For example, a claims analyst needs the ability to predict the loss reserve for a new claim based on the cost of similar claims reported and paid in the past. Insurers also lack the ability to detect fraudulent patterns and identify potential fraudulent claims in the life-cycle, which results in increased claims leaks. Fraud costs the property and casualty (P&C) industry \$30 billion each year in the US alone, with that figure projected to rise as both opportunistic and professional fraud continues to grow.

3 Business benefits of application of analytics in Insurance

Timely data access, consolidated view of information and robust analytics capability can provide measureable and immediate business value to organizations. Some of the expected benefits are:



Revenue Growth

- Improve product, customer demographics and geographical analytics enable more focused sales strategy
- Real-time insight into market penetration cross-sell / up-sell opportunity identification significantly drives growth
- Distribution channel performance measurement enable insurers to conduct focused campaigns



Expense Reduction

- Dashboard reporting cause analysis what-if analysis, forecasting, flagging and alert empower business users to take informed, timely decisions and help prevent delays
- Reduced exposure to regulatory fines due to incomplete or inaccurate data and delays



Improved Customer Service

- Timely insight into operational metrics enables user to address concerns related to service turnaround SLAs and customer complaints
- Granular distribution and segmentation of activities enable business users to optimize business processes, improve profitable customer retention and drive growth



Leakage Reduction

- Address underwriting, claims leakage issues and reduce fraud related payments
- Optimize resource allocation, improve employee efficiency and productivity
- Improved insights into rating and underwriting parameters optimize product filling strategies and underwriting practices
- Robust trending and forecasting capabilities help define improved strategies and take adequate preventive measures

4 Hexaware's Insurance analytics solution

Hexaware's **Insurance Analytics Solution** provides customers with timely access to data, a consolidated view of information and robust analytics to provide measureable, immediate business value to organizations. Customizable and flexible, Hexaware's insurance analytics solution ensures that insurance providers get the required information and associated analytics on-demand. The solution is technology agnostic and includes a comprehensive decision-support system with ready-to-use packaged analytical application with pre-built components for faster time to market. The solution enables business users to measure, monitor and manage KPIs across the insurance value chain. The solution has 3 main components listed below:

- Management Information (MI) reporting
- KPI forecasting
- Pattern detection & Fraud identification

MI reporting: The solution supports business performance measurement across business areas such as life and P&C, and across functional areas like product development, sales and distribution, pricing and underwriting, policy servicing, claims administration and customer management. The solution has a comprehensive set of predefined dashboards and reports for 500+ KPIs, which are categorized under different KPAs.

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Enhanced decision support

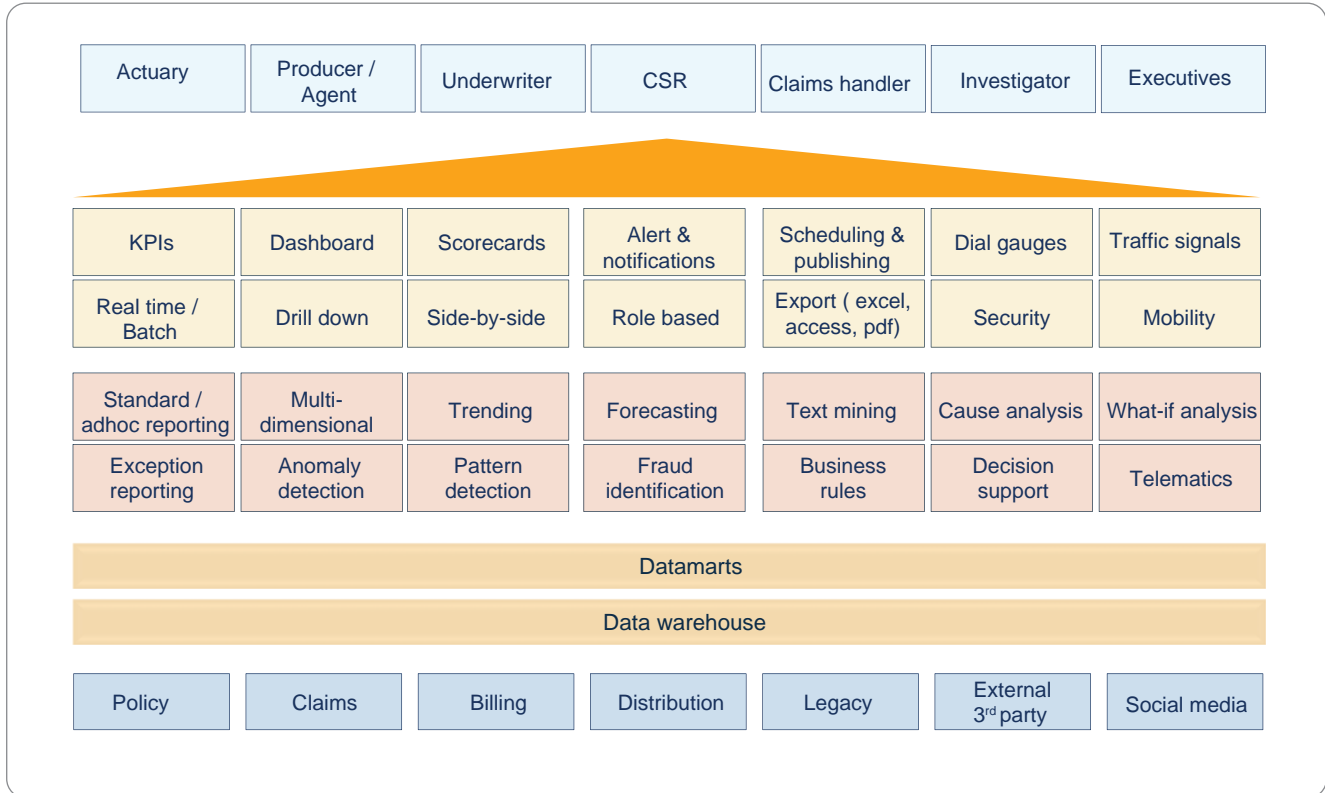
| Product development | Sales & distribution | Pricing & Underwriting | Policy servicing | Claims administration | Customer management |
|--|---|--|--|---|--|
| Product research <ul style="list-style-type: none"> - Market segment analysis - Competitor analysis - Distributor analysis Product design <ul style="list-style-type: none"> - Historical Product analysis - Rate making analysis - Loss experience analysis Product performance <ul style="list-style-type: none"> - Sale volume analysis - ROI analysis - Claim - experience analysis | Channel financials <ul style="list-style-type: none"> - commission analysis - Profitability analysis - Cross-sell / Up-sell analysis Channel responsiveness <ul style="list-style-type: none"> - Servicing TAT - Complaints analysis Channel volume <ul style="list-style-type: none"> - Hit ratio - Premium volume - Customer retention ration - Lead analysis Channel operations <ul style="list-style-type: none"> - New channels growth analysis - Acquisition cost analysis - Agency cancellation ration | Risk assessment <ul style="list-style-type: none"> - Appetite analysis - Exposure accumulation analysis - Rate adequacy analysis - Product Profitability analysis - Loss experience analysis Premium volume <ul style="list-style-type: none"> - book mix analysis - Hit to Yield analysis Policy Volumes <ul style="list-style-type: none"> - Referral rates - VW staff utilization - Acceptance to rejection ration | Policy responsiveness <ul style="list-style-type: none"> - Service request activity TAT - SLA deviation analysis - Complaint analysis Portfolio analysis <ul style="list-style-type: none"> - NB to service revenue - Service channel segmentation - Renewal retention ratio Service volumes <ul style="list-style-type: none"> - Service request volumes - Service request type analysis - Straight-through-processing volume - Self- service inquiry analysis | Claims financials <ul style="list-style-type: none"> - Combined ratio - Expense ratio - Reserve analysis - Fraudulent claim patterns Claim responsiveness <ul style="list-style-type: none"> - TAT by claim activities - Lag analysis - Workload distribution analysis - Average claims aging analysis Claims volume <ul style="list-style-type: none"> - Claims inventory - Closing ratio Claims recovery <ul style="list-style-type: none"> - Salvage recovery - Subrogation analysis | Account financial <ul style="list-style-type: none"> - Claim analysis - Expense analysis - Profitability analysis - Retention strategy analysis Account responsiveness <ul style="list-style-type: none"> - Complaint / query resolution analysis - Average service TAT Account volumes <ul style="list-style-type: none"> - Inventory of policy - Inventory of claims - Inventory of quotations |

Key features of Hexaware insurance analytics solution include:

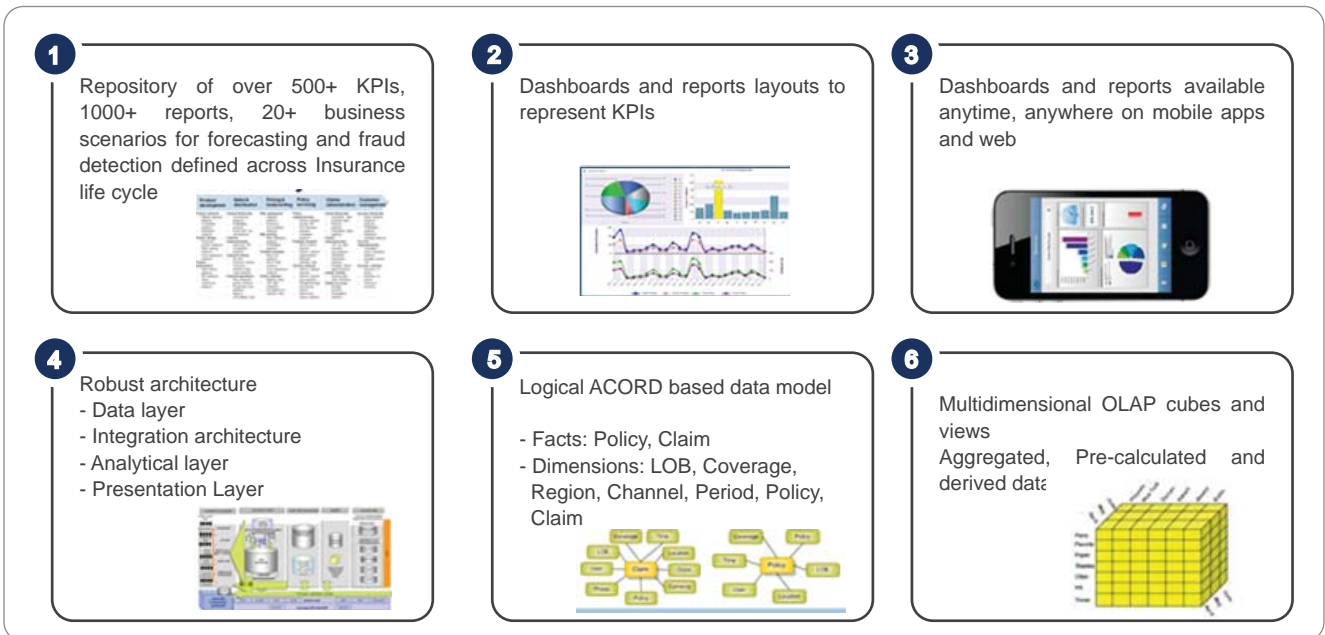
- KPIs are represented in an intuitive dashboard with highlighted alerts and deviations in thresholds that are set for each KPI
- Role-based dashboards and reports with data-level security
- Multi-dimensional analysis of the KPIs across parameters such as line of business, region, period and business user
- Alerts to flag the deviations of the values from the thresholds set for the KPIs
- Advanced features like dial-gauges, traffic signals and sliders to represent KPIs
- The trend analysis aspect helps track the performance over a time period and demonstrates the health of the indicators with the help of dial-gauges and traffic signals
- Easy drill-down facility helps the user to understand low level details and perform a cause analysis of the problem (if any)
- Side-by-side reporting and what-if analysis to understand various scenarios and take right decision
- Ad-hoc reporting facility for businesses to generate reports of their choice

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Insurance analytics solution business blueprint:

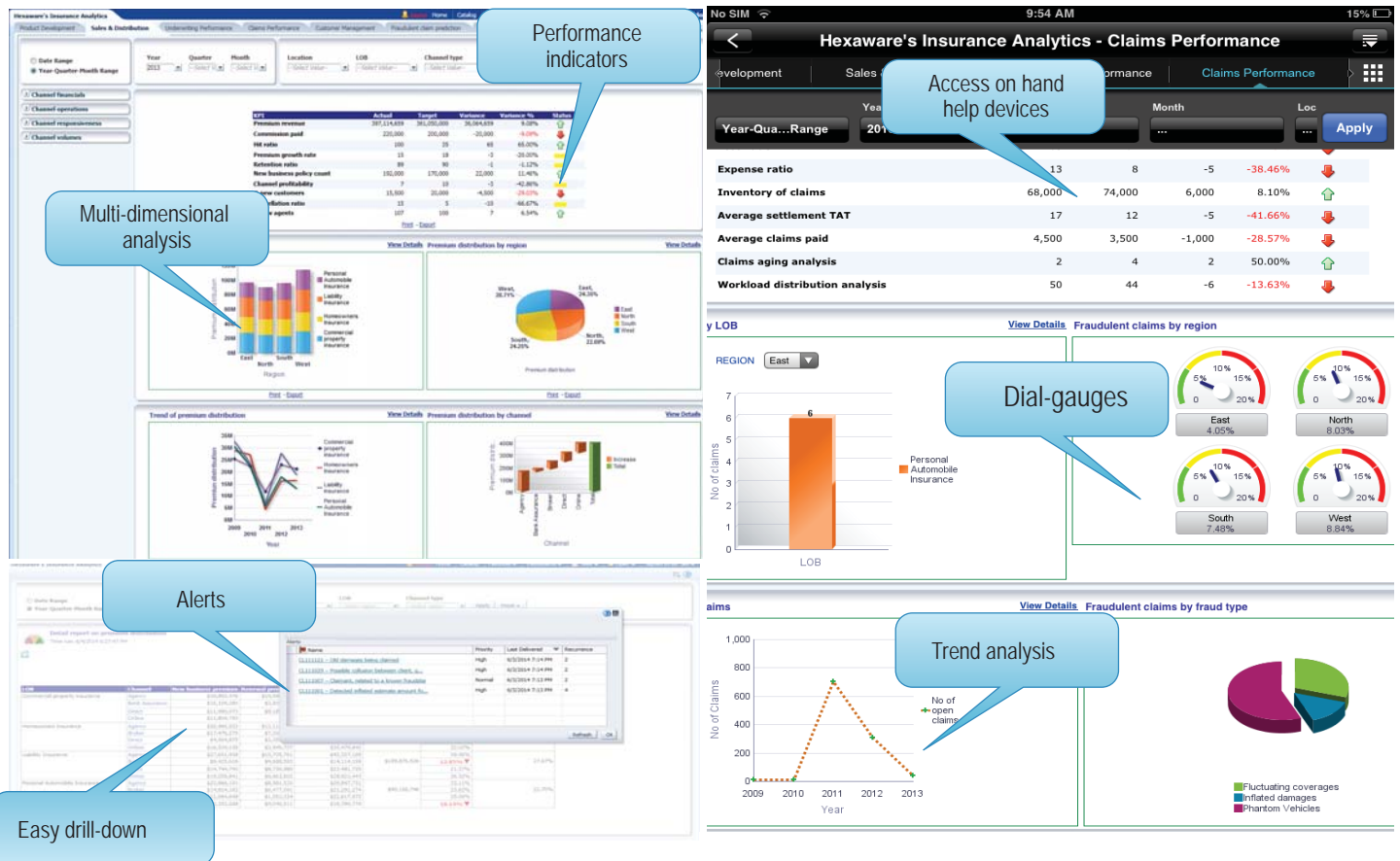


Reusable components of Hexaware's packaged analytical solution for Insurance Industry:



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Insurance analytics solution dashboard:



KPI forecasting:

Traditionally, businesses analyze every claim or proposal one case at a time based on the information available. Users gain value when they can view each case in the context of similar past claims or policies in the database. Hexaware's insurance analytics solution not only enables users to measure the past business performance, but also allows the ability to forecast performance based on past data. Key areas include:

- Product performance prediction
- Non-renewal cases identification
- Claim settlement optimization
- Loss reserve forecasting
- Recovery optimization

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Enhanced decision support

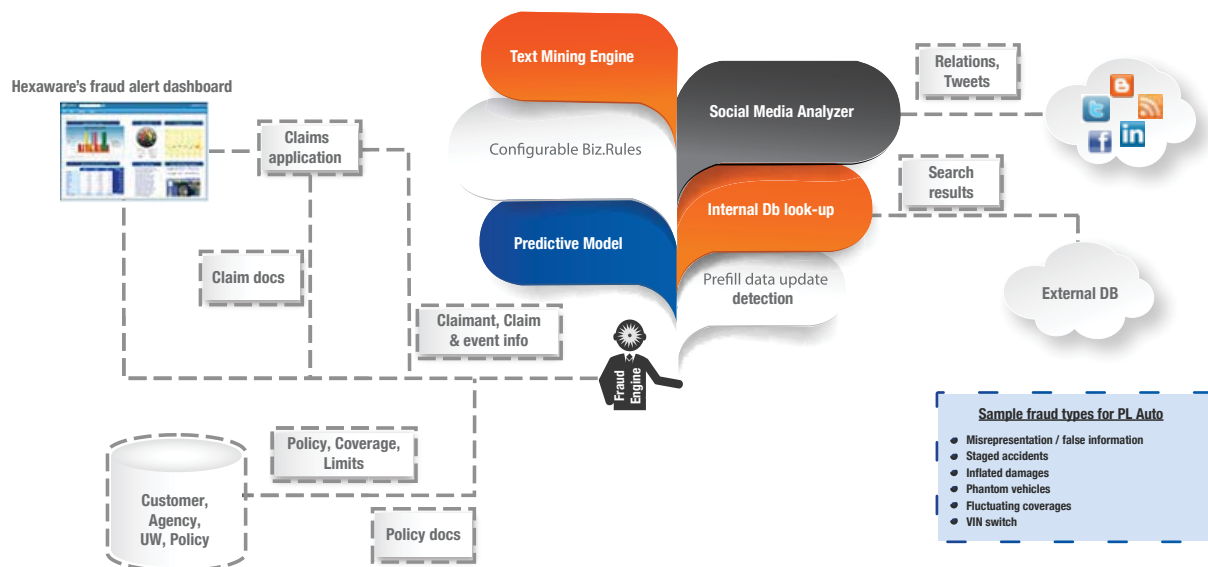
| Product development | Sales & distribution | Detect underwriting irregularities | Policy servicing | Claims administration | Customer management |
|--|--|--|---|--|--|
| Predict product performance through channels and customer segments Develop base rates | Forecast channel performance Forecast new business through channels Forecast new business through customer Detect agency fraud and ghost broking Forecast hit-to-miss ratio Predict the weakness and strength and growth potential if individual agents & brokers | Forecast product performance by channel, geography, customer Forecast LOB performance Analyze rate adequacy Claims ratio forecasting Expense ratio forecasting | Predict customer satisfaction level customer complaints Forecast renewal retention 'Predict TAT limits and # SLA exceptions | Scoring & assignment Identify fraudulent claims Forecast loss reserves Identify property schemes Detect claims recovery opportunity Suggest limits for instant payouts Predict size and duration of a claim Litigation propensity score Predict TAT limits and #SLA exceptions | Identify cross-sell & up-sell opportunities Identify customers likely to non-renew Identify customer likely to cancel policy Identify customers like to conduct fraud Identify customers likely to be profitable |

Pattern detection & Fraud identification:

Hexaware provides an advanced fraud management solution which supports fraud prevention, detection and management across functional areas via an integrated approach by consolidating information from internal and external, structured and unstructured sources.

Hexaware's fraud engine blends a variety of techniques, including business rules, predictive modeling, text mining, social network analysis, anomaly detection and an examination of internal and external databases. Each of these techniques alone produces a meaningful result, however, when combined, increases the quality of the results and reduces the probability of false positives. Insurers are able to increase the rate of fraudulent claim detection, identify underwriting irregularity and put an end to claims and policy leaks

Conceptual view of the components of the components of the fraud management solution



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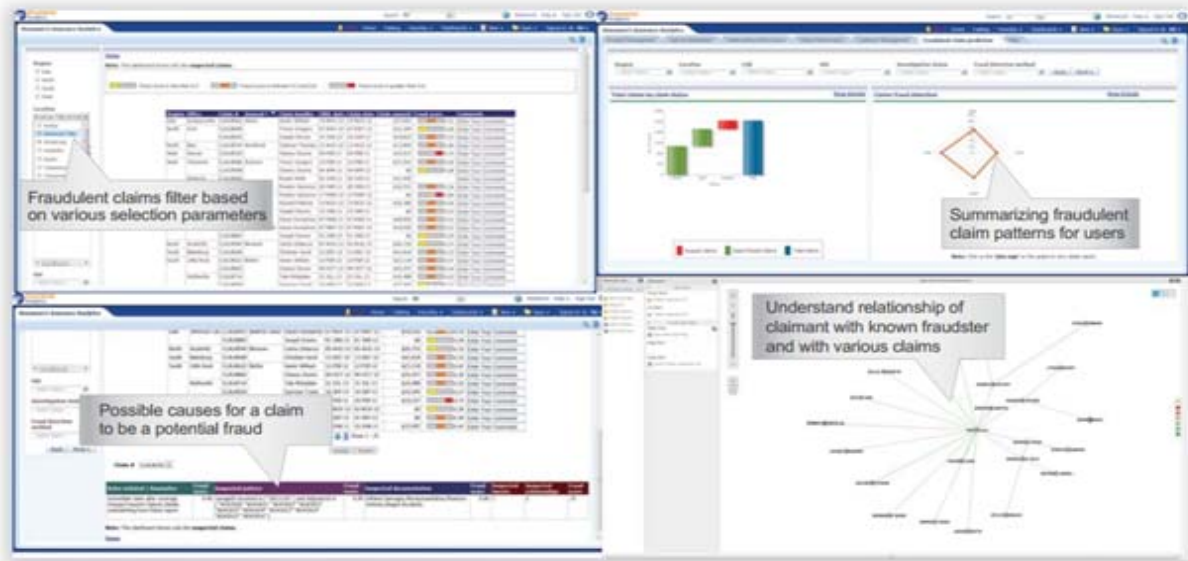
Key capabilities of Hexaware's Insurance Fraud Engine are:

- **Predictive model** - Custom, data-driven predictive analytics model based on a variety of parameters developed by a team of experienced actuaries, statisticians, data scientists and domain experts
- **Configurable rules** - Variety of pre-configured business rules with an ability for business users to update and modify rules
- **Text mining** - Ability to mine information from unstructured sources such as adjuster reports, police reports and social portals
- **Relationships and connections detection** - View and analyze relationships and connections of individuals and groups involved in multiple claims, transactions and also on social portals with known fraudulent groups
- **Anomaly detection** - Identify anomalies in a large group of similar cases eg., claims cost values having multiple standard deviations outside of the norm of similar type of accidents



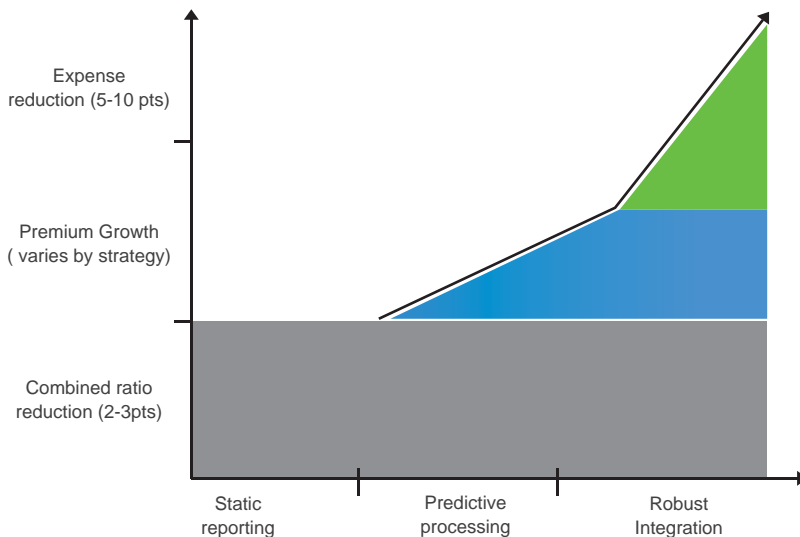
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Insurance Fraud Engine solution dashboard:



5 Business benefits of Hexaware's Insurance analytics solution

With the use of Hexaware's Insurance analytics solution, Insurers can expect specific benefits that include:



Benefit drivers:

Consistent, error-free selection of profitable individual risks thereby reducing leakage

Prevention of fraudulent claim settlement by using online real-time scoring or daily batch scoring reduction fraudulent claims cost payments by 5 to 10 percent.

Improvement in operational efficiency and employee productivity resulting in reduced expenses by as much as 10 percent

Ability to target profitable renewal business and improve retention thereby accelerating the premium growth

About Hexaware

Hexaware is a leading global provider of IT & BPO services and consulting. The company focuses on key domains such as Banking, Financial Services, Insurance, Travel, Transportation, Logistics, Life Sciences and Healthcare. Our business philosophy, "Your Success is Our Focus," is demonstrated through the success we ensure for our clients. Hexaware focuses on delivering business results and leveraging technology solutions by specializing in Business Intelligence and Analytics, Enterprise Applications, Quality Assurance and Testing, Remote Infrastructure Management Services and Legacy Modernization. Founded in 1990, Hexaware has a well-established global delivery model armed with proven proprietary tools and methodologies, skilled human capital and SEI CMMI-Level 5 certification. For additional information, log on to www.hexaware.com.

For more information

To learn more about Hexaware Insurance fraud management solution, please contact corporatemarketing@hexaware.com or visit www.hexaware.com

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