

Electronic Expert System in Life Insurance Underwriting: The Case of Saman Insurance Underwriting Portal

Shima Ara,
Actuarial director of Saman Insurance Company,
123Khaled Eslamboli Ave.15138 13119 Tehran Iran
Sh.ara@samaninsurance.ir
Ahmad Reza Zarrabieh
Deputy CEO Research and Development of Saman Insurance Company
Ar.zarrabieh@samaninsurance.com
Iman Arastoo
Bancassurance Deputy Director of Saman Bank,
No 121, Atefi Ave, Valiasr St, Tehran Iran
I_arastoo@sb24.com

Abstract: Issuing individual life insurance started in the seventies in Iran but after nearly forty years, due to the lack of documented data, the insurance companies cannot easily access to insured proposal data and their medical history. Because of this the underwriting is based on personal experience or reference book instead of real data. Nowadays by information technology, data mining through medical data and documents is possible. This paper describes the process of issuing life insurance by electronic documents at Saman Insurance and advantages and disadvantages have been reviewed.

Life insurance underwriting is a complex and a sensitive operation. In this paper we describe how to use Microsoft SharePoint in underwriting life insurance.

Some steps are:

- 1-Data entry
- 2-Attaching scanned of proposal and previous medical documents.
- 3-Determining the required medical tests automatically.
- 4-Determining the substantial rate related to age, sum insured, occupation... automatically.
- 5-Sending emails to physicians for supplementary review and register their comments.
- 6-Sending emails to underwriter to gather and records their comments.
- 7- Updating the status

Keywords: Expert system, issuing policy, underwriting, life insurance

Introduction

Hard copy documents play a major role in the insurance industry. Archiving documents is an integral part of the insurance process. Since this process is time consuming and hard copies are quite expensive, insurance companies are motivated to find alternative ways. Using new technologies is a good way to speed up the process and reduce the costs. Gathering credible, documented and audited data is another advantage of using new technology in insurance industry. Data classification greatly increases the efficiency of financial system in insurance and will accelerate the customer service process.

In the view of insurance analysts, having good performance, efficient operation and management are the best representation and advertisement for the company. Increasing procedures' efficiency and enhancing leadership result in a rise in company's profit. Information technology helps companies to reach multiple objectives by redesigning the procedures. American Express, for example, set out to reduce the cost, time and to improve the process of making credit authorization decisions by embedding the knowledge of its best authorizers in an "Authorizer's Assistant" expert system. This successful redesign led to a 7 million dollar annual reduction in costs due to credit losses, a 25% reduction in the average time for each authorization, and a 30% reduction in improper credit denials [1].

It is estimated that about 30% of staff time is wasted in handling paper documents daily. So using an electronic system in which all documents are virtually stored and all processes are followed is very important for an insurance company.

Underwriting

Risk is the probability or threat of quantifiable damage, injury, liability, loss, or any other negative occurrence that is caused by external or internal vulnerabilities, and that may be avoided through preemptive action. Insurance is one of the most common ways that individuals and organizations protect themselves against financial losses. Insurers have significant expertise in risk management.

Insurer must make complex decisions about selecting and pricing risks and adjusting losses as well. This process called underwriting. In recent years, these decisions are taken only by experts who have enough skills and the experience. However nowadays, decision-making processes can be planned in advance. Indeed, certain percentage of underwriting decisions is automated and for human decision maker, provides assistance.

Underwriting is a plenary process in which decision making about risks is done based on actuarial and business principals. Underwriting involves measuring risk exposure and determining the premium that needs to be charged. Generally, underwriting inspects a particular risk; classifies exposures- i.e. people- into groups of homogeneous risks, and calculates financial impacts of potential losses.

In life insurance, risk has different aspects: health, finance and occupation issue. Underwriting should be regarding competitive market and adjusting expected losses by expected investment income and reserves.

A precise underwriting makes an insurance company competitive. On the other hand, poor underwriting can cause major losses during time.

Risk classification and assessment in life insurance is very important. Determining occupational risk categories using mortality tables, medical tests and ... are some attempt to a precise underwriting.

Electronic expert system

The tools by which processes to be redesigned are identified and prioritized is one of the key issues in process redesign. This is often difficult because most managers do not think of business operations' processes. There are two major approaches in this issue. The first, we labeled as "exhaustive", attempts to rigorously identify all processes in organization and then to prioritize them to redesign urgency. The second, which we refer to as "high-impact", attempts to identify only the most important processes or those most in conflict with the business vision and process objectives, using a minimum of time and effort [1].

An expert system is a computer based system which emulates the decision-making ability of a human expert. In simple words, such systems contain knowledge derived from an expert in some narrow domain. Expert systems are meant to solve real problems which normally would require a specialized human expert [2].

The process of issuing universal life policy in terms of time, cost and quality is one of the most important processes at Saman Insurance Company. Currently, redesigning process is done via "high-impact" approach.

Already, most insurance companies use integrated system for issuing policies. In addition to scientific evidence, underwriting process requires underwriters' experiences and should be done by hand, in part.

In Saman Insurance Company underwriting process is automated. Required medical exams are specified in the electronic system and referral letter to lab is generated automatically. Moreover substantial rates are determined by expert system related to occupational and medical history of the insured.

Advantages and Disadvantages of Electronic Expert System

Some advantages of applying electronic expert system in insurance are:

- Cost reduction in documenting and archiving
- Easy and quick access to required data
- Speeding up customer service
- Classified data
- Extracting analytical reports
- Analyzing expense
- Integrated sales channels systems

Most insurance companies can redesign their processes based on information technology. However, electronic systems may have some limitations.

Organizations that have redesigned key processes will also need to establish an ongoing organization to oversee continuous redesign and organizational "tuning", and to ensure that information systems support process flows. In most companies, required analytical skills for redesigning processes are most likely found in the IT functions. However, individuals in the IT function will also require a high degree of interpersonal skills to be successful as the "new industrial engineers". The ideal group would combine the responsibilities of multiple

functional areas, e.g., information systems, industrial engineering, quality and process control, finance, and human resources.

There are a few emerging examples of groups that aim to redesign processes. Silicon Graphics has created a specific process consultation group for ongoing process management; it is headed by a director-level manager. On a project basis, Ford Motor increasingly combines IT function employees with industrial engineers to redesign key processes, as it did recently on a redesign of the pans warehousing process [1]

Electronic Expert System in Universal Life Insurance Underwriting at Saman Insurance Company

Universal Life Plan is a whole life regular premium plan with a pre-defined death benefit (called Sum Assured) payable on the event of the death of the policyholder in addition to the Cash Value. The policyholder can change the death benefit and the amount/timing of premium payments from time to time.

In this article using new technology Microsoft SharePoint in underwriting universal life is described.

Microsoft SharePoint is a Web application platform developed by Microsoft, First launched in 2001. SharePoint has historically been associated with intranet content management and document management, but recent versions have significantly broader capabilities. SharePoint comprises a multipurpose set of Web technologies backed by a common technical infrastructure. By default, SharePoint has a Microsoft Office-like interface, and it is closely integrated with the Office suite. The web tools are designed to suits non-technical users. SharePoint can be used to provide intranet portals, document & file management, collaboration, social networks, extranets, websites, enterprise search, and business intelligence. It also has system integration, process integration, and workflow automation capabilities. (Wikipedia)

One of the most important properties of this portal is in defining work flows (such as underwriting process, registering proposal...) and monitoring the state of a proposal at any time.

Microsoft SharePoint is integrated with other Microsoft provider such as:

- Microsoft Office
- Microsoft Project Server
- Microsoft SQL Server
- Microsoft Exchange Server
- Microsoft Windows Server
- Microsoft Visual Studio

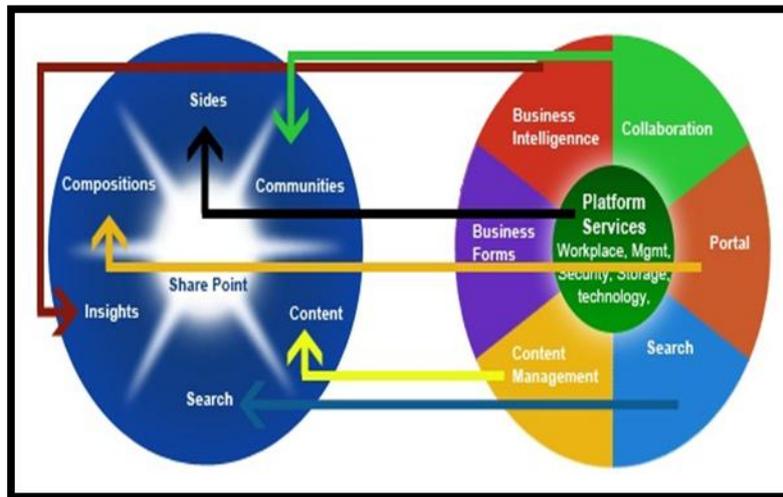


Figure 1

Some features of Microsoft SharePoint are:

- Powerful, reliable server platform
- Powerful, fast search engine
- Flexible web server
- Content Management
- Workflows engine

There are several ways to implement processes in SharePoint. We use Nintex workflow engine. Nintex Workflow adds a drag-and-drop workflow designer, connectivity and advanced workflow features to the

Microsoft SharePoint platform. Business users and IT Professionals alike will be empowered to quickly and easily automate business processes; from a simple leave approval request, to complex integration across external applications, cloud services and data sources.

For designing life proposal we use Microsoft Office InfoPath.

First we designed life proposal in InfoPath. (Figure 2)

This InfoPath file consists of several pages to register insured and policyholder's properties, as paper based proposals.

Figure 2

All agents and sales channels have access to this InfoPath form via SharePoint portal. They enter all data fields of the proposal in this form. Further, it's possible to attach the scanned proposal form to the portal. (Figure 3)

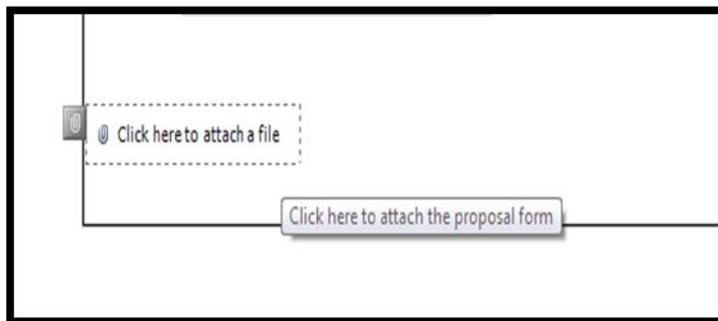


Figure 3

After submitting InfoPath form, proposal data are exported to a list in SharePoint and upon this proposal's status will be 'Initial Registration'. (Figure 4)

Insured name	↑status
Mike	Initial Registration
Nelly	Initial Registration

Figure 4

Consequently, agents and sale channels' permission change to read only and they can only follow the underwriting process or print the referral letter to lab. The general required medical tests will be determined by the system as well.

Now, underwriters can see the proposal in the portal and start the underwriting process. There are some workflows (designed by Nintex) that underwrites should start with. The insured age, basic required medical tests; occupational as well as medical substantial rates are specified by workflows. (Figure5)

Substantial Rate	Insured name	↑status
%1•	Mike	Initial Registration
	Nelly	Initial Registration

Figure5

Several underwriters and doctors may survey the proposal, so all steps of survey are automated in SharePoint portal by Nintex. Due to the integration of SharePoint and Microsoft Outlook all processes can be monitored by email. For underwriter and doctor, it suffices to use their emails and answer some questions about the specified proposal.

Below, underwriting steps are summarized:

- 1) Starting underwriting workflow. (Figure 6)



Figure 6

- 2) Registering underwriter's comments. (Figure 7)

DOCTOR NAME:

UNDERWRITER COMMENTS:

UNDERWRITER NAME:

NEED DOCTOR COMMENTS? YES NO

cancel start

Figure 7

- 3) Sending email to doctor and registering doctor's comments. (Figures 8 and 9)

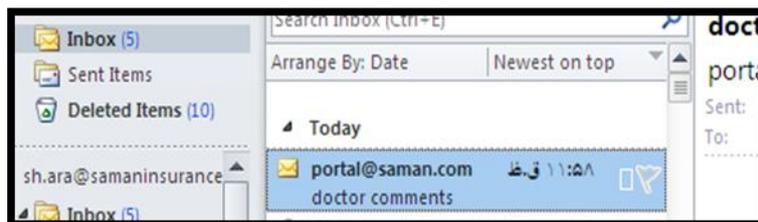


Figure 8

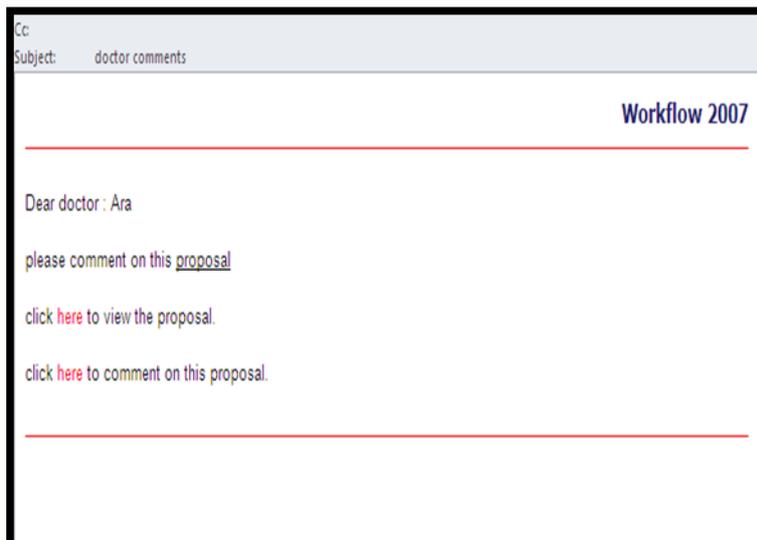


Figure 9

4) After gathering all comments (from underwrites, doctors...) the policy is ready to be issued. Underwriter checks all comments and decides to issue the policy under general and special conditions and substantial rate as well. Underwriter may decide not to issue the policy because of the high risk. In each case, the proposal's status will change. (Figure 10)

status	Insured name
Initial Registration	Mike
Issued by Substantial Rate	John
Not Issuable	Sarah

Figure 10

Conclusion

In this article, we showed how to use simple technologies such as SharePoint to automate underwriting process and to reduce its cost.

Below are our suggestions to speed up the processes:

- Culture of using information technology should be integrated into insurance industry and become conventional.
- Insurance companies should improve their systems and train the staff instead of outsourcing.

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