Insurance Actuarial Services – An Emerging KPO

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Executive summary
Outsourcing has been leveraged with excellent results by various industries to reduce operational costs, improve efficiency and leverage global work force. Outsourcing has been around in almost all industries for quite some time in various forms. The business drivers and outsourcing adoption methodology varies widely from industry to industry and within an industry from time to time.

New technology tools like the Internet and VoIP (Voice over IP) has made remote business process execution a reality.

In the financial industries space, insurance companies are catching up on outsourcing trends and it is not exaggeration to say they are front runners. Insurance product commoditization, reduced investment returns and negative underwriting profits have forced insurers to focus on operational excellence and cost management. This has paved the way for strong outsourcing adoption by insurers.

Though cost management is a primary driver for outsourcing in insurance, focus on outsourcing is slowly shifting from Business Process Outsourcing (BPO) to Knowledge Process Outsourcing (KPO) to meet highly dynamic business needs. Shortages of talent and technologies to leverage global work force and the associated benefits have made KPO possible.

This white paper attempts to analyze with focus on global insurance industry in general and actuarial services in specific from a KPO perspective. One single business process in life insurance actuarial function is discussed in detail regarding its scope for KPO and its associated risks and benefits. Nevertheless, actuarial functions relating to property and casualty insurance could also be considered as potential for KPO, which the paper does not cover in detail.

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1. Outsourcing

1.1 Evolution of outsourcing

The evolution of outsourcing initiated from a make-or-buy decision in early days. Organizations initially considered outsourcing as a commodity, and then focused on the choice between internally developed technology and its external acquisition, what we called "make-or-buy decision". Thus, the role of the vendor was limited in terms of the size of contract as well as of the types of services in earlier phases. But outsourcing has evolved over the last few decades. See Exhibit 1 below.

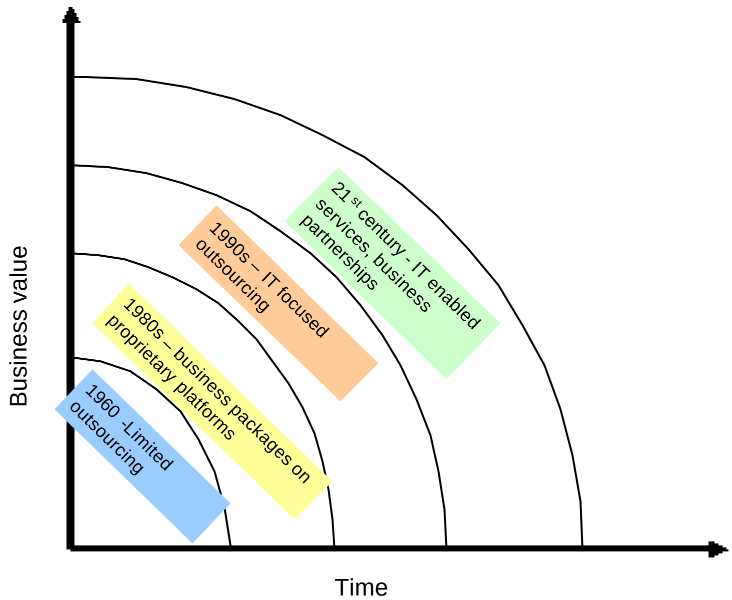

Exhibit 1 : Evolution of Outsourcing

In the 60s, outsourcing was limited to time sharing or low-end processing services especially with respect to technology. In the 70s, outsourcing was executed mainly as contract programming. The 80s saw renewed emphasis on vertical integration delivery of product to the customer. IT Operations were in-house. Standard systems software purchase was the trend and was customized unique to the organization. The 90s saw vendors handling facilities management as a major feature of outsourcing. The last 5 years has extended outsourcing beyond technology to core business processes like customer care, direct sales and some high-end business processes.

2. Outsourcing highlights

2.1 Outsourcing trends

Domestic outsourcing has been existent in insurance like other industries for a long time now - in the back-office functions like fund management, proposal/claim processing and customer service functions like call centres. The offshore outsourcing has however started with IT services like application development, maintenance and support of legacy systems and now extends to all business functions. Some of the highlights of recent outsourcing trends in insurance are as follows:

- insurers with global operations are outsourcing compared to the ones without global operations
- a much greater range and depth of services are being outsourced
- outsourcing vendors are accepting more responsibility and risk
- increased overlap of IT and BPO services
- there is more functional outsourcing
- the nature of the relationship between the insurer and vendor is changing

The outsourcing relationships have evolved from mere client - vendor to 'partnership relationship' in view of the following reasons:

- client organizations consider outsourcing as a serious strategic choice
- well-specified legal contracts do not allow for the competitive edge provided by partner relationships
- Vendors are willing to take management responsibility and risk and act as an extension of the enterprise.

2.2 Business drivers for outsourcing

Though there have always been key drivers for outsourcing, these have varied from decade to decade. In the early days of outsourcing in 70s and 80s, low-end commodity jobs were outsourced based purely on staff augmentation depending on business volumes. Data entry is an example of such an activity. In the 90s, businesses realized that technology brings great productivity improvements but the inability of businesses to have adequate resources to exploit technology for business value and competitive advantage drove the next wave of outsourcing.

In the current generation, outsourcing is motivated by the desire to leverage global work-force and transcend time and geographical boundaries and to enable a 24/7 enterprise.

But each wave of outsourcing added new business objectives without compromising benefits realized from previous generations. For e.g., in the current generation, not only leveraging global work force is an objective but also lower operational costs, are met. A few of the drivers and impediments for outsourcing are discussed below:

Drivers

- Reduce overheads
- Offload non-core functions for greater management focus on core competencies
- Get access to specialized skills
- Reduce operating costs
- Improve customer speed and service
- Leverage the provider's extensive investments in technology, methodologies and people without own investments
- Benefit from the provider's expertise in solving problems for a variety of clients with similar requirements.
- Reduce the overall management burden while retaining control of strategic decision making

Impediments

- Perceived loss of control and flexibility
- Unknown risks like country risk (language, culture, law/regulations, political stability, and business practice, etc.)

- Perceived loss of future expertise
- Increased burden of communication/coordination

2.3 IT outsourcing

IT outsourcing, a trend which initiated in a big way in the 90s, focuses on execution of IT related activities through third parties. IT departments in enterprises have broadly two kinds of activities – operational maintenance/support and new system developments.

Operational maintenance/support focused on ensuring that systems were available almost always to support business activities and to resolve any problems that are reported. Such activities include regular data-store clean-up, business user creation, creation of periodic business reports and problem resolution. As systems have become tightly tied to operations and are inseparable, these IT activities are still performed in large scale in all enterprises. Outsourcing in this area, more specific to insurance companies, has been hastened now-a-days due to lack of qualified manpower on older technologies that still power many of the business systems. Some features of this type of outsourcing contract include the transfer of IT assets such as IT facility and IT personnel to third-party vendors.

New system developments focus on building new business applications as per requirements and enhancing older systems for changing business needs. Dizzying developments in new technologies for building new business applications has put traditional IT departments under pressure as they do not have all the required expertise to suitably exploit all these technologies for business benefits.

The above trends clearly indicate that the fundamental importance, nature and diversity of IT outsourcing are changing as organizations begin to take a more strategic and proactive look at this phenomenon. In parallel, the relationship between insurance enterprises and vendors has become an inter-organizational relationship based on shared goals. Exhibit 2 below depicts the evolution of outsourcing.

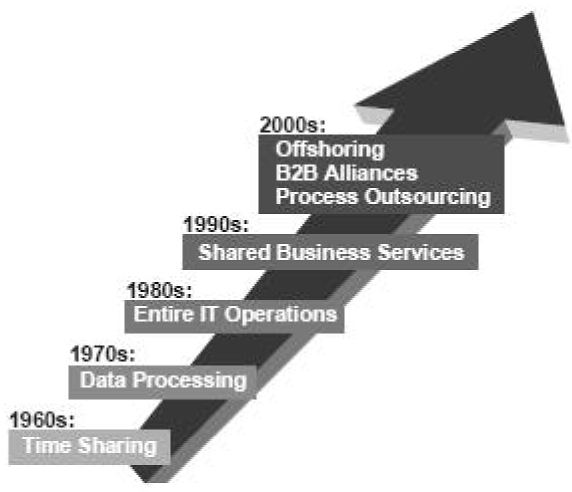

Exhibit 2: IT Outsourcing growth trajectory

2.4 Business Process Outsourcing (BPO)

Business Process Outsourcing is also referred to as ITeS (IT-enabled Services). This is a business case where an entire business activity, not an IT-centered activity, is outsourced. Such services are enabled through technology developments like the Internet, VoIP (Voice over IP) and low telecom connectivity costs. For e.g., business processes which are time and country neutral like customer care, direct selling, payroll processing, HR recruitments etc. have been outsourced. In a BPO, normally the enterprise's existing systems are leveraged for executing the business processes.

Outsourcing entire business processes also allows for flexibility in ramp-up or ramp-down based on business results which could prove to be expensive if executed in-house. Customer care performed in-house could be executed only during office hours but if outsourced could extend the customer care timings after office hours.

2.4.1 BPO Drivers

The insurance industry has been facing variety of challenges in the last couple of decades. Growth opportunities dried up for companies operating in matured markets like North America. Customers demanded better service and regulators questioned the solvency. Fortunately, new and untapped markets in Asia started opening up. Though many insurers from North America and Europe ventured into these markets, it would be still some time before these investments can start paying. In the meantime, the outlook on the future profitability was not bright. This made insurers to find innovative business models. Newer distribution channels like Telemarketing and Direct Sales cropped up. Insurers started competing on service resulting in self-service portals and call centers. All these changes further fuelled the off-shoring. Developing countries like India have a large talent pool available at an inexpensive rate.

BPO saves not only operational costs but also precious management time and resources. It allows for management focus while building upon core competencies. The list of functions being outsourced include service centers, proposal data entry, billing and collection, human resources administration, cash and investment management, tax compliance, internal audit and pay roll. If executed well, BPO results in increasing shareholder value.

2.5 Knowledge Process Outsourcing (KPO)

While BPO focused on low-end, high volume, routine and low expertise activities like customer care and direct sales, KPO focuses on outsourcing high-end business activities like product design and development, investment management, Accounting and finance and insurance actuarial functions. Such activities which were once considered to be the core of the enterprise with distinct competitive advantage have immense potential for a KPO.

With the evolution and maturity of companies' outsourcing strategies, businesses are moving towards outsourcing high-end business processes with significant domain expertise rather than process expertise. The success of BPO has encouraged many firms to start off-shoring their high-end knowledge work.

In addition to cost considerations, the main driver for KPO is shortage of talent to retain business competitive advantage. KPO tries to leverage global work-force for high-end business activities.

According to Mckinsey, giant US pharma firms can reduce the cost of developing a new drug, currently estimated at between $600 million and $900 million by as much as $200 million if development work is outsourced to India.

2.5.1 KPO vs BPO

The core essence of KPO, we believe is not about delegating processes but to leverage talent and competence. The main driver for KPO adoption is shortage of talent at insurance companies and increase in responsibilities of existing talent pool. Cost savings is an additional benefit that organizations happen to derive from including talented people from lower cost geographies@. KPO tries to break down individual high-end business processes into simpler components which can then be outsourced in parts. Still KPO does not try to reduce the level of expertise needed to execute these processes; it just tries to leverage outsourced resources for doing the same.

The main differences between BPO and KPO are described in the table below.

KPO	**BPO**
Not about size but depth of knowledge, experience and judgment	About size, volume and efficiency
Motivated by stimulating work content and learning opportunities	Will be motivated by cost considerations
Knowledge centric	Capital centric
Identification and mitigation of risks will be far more complex	Complexity is less

Some of the possible areas for KPO in 4 selected industries are given below in Exhibit 3

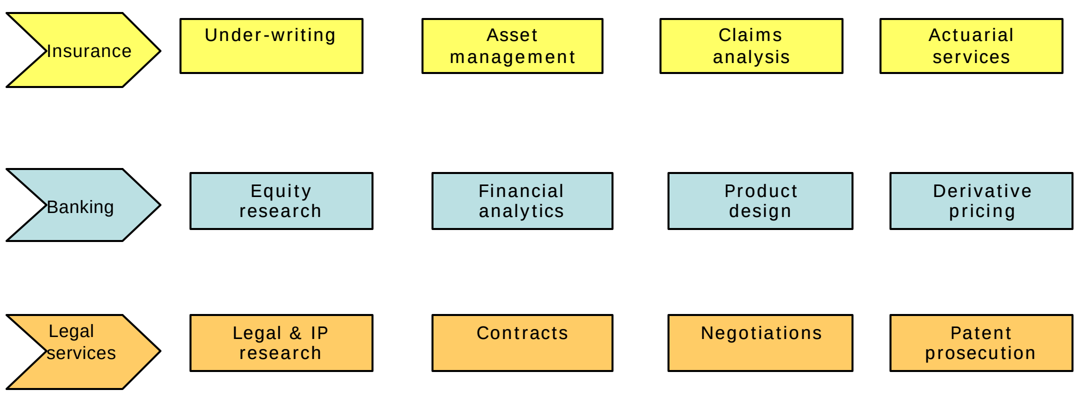

Exhibit 3: Examples of KPO across industries

2.6 Outsourcing paradigms

Depending on various factors like business criticality, level of expertise involved, business risk perception of the concerned firm, various outsourcing models have evolved in ITO, BPO and KPO areas. They are as follows:

- Third-party – Complete business processes are managed by third-party providers like IBM, EDS, CSC, Wipro etc. Such models are common in BPO space. It is common also in ITO new development space.
- Resource transfer – Entire staff of IT departments are transferred to the third-party provider. Such models are common in ITO space.
- Joint ventures – Here enterprises create a separate legal entity involving a third-party provider as a way of retaining control.
- Captive BPOs - Organizations such as GE, Amex, and Citibank outsourced back office operations and call centre services to India. Here the concerned enterprises create their own 100% subsidiaries offering services to the parent. Such models are common in high-end KPO space.

3. Insurance Actuarial Services

3.1 Introduction

As we have seen in the previous paragraphs, KPO (Knowledge Process Outsourcing) involves in outsourcing of high-end business processes, which demand specialized skills to execute such processes. The actuary skills in analyzing and modeling are used extensively in the areas of insurance, pensions and investment. Within these industries, actuaries perform a wide variety of roles such as designing and pricing of product, financial management and corporate planning. The following pages try to analyze a broad scope of actuarial activities and dissect one specific area for KPO adoption.

3.2 Role of an Actuary in an Insurance Company

Actuaries are widely involved in the overall management of insurance companies and pension funds, gratuity and other employee benefit fund schemes; they have statutory roles in insurance and valuations of employee benefits and to some extent in social insurance schemes sponsored by government. Majority of the regulations across countries stipulate that insurer transacting insurance business should have an ‘Appointed Actuary’.

Actuaries enable financial and business decisions to be made with confidence by:

- Analyzing the past
- Modeling the future
- Assessing the risks involved and communicating what the results mean in financial terms to internal and external stakeholders to the insurance enterprise.

@The global KPO sector is expected to grow at a CAGR of over 45% to reach USD 17 billion by 2010. India, with its highly qualified professionals and their comfort with English language, is emerging as the location of choice for a wide variety of KPO work. This will help Indian KPO sector attain a size of USD 12 billion by 2010, accounting for a market share of about 70%. (3) The structure of KPO industry and the management models would be very different. India is a country with a very large base of highly qualified knowledge professionals. Consequently, India would be a very key player on the KPO supply side. While costs in India for highly qualified knowledge professionals are far lower than their counterparts in US and Europe would not be the key driver. The key driver of KPO would be access to the vast professional talent in India.

- Actuaries add value by enabling businesses and individuals to make better-informed decisions with a clearer understanding of the likely range of financial outcomes from different future events.

3.3 Insurance Actuarial activities

In order to understand and appreciate the complexity of the services of an actuary, one has to understand the typical functions of an actuarial department in an insurance company. See exhibit 4 for a broad scope of an actuarial activities

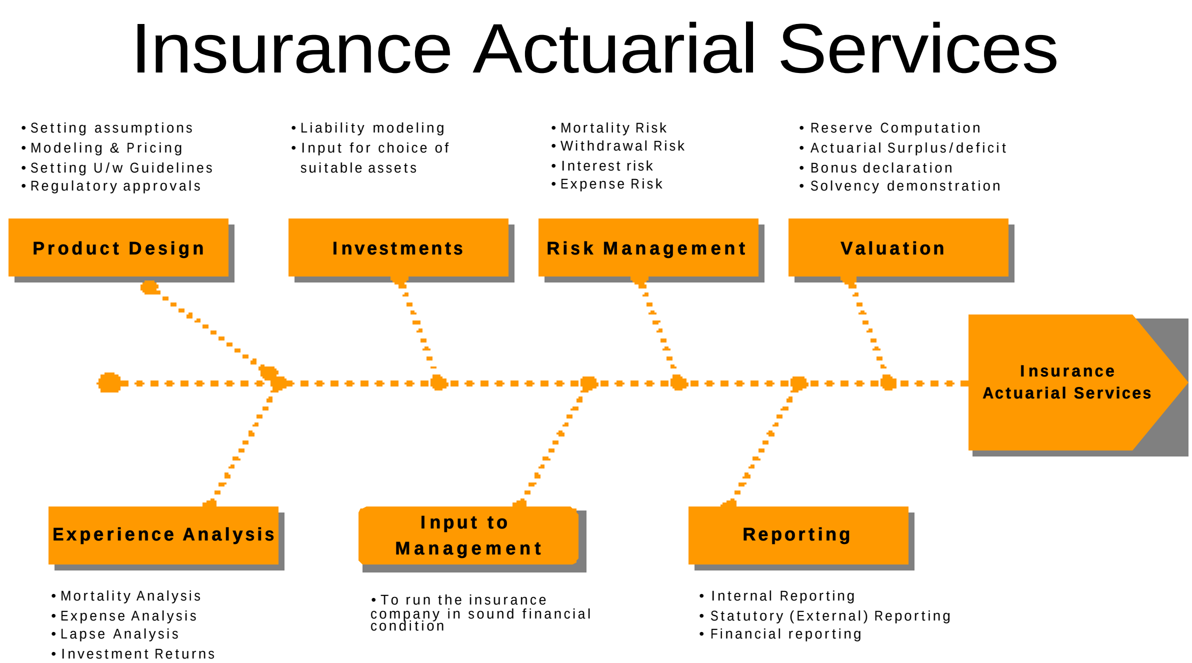

Exhibit 4: Scope of actuarial activities

3.4 Actuarial KPO – Identification Criteria

Though the scope of an actuarial function is very wide and the business drivers for KPO adoption could be multiple, selection of specific business processes for outsourcing could be done based on some business process parameters as listed below[$].

- Cost of execution – Cost of execution could be a parameter in deciding whether an actuarial function has to be outsourced especially if the activity is not high-end or strategic.
- Repeatability – If a business process is repeatable with pre-defined steps and procedures, it is potentially a good candidate for outsourcing

- Frequency – If an activity is to be performed multiple times in a month or a year and especially if it is repeatable, it could be considered for outsourcing.
- Turn-around time – If some actuarial activities need quick turn-around times, they could be hastened with some sort of outsourcing
- Level of expertise required – Actuarial activities which are somewhat less specialized compared to others could be taken up for outsourcing. This may need some sort of training during the transition process.
- Available expertise within the insurer – If additional resources are needed for completing actuarial functions especially when the work pressures build up, outsourcing could help focus precious time into really valuable jobs.
- Inherent risk and criticality in the business process – Actuarial process which carry an inherent high risk are not amenable for outsourcing. Scenario building for stochastic modeling of liabilities could be an area which carry a high level of risk

3.5 Actuarial Process for a KPO – 'Reporting'

Consideration of all the above mentioned areas of actuarial functions is not within the scope of the current paper. But this paper will consider one area key for actuarial function namely 'Reporting' (includes internal management reporting as well as external financial and regulatory reporting). This paper analyses the series of steps involved in this business process and analyses the steps which are amenable for outsourcing. Such steps suggested for outsourcing have been identified on the basis of the following process steps parameters

- Comparatively less sophisticated
- Routine
- More structured
- Data and analytics oriented
- Criteria for execution are well-defined
- Time bound
- Voluminous and tedious
- Resource availability

Further, senior management would be constantly looking for information on dashboards about company's performance. Importance of the reports is under-mined by the reports reach management, since lots of efforts are involved in generating such reports. This could potentially delay any important decisions to be taken on product pricing or call back etc, and ultimately could result in losing competitive edge.

The business process steps for 'Reporting' are discussed in detail below in exhibit 5[&].

$ - Not an exhaustive list but an indicative list, this list could vary from company to company and also from time to time within a company

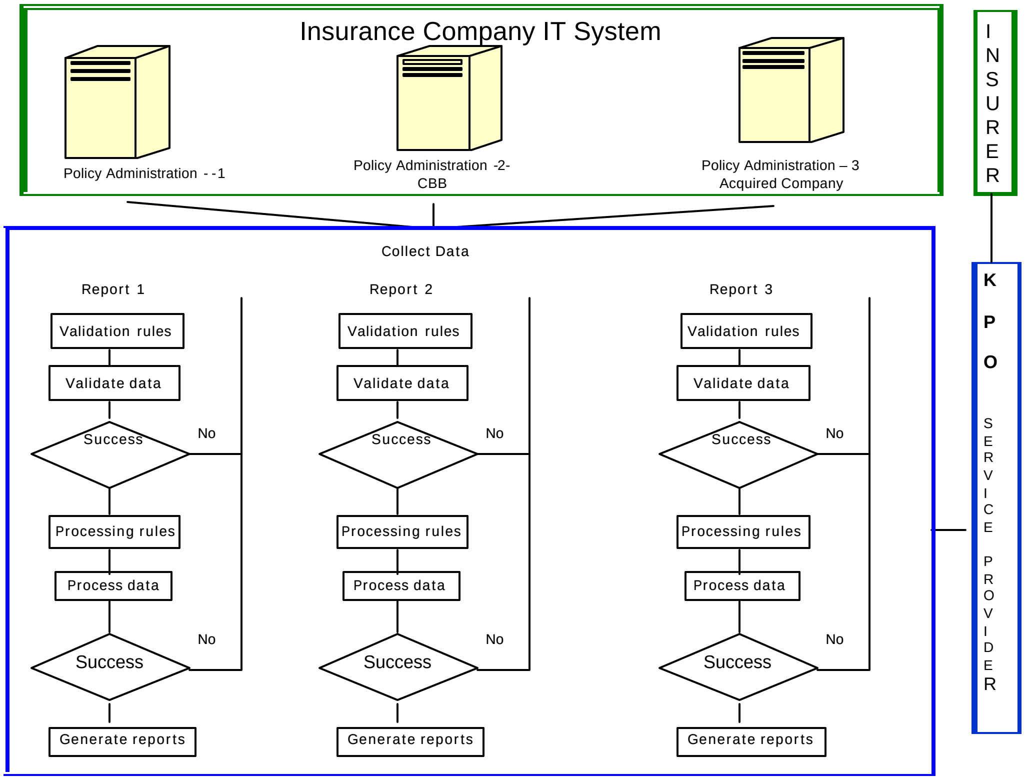

Exhibit 5: Business process involved in actuarial reporting

Exhibit 5 displays the high level business steps for generating reports in an actuarial function. The complexities in each business step are hidden for the sake of understanding.

In general for all reports, the process is initiated with collation of data from multiple sources. This is indicated as multiple insurance company IT systems in Exhibit 5. This data collection involves elaborate data transformation as per the requirements of actuarial reporting function.

The collated data is then validated for correctness and completeness. Validation of data is based on business rules defined by the insurer. Identifying the Business rules is a highly complex process as they would vary based on factors like – Products, report being generated etc. Similarly, processing and generating of reports requires another set of rules which have to be created and managed. Again the details have been masked for simplicity. If any of the validation fails, data extraction and transformation is repeated till the validation process is a success.

& - These steps are indicative; it could vary from company to company

After a successful data collation, the data is processed using tools like Prophet and Moses. Data processing on these tools will involve additional external data requirements like assumptions and multiple business scenarios.

After a successful processing, the required reports are generated.

The above steps describe a typical actuarial report generation. Depending on the kinds of reports to be generated, each of the above steps like data collation, validation and processing could range from simple to extremely complicated involving iterations at each step and multiple validations. These steps could change from country to country and time to time within a country.

The above steps would also involve intervention by the actuary for corroboration and confirmation.

3.6 Various Actuarial Reports – description

Actuaries prepare mainly two types of reports, namely internal and external reports. Internal reports (a.k.a. Dashboard reports) are used by top management for making appropriate business decisions. External reports (a.k.a. statutory reports) are for submission to regulatory authorities to oversee the performance of the company, their solvency state and protecting the interests of the policyholders. Different kinds of internal reports and external reports are described in Appendix I.

3.6.1 Internal reports

Internal reports normally brings out the performance measures on various counts, such as Product profitability taking into consideration factors mortality, investment, expenses, etc. These reports could bring the comparative study of multiple periods. For example, a current period actual value plus the two prior periods, whether it be monthly, quarterly or yearly, are normally considered so that the management will get a clear picture about the performance. May be an YTD actual value compared to the prior year's YTD actual and the plan YTD is also required.

Each kind of report could be drilled down with detail/summary based on Product line, Product Status, Product Family, Marketing Channel, paid-up status, Agent tenure, Region, Band, age, segment, underwriting class, entity, duration, etc.

3.6.2 External Reports

External reports formats vary from country to country. Even in EU, regulators specify individual reporting formats for each country. A sample of set of external reports prescribed by IRDA (Insurance Regulatory & Development Authority) is listed in Appendix I.

3.7 Benefits of Actuarial KPO and associated risks

Needless to say, outsourcing actuarial activities through a KPO has tremendous benefits. Some of the potential benefits of an actuarial KPO are mentioned below

Benefits

- Cost Savings – Especially through off-shoring specific actuarial activities, there is significant difference in the salaries of highly skilled and qualified professionals. As a result, through outsourcing, insurance companies will witness lot of cost reduction.
- Complexity Reduction – By outsourcing jobs to a KPO, an insurer can significantly reduce the complexities involved in managing, and a continuous knowledge building of a

large pool of human resource. The management of the facility, ongoing training of employees and motivation and retention of employees require significant management efforts. By outsourcing, an organization can transfer this burden to the KPO vendor and can concentrate on the core strategic processes.

- Access to global reach – Establish long-term, strategic relationships with world-class service providers to gain a competitive edge
- Knowledge Management and Business Intelligence - Knowledge assimilation and dissemination around transitioning, ensuring shorter transition cycles and greater client satisfaction.
- Performance Improvement during transitioning - KPOs can offer performance improvement initiatives prior to actual transitioning, which includes upstream and downstream process analysis.
- Comprehensive Service Level Agreements backed by stringent reporting systems.

Risks

Some of the following risks could be considered while considering a KPO

- Scope risks - Changes of scope, either due to failing to adequately define requirements or the need to repair underperforming processes, may delay critical success factors or business results.
- Quality risks - Failure to complete proper due diligence for the required level of technical or operational performance will compromise not only the cost, but needed service levels.
- Schedule risks - Incomplete tasks or unaddressed risks associated with the KPO effort could compromise statutory insurance laws that result in mishaps during the legal aspects of KPO.
- Cost risks - Failure to complete tasks within the estimated budget/resource allowances.
- Management risks - Buy-in associated with lack of senior and middle management commitment and support many times will derail any profitability of the BPO engagement.
- Organization risks - Inadequate skill/knowledge/experience levels throughout the organization and/or a corporate culture resistant to change will severely hamper any KPO engagement, regardless of size.

4. Proposed model for Insurance KPO

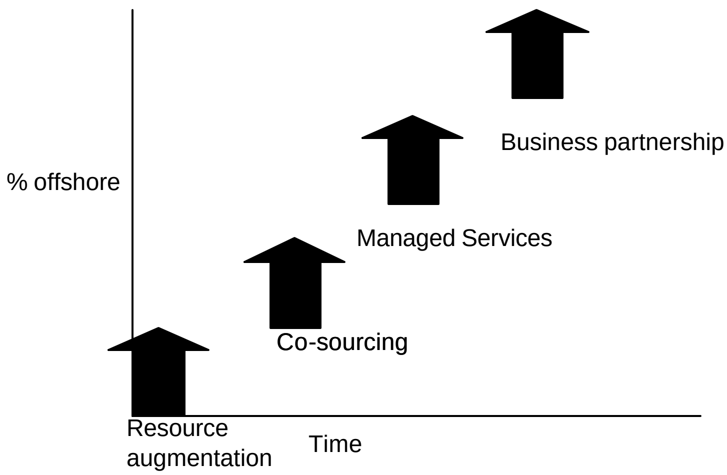

Exhibit 6 : Actuarial KPO Engagement Model

Exhibit 6 shows engagement maturity model for an actuarial activity KPO.

The insurer & the KPO service provider can look into various outsourcing models, based on their needs. Let us analyze how these models will work and what are the benefits and drawbacks of each model.

4.1 Resource Augmentation Model

In this model, the service provider (KPO) agrees to support the insurer's actuarial team with its own actuarial experts. SLAs are defined in such a way that it is the responsibility of the service provider to ensure continued availability of the support services. This model can be looked at when (a) Insurer's business is not so large to offshore; (b) Very sensitive & Intellectual Property information that Client can't send it to the offshore vendor (c) Client is self-reliant on the infrastructure and other parameters but there is high demand and less supply situation. The ownership of the services lies with the Client. This model is more suitable for the client where there is an absolute shortage of resources.

4.2 Co-Sourcing Model

The ownership of services is shared jointly between the Insurer and the KPO vendor. Insurer owns the overall responsibility but the tasks are delegated to the KPO service provider. The KPO vendor takes the responsibility of delivering services with pre-defined costs and SLAs. In this model, the Insurer's actuarial team could define the activities to be performed by the Insurer & KPO Vendor. The KPO vendor could execute the services either from offshore or near-shore (from Service provider's site), subject to various NDA & licensing agreements. The KPO vendor infrastructure would be used for executing the assigned tasks.

4.3 Managed Services Model

The ownership of services is taken over by the KPO vendor. Insurer closely monitors the delivery based on metrics on a periodical basis. Unlike co-sourcing model, the responsibility of defining and executing the services lies with the KPO Vendor. KPO vendor efficiency is determined based on the extent of cost savings and the process improvements brought to the insurer.

4.4 Business partnership Model

In this model, KPO vendor will transition to role of a business partner where consulting services are extended to the Insurer. The partnership is more at a strategic level. This model can be adopted by emerging insurance companies wherein there is dearth of in-house actuarial professionals.

5. Strategic outsourcing considerations

Successful outsourcing arrangements are based on considerable due diligence activities. These activities are necessary, first, to make certain that business strategies are driving IT investment and, second, to ensure that the sourcing requirements of each IT service is analyzed in terms of how best to execute it. Sourcing decisions then will be anchored in knowledge of the cost and quality of the current environment, coupled with knowledge of the desired state. The ability of the existing resources to respond to the creation of the desired state, along with a knowledge of what is available in the marketplace, leads to the decision about when it is appropriate to use external vendors.

In one of the engagements handled by the authors, a comprehensive sourcing strategy exercise caused an enterprise to postpone plans for outsourcing. Insufficient knowledge of the current environment and lack of preparedness to successfully manage an outsourced relationship came to light. Some of the critical factors to be considered during a KPO exercise are as follows.

- Vendor Evaluation - In terms of Vendor evaluation, success requires more than a cursory review of a vendor's capabilities and prior engagements. Structured vendor-evaluation process to constantly realign sourcing relationships based on a living sourcing strategy.

- Contract Management - Contracts should be designed to measure the performance of the vendor against the defined requirements of the service recipient. This type of measurement provides empirical data for measuring the success of the relationship and facilitates objective evaluation. Additionally, the terms & conditions in the contract should be re-visited at frequent intervals. The need to re-visit could be client driven or vendor driven. For example, business strategy of the client has undergone change with focus shifting from cost control to additional focus on quality necessitates modification in the contract.

- Client-Vendor Relationship Management (CVRM) - Success of the relationship between the client and vendor is a direct correlation between the amount of care and nurture put into a relationship. Client who appreciate that outsourcing does not eliminate the need to manage the vendor are the most satisfied with their ongoing relationships. The more complex the relationship is in terms of breadth of services and reaches within the enterprise, the more need there is for a robust internal management structure that can interact with the vendor on many levels.

Every sourcing decision should be through a structured, disciplined process, with a clear understanding of the critical success factors and as a sequel client and vendor can successfully exploit outsourcing relationships.

6. Summary

The enabling technologies and governance practices to make an insurance KPO possible are available today. Insurance industry is under pressure globally to improve efficiency, reduce costs and improve business performance & governance practices. Actuarial function being key to an insurance enterprise cannot be immune to the forces of outsourcing.

Though outsourcing and off-shoring are not synonymous, majority of outsourcing is in fact done off-shore now-a-days. Though the human factor in off-shoring is a politically sensitive topic, today's off-shoring vendors have adequate domain expertise, delivery and governance models to ensure a smooth transition and deliver sustained business value.

Actuarial functions should consider outsourcing at least part of their business processes to address the growing business pressures & demands on the industry as a whole and to exploit global talent. Each insurance company should devise strategies to outsource their actuarial activities based on their individual business objectives. Insurers could consider a variety of outsourcing paradigms to suit their needs from Captive KPO centers to third-party KPO providers.

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8. Acknowledgments

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9.Glossary

- Outsourcing – Outsourcing is a method to get some of the business functions executed by a third-party for various considerations like cost reduction, turnaround times, operational excellence, leveraging global talent etc.
- Off-shoring – Off-shoring is a way of executing outsourced business processes from a remote location which is away from the actual business location. Some of the examples of off-shoring are software development executed off-shore, customer care operations executed from India or Philippines.
- VoIP – Stands for Voice over Internet Protocol. It is a technology that enables voice communication over the internet.
- SLA – SLA stands for Service Level Agreement. These are performance standards built into outsourcing contracts between a client and an outsourcing provider. SLA could indicate things like percentage availability of business systems, number of service calls answered within 1 day etc.
- TCO – Total cost of ownership. This indicates the total cost of owning a business system over its entire life cycle and not just the initial investment. TCO includes all support, training, maintenance and enhancement costs of any business system.
- NDA – Non-disclosure agreement. This is a contract between a client and a vendor that the vendor will not share the confidential information learned about the client for any other purpose other than project execution.
- Near-shore – A delivery model in IT services where centers are staffed by the vendor in and around the client geographical location. For e.g., a service provider operating a European delivery centre will be considered near-shore.

10. Appendix I

Internal Reports
Following is the partial list of reports that actuaries normally prepare on an ongoing basis.

Asset Risk Reporting

- Credit risk (downgrading risk, default risk, currency risk)
- Market risk (asset pre-payment, return volatility, asset market values, liquidity)
- Credit exposure / counter party exposure
- Concentration and diversification risk
- Aggregate portfolio risk
- Duration / Liquidity / Convexity
- VAR Reports
- Asset Mismatch Reports

Liability Risk Reporting
Liability risks primarily arise from the following categories:

- Claim costs
- Expenses
- Reserve adequacy and adequacy of pricing elements other than claim costs and expenses
- Catastrophe (P/C)
- Failure of reinsurance

Solvency Risk Reporting

- Key assumptions and product design
- Risk-based capital and "Capital Adequacy" solvency
- Tied Surplus
- Stochastic Scenario analysis
- End-year business experience reporting

External Reports
Abstracts and statements should be submitted in respect of following Lines of Business.

- Unit-Linked Business
- Non-Unit Linked Business
- Health Business

An insurer shall prepare the following statements which shall be annexed to the abstract prepared in accordance with these regulations, namely:-

(a) in respect of Linked Business,--

(i) Form LB-1;
(ii) Form LB-2;
(iii) Form LB-3;
(iv) Form LB-4;
(v) Form IA;

(b) in respect of Non-Linked Business,--

(i) Form NLB-1;
(ii) Form NLB-2;

(iii) Form DD;
(iv) Form DDD;
(v) Form DDDD;
(vi) Form IA;

(c) in respect of Health Insurance Business,--
(i) Form LB-1;
(ii) Form LB-2;
(iii) Form LB-3;
(iv) Form NLB-1;
(v) Form IA.

(d)Summary statements,
(vii)Form K;
(viii)Form IRDA-AA as specified under Regulation 4 of Insurance Regulatory and Development Authority (Assets, Liabilities, and Solvency Margin of Insurers) Regulations, 2000;
(ix) Form H;
(x) Form I;
(xi) Statement of Composition and Distribution of surplus in respect of policyholders' fund as specified under Regulation 8;

Description of Reports:
1. Direct Business plus reinsurance (Form D)
2. Additions to & Deletions (Form DDD)
3. Particulars of Policies forfeited or lapsed in the last under review and of policies revived and reinstated for full benefits classified according to the year in which they were issued (Form DDDD)
4. Particulars of Policies and valuation Details (Form NLB -1)
5. Summary and Valuation of Policies (Form NLB - 2)
6. Particulars of policies and valuation details (Form LB 1)
7. Summary and valuation of policies (Form LB 4)
8. Valuation Report (Form IA)
9. Statement of net asset values for the segregated funds maintained by the insurer for its linked business for the financial year (Form LB 2)
10. Statement of analysis of units in segregated funds (form LB 3)
11. Summary of Valuation (Form H)
12. Valuation Results (Form I)
13. Statement of solvency margins : Life Insurers (Form K)

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