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The role of an actuary in a Policy Administration System implementation

Abstract

Benefits of a New Policy Administration System (PAS)

Insurance is a service and knowledge-based business, which means that access to information and technologies are necessary for attracting and retaining a profitable customer base. Thus, an insurance company's core systems are instrumental in helping to compete for the highest value customers. Many property and casualty insurance companies are embarking on core systems transformation efforts in order to improve business agility and increase efficiency throughout the risk lifecycle. Achieving the desired benefits of a core systems transformation program depends as much on business capabilities as it does on the technology.¹ To develop a technology platform that enables the desired business capabilities, it is important for the appropriate functional resources that understand these capabilities, what needs to be in place to enable them, and the benefits to be gained, to be drivers of the solution.

Actuaries are Instrumental to PAS Implementation Success

Actuaries analyze and manage the risks within insurance companies through their role in pricing, reserving, and risk management functions. Actuaries are highly skilled in the use of analytics and are one of the key users of data at insurance companies. Although actuaries are traditionally associated with risk and analytics, they also understand the business of insurance and the products being offered. This understanding goes beyond the numbers and provides actuaries with a unique view of how product, underwriting, rating, and analytics come together. Insurance is often very complex with

regard to the coverages themselves, the heterogeneous exposures and risks that are underwritten, and in certain instances, the requirement of individually negotiated and priced contracts. Actuaries' deep understanding of these complex issues help them play an important role in many key operations and activities at an insurance company. PAS implementations are no exception.

Many PAS implementations fail to achieve the desired business benefits when companies do not focus on the underlying business needs. With their strong knowledge of products and coverages, actuaries can play a pivotal role in helping to reduce this risk and help the project stay on course towards the intended business benefits. As further expanded on in this article, actuaries' other responsibilities can include creating product architecture and specifications, creating functional requirements, supporting development, and helping to promote quality through testing—all with the end in mind.

As business intelligence and analytics are increasingly providing new competitive capabilities to improve underwriting processes, core systems investments continue to be critical in improving speed to market and product flexibility. When building analytics into the PAS journey, insurance companies should consider these analytics capabilities before, during and after the PAS implementation. As one of the key users of data and champions of analytics, actuaries help PAS implementations realize one of the key benefits of a modern PAS, in encouraging and enabling advanced analytics.²

¹Benefits of a New Policy Administration System: Going Live is Not Enough

²Advanced Analytics for Better Insights, Part of the Insurance Series: Benefits of a New Policy Administration System: Going Live is Not Enough

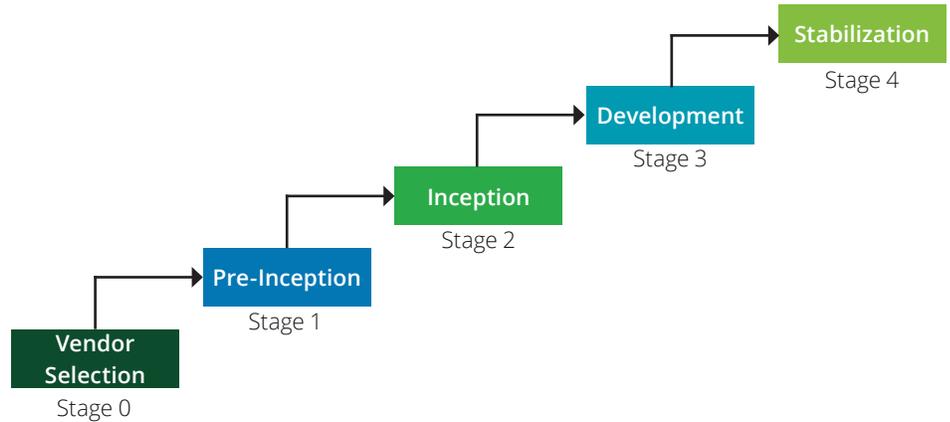
Actuarial Impact in a PAS Implementation³

Stage 0: Business Case and Vendor Selection

In the initial stage of an PAS implementation, an insurance company develops and presents a business case for an upgraded PAS, identifies and screens vendors, creates a Request for Information (RFI) to describe the operational experience, functional capabilities, and technical capabilities required for the implementation, holds discovery calls and preliminary screenings with vendors and facilitates vendor demonstrations.

Actuaries contribute to all the activities that occur in this stage using their knowledge and skill set. These include activities such as:

- Quantifying the costs and benefits of an updated PAS when developing the business case
- Defining the required functional capabilities in the RFI as it relates to rating, reporting, and analytics
- Specifying the vendor requirements for reviewing Insurance Services Office (ISO) circulars, interpreting content and implementing the updates when providing ISO product update services
- Providing input in the initial screening of vendors, in determining the scoring criteria for systems and in designing scorecards
- Participating in the vendor demonstrations and the final selection of a vendor



Stage 1: Pre-Inception

Prior to the detailed planning in the inception stage, foundational elements are put in place to enable a successful inception. This includes high level resourcing, including identification of subject matter experts (SMEs), initiating the governance structure, and finalizing the business case. In addition, core operational or process components are addressed during this stage, as this will improve overall outcomes and reduce implementation risk. Defining the product architecture is a key operation at this stage, including determining the product(s) to be implemented (either develop a new product or refresh and enhance an existing product), defining product and rating specifications for the selected product(s), submitting state filings and conducting market analysis for the new products.⁴

³These stages are broadly defined based on an agile project management approach, but the concepts are applicable to waterfall as well.

⁴Speed to Market, Part of the Insurance Series: Benefits of a New Policy Administration System: Going Live is Not Enough

A product architecture is an organized framework for coverage components and associated dimensions. It depicts the hierarchy of the lines of business, coverages and sub-coverages across all business segments. Within each segment, a line of business has specific dimensions which are detailed attributes related to underwriting, rules, forms, rating, statistical reporting and data capture. These dimensions are documented in the product specifications, which is important for facilitating business readiness for a PAS implementation.

With their product knowledge, actuaries help articulate and develop the product architecture. This involves taking inventory of the current product portfolio, determining the lines of business, coverage, and sub-coverages included in each product and then mapping them across all products. Part of the product architecture development may also include the strategic use of ISO rules, rates and forms, where appropriate.

After the product architecture is created, the insurance company needs to select which products, lines of business and coverages to build in the PAS implementation. Actuaries conduct profitability studies and price monitoring of business segments and lines of business, which inform the insurance companies decision making process. Since they are well versed in rating, actuaries also provide insight into the complexity of product configuration for various lines of business and coverages, which is another key factor in the selection process.

For the selected product(s), product specifications are defined. Actuaries review existing raters and specify the rating algorithms to be implemented, the underwriting inputs required for rating, and determine the dependencies between the rating and reporting fields. Additionally, actuaries identify opportunities where these raters can be rationalized across segments to create a standard rater to be configured in the new system. This enhances speed to market for future offerings as the standard rater can serve as a template for future product configurations and thus reduce time for implementation.

Stage 2: Inception

During the inception stage, the primary building blocks for the implementation are set into motion. The release schedule is created, software development approaches are identified, the product backlog is established and project tools are stood up.

Actuaries play the role of business analysts in this stage and focus on translating product specifications and developing functional specifications, designing the user interface and screen flow in the new system and determining integration points with the rating engine.

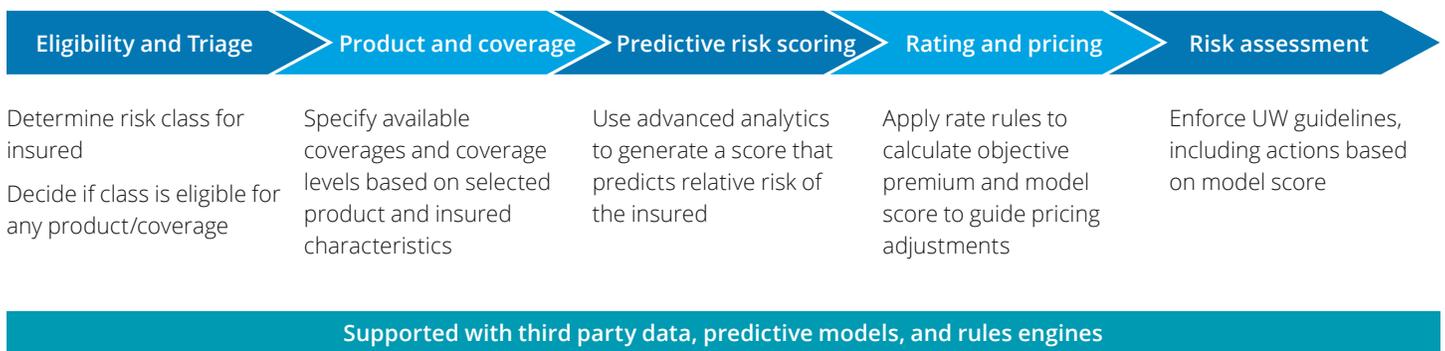
Developing functional specifications involves taking existing product specifications and converting them into technical language for developers. It also entails a strong understanding of rules, rates and forms, including ISO rules, rates and forms if the

insurance company relies on them. This process may require adjustments to the specifications, such as refining or enhancing rating algorithms to help ensure the product can be appropriately configured in the new system. If there are certain constraints in the new system, actuaries need to develop alternate approaches to produce the necessary outcome.

In this stage, actuaries investigate streamlined processes that can be implemented to increase efficiency in the underwriting process. An example is Straight Through Processing (STP) which involves building a smooth end-to-end underwriting platform with minimal or no human intervention (see Diagram 1). This results in shortened turnaround times and increased consistency in underwriting outcomes. This process involves the use of predictive modeling to evaluate the relative risk of a prospective insured. In addition, credits and debits can be recommended based on the predictive model score. End-to-end STP (from underwriting through policy issuance) has been a significant driver of cost reduction while increasing speed of service delivery, thus providing a competitive advantage. With automation, underwriters can focus on assessing heterogeneous risks instead of spending time on simpler, homogenous risks.

Diagram 1: Automated Underwriting

Automated underwriting processes can shorten turnaround times and increase consistency in underwriting outcomes



Actuaries also provide insights for analytics and business intelligence by leveraging the analytics platform within the PAS as well as designing data extracts for analysis outside of the system. Data is a key asset of the property and casualty insurance industry that delivers significant organizational value. During the inception stage, it is crucial for actuaries to identify key data elements and provide input on the data structure to support the development of risk insights. Implementation of a new PAS creates the opportunity to build a foundation that supports the anticipated use of analytics and data to drive business decisions.

In order to build analytics into the PAS, a company not only needs to understand the data needs and data sources, but also put in place the tools and processes necessary to transform the data into information and make it actionable. For example, actuaries have built tools to monitor risk levels and provide early warning signals to the business. They have also developed performance dashboards for underwriters which are used to make profitable decisions about target markets and pricing, and to manage new and renewal books of business. A key factor to effectively employ analytics within an organization is to facilitate robust communication and education of others on the insights gained with advanced analytics.

Diagram 2: Analytics and Business Intelligence

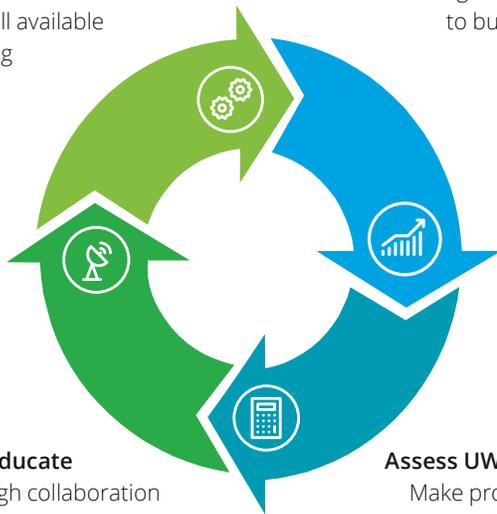
Harnessing the ability to generate and utilize risk insights is a competitive advantage

Gather and Understand New and Existing Data

Mine the benefits of all available data sources, including unstructured data

Synthesize and Report

Bring the right tools and talent to build robust, sustainable analytics capabilities



Communicate and Educate

Deliver insights through collaboration and knowledge management portals

Package insights to develop thought leadership for customers and producers

Assess UW and Product Impact

Make proactive adjustments to underwriting appetite, coverage offerings, and pricing

Provide a fact base to enhance and support risk selection and pricing decisions

Stage 3: Development

The development stage of a PAS implementation consists of configuration of product, underwriting rules, and rating and pricing.

Actuaries continue to fulfill the role of business analysts during this stage as they work collaboratively with developers to help ensure that the system build follows the functional specifications. Actuaries need to be able to communicate effectively with developers and other resources that are from a non-actuarial background. Actuaries assist in prioritizing development needs in terms of determining which functional capabilities are crucial to implementation and which are of a lower priority. Actuaries with a programming background could be involved with the build and implementation of the rating engine. In many cases, actuaries are actively part of the team performing analysis, development and testing.

Unit testing also primarily occurs during the development stage. As preparation for later testing phases, test scripts are developed based on the functional specifications. A test script is a detailed document that outlines every action a tester would need to take through the system in order to assess whether all the functions are working appropriately. In a business analyst role, it is a leading practice for actuaries to make significant contributions to this process by reviewing and validating test scripts to help ensure the correct steps are taken to obtain the required outcome. Where a typical tester would rely solely on the functional specifications to build a test script, actuaries bring hands-on product and rating experience to supplement the tester's functional knowledge.

Stage 4: Stabilization

Stabilization is the testing stage of a PAS implementation. There are four phases of testing:

1. Unit Testing—developers test the functionality they have built themselves (occurs in the development stage)
2. Component Testing—testing team tests components of the system based on pre-designed test scripts
3. System Integration Testing (SIT)—testing team tests the full system with all integrations (including rating engine) built in
4. User Acceptance Testing (UAT)—the stakeholders and end users test the new system

Actuaries provide guidance to the testing and development teams in identifying and prioritizing defects. Although other skilled resources typically partake in comprehensive testing, there is value in actuaries participating in hunter testing. This is a type of testing where, rather than following a test script, the user “hunts” for defects. As they already have an understanding of how the system should work, it would take less time for actuaries to discover major defects without having to rely on the functional specifications. Actuaries also work with the development team to examine known defects and determine which are high priority vs. “nice to have” features that are not crucial to the implementation.

Lessons from the Trenches

Deloitte Consulting LLP regularly works with global property and casualty insurance companies to solve challenging core systems transformation issues. Through these experiences, we have identified several leading practices for engaging actuaries in a PAS implementation effort:

- Involve actuaries early on in the process—they can provide valuable insight into the business case and vendor selection process, which will help to avoid missed requirements and misunderstandings of vendor capabilities later on
- Engage in robust product and rater rationalization in order to accelerate speed to market and optimize the business benefit from core systems transformation
- Consider introduction of automated underwriting approaches to allow actuaries and underwriters to focus on value-add activities in the future state
- Be forward thinking to anticipate future data and analytics needs in order to extract the most value from data sets and identify key risk insights; as key users of data and proponents of analytics, actuaries are well positioned to conduct this activity
- Involve actuaries in validating test scripts as they understand business requirements and can quickly identify errors and gaps

Case studies

Developing an ISO Product Offering

A global firm that provides insurance technology solutions to insurers, reinsurers, brokers, and managing general agents, wanted to bring an end-to-end ISO Commercial Property product to market.

Issue

The client wanted to debut a functional ISO product on a timely basis to meet their goal of expanding into the US Commercial Property market. However, the client had a limited number of subject matter experts and business analysts with specific knowledge of ISO products.

Solution

Actuaries leveraged their depth of industry knowledge to write functional design specifications, perform configuration and design test cases for a Commercial Property policy administration product. Actuaries' understanding of the ISO Commercial Lines Manual and Statistical Plan allowed them to effectively prioritize and execute key activities, which included:

- Designing rating screens and identifying required data elements, utilizing ISO Electronic Rating Content (ERC) and knowledge of the commercial property rating algorithm
- Enabling the printing of hundreds of dynamic ISO forms by mapping all ERC rating table fields and components to the ISO forms library
- Developing requirements and building logical mapping tables to comply with ISO reporting standards

Impact

Actuaries interpreted complex ISO rating and reporting requirements to more effectively connect business needs with the client's technology platform, allowing the client to bring a functional Commercial Property product to market in a timely manner.

Startup Commercial Insurer Desiring Speed to Market

Startup insurer wanted to enter the US market, offering Commercial Property and General Liability products to small businesses.

Issue

Client wanted a rapid entry into the market, going live with their PAS six months from the beginning of inception, fully integrated with an external rating engine and predictive scoring model. With no existing processes and without a fully defined product, there was a need for extensive business recommendations throughout the implementation to bridge any gaps.

Solution

The functional team of the systems integrator utilized the services of an actuary as a business analyst to gather business requirements and to provide deep contextual insurance expertise in the areas of product and rating. Key activities included:

- Developing functional requirements to implement ISO based products combined with the client's proprietary coverages
- Implementing and rationalizing proprietary underwriting features including tiering of insureds, industry classifications, and underwriting questions
- Supporting the integration between the PAS and a third party rating engine

Actuaries also contributed to the implementation by developing rating documentation that was used to support the integration and testing of the rating engine.

Impact

Product and rating knowledge provided by the actuaries resulted in the system integrator's increased ability to provide timely support to a fledgling startup, where business decisions were frequently made in the course of the implementation, and meeting a strict timeline was imperative.

Conclusion

The benefits of a core systems transformation can only be fully realized by involving key business users at every step of the process. Insurance companies often overlook including actuaries as part of their core systems transformation teams as they are not the primary end-users of the eventual policy administration system. This oversight could cause insurance companies to not capitalize on the value that actuaries bring to the table with their insights into product, underwriting, rating and pricing and analytics.

In the beginning stages of a PAS implementation, actuaries help to develop the business case and define critical required capabilities during the vendor selection process. They play a crucial role in defining and rationalizing the product architecture, supporting rating and pricing

tools, and identifying opportunities to streamline the portfolio. During inception, they define functional requirements to maximize process efficiency and to meet downstream reporting and analytics needs. Their continued involvement in implementation and stabilization is crucial to address project challenges and provide valuable practical insights.

Actuaries are positioned to be critical functional resources for a core systems transformation as they deeply understand insurance products and operations and are both business and technically inclined. Throughout the project lifecycle, actuaries champion business benefits and help the business to realize competitive advantages arising from increased data capabilities, better information fluency and employment of advanced analytics.

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