



Kerem Tezic
Statistician

AFA Insurance prevents loss with SAS® Text Miner

AFA Insurance uses SAS® to improve health in the workplace. AFA Insurance has a vast amount of data about the causes of workplace injury and illness. By analyzing this data with SAS®, AFA Insurance actively contributes to reducing injuries and absence due to illness as well as improving the general working environment.

Industry

Health Insurance

Business Issue

Analyze handwritten text vs. structured, computer-entered coded information by those injured in order to have all the pertinent information about what may be causing or having an impact on occupational injuries.

Solution

SAS Text Miner and SAS® Enterprise Miner™

Benefits

Reduce workplace injuries by increasing the quality of analyses and the decision data given to clients, while reducing administration cost.

AFA Insurance's main task is to administer insurance and other services settled in collective and various other agreements between the labor market parties. AFA Insurance insures against work injury, illness, death and redundancy.

With SAS Text Miner, AFA Insurance increases the quality of its decision data while at the same time streamlining the administration of its services.

Everyone who makes a claim to an insurance company has the opportunity to describe the cause of the injury, the course of events that followed and the results. AFA Insurance is responsible for analyzing the cause of the injury and the cases of illness, including the results and their impact (such as illness, duration of sick leave and even death). The analyses are used for loss-prevention measures run by the government.

"It is important that the analyses are correct and as close to reality as possible. In this way the claims-prevention activities can be implemented with the aim of reducing serious and costly injuries," says Michel Normark, Manager, Analysis and Insurance Conditions at AFA Insurance.

With SAS, AFA Insurance analyzes the claimant's handwritten text, which relates the claimant's version of events.

AFA Insurance has been a SAS customer since 1998, when the actuarial department began using SAS to access and work with data. A couple of years

later the prevention department – now Analysis and Insurance Conditions – began using SAS to get a clearer image of the claimants' injuries, what caused them and the consequences of such injuries.

At that time only structured text was analyzed from a standard set of codes, based on the computerized text descriptions of the course of events. The key words were taken out of the claimants' descriptions and coded, which required a significant amount of labor. There was a significant risk of a subjective assessment and careless mistakes. In 2004 the system was digitized, so now all the information is entered in the database.

"As a large part of the current information is text descriptions handwritten by claimants that do not follow a previously named code, we wanted to be able to analyze that information for the free text. We primarily wanted to increase the quality of our analyses and the decision data that we submit to our clients, such as the Swedish Trade Union Confederation (LO), the Confederation of Swedish Enterprise (Svenskt Näringsliv) and the Council for Negotiation and Cooperation (PTK). At the same time it was a way to reduce administrative costs associated with positions that were no longer needed," says Normark.

Kerem Tezic, a statistician at AFA Insurance, started to use SAS Text Miner in order to analyze claim material for a large-scale project. AFA Insurance wanted to better understand threats and violence in the workplace. The project

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Manager, Analysis and Insurance Conditions
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analyzed detailed information about different types of situations that led to threats and violence for different occupational groups, how serious the injuries were and the resulting duration/cost of the sick leave.

“SAS Text Miner uses models to analyze the incoming written text. SAS helps find the connections among the more than 10,000 documents and categorize them into meaningful groups. For example, we discover typical courses of events for individual occupational groups, such as the link between an injury and how the worker may be doing his job,” says Tezic.

One occupation group that has been examined is the police force. With the help of text mining, Tezic discovered that police officers are often injured when they take the captured offender in the back seat of the police car. The offender often becomes aggressive toward the officer sitting next to the offender in the back seat, and this

situation can often escalate due to the fact that the police are not allowed to use handcuffs in a police car. It was also discovered that a disproportionate number of women police officers are attacked. Almost 50 percent of the officers attacked in the back seat of the car were women; less than 20 percent of the total police force are women. Given this knowledge from SAS, the work group – or police force in this case – can take corrective action to avoid these injuries.

“We have also discovered 600 cases of threatening situations with the help of SAS Text Miner analyzing the free-form or handwritten text, which would not have been discovered by just using the old ‘code matching’ process or structured analysis,” says Tezic.

With traditional structured information, a large amount of information is lost from the injured person, and the causal connections run the risk of being missed. Structured information also

brings problems by way of synonyms and words that can mean several things. This creates the risk of drawing the wrong conclusion and thus giving incorrect information to the government with regard to the activities that should be prioritized to improve the working environment.

The next stage is to use predictive (forecasting) text mining. They will forecast the risks and the seriousness for the different occupational groups and within the different demographic variables in order to find the areas where corrective and preventive activities can provide the most impact or benefit.



SAS Institute Inc. World Headquarters +1 919 677 8000

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