ROI CASE STUDY
IBM SPSS ANALYTICS DECISION MANAGEMENT
SANTAM INSURANCE

THE BOTTOM LINE

Nucleus Research examined the use of IBM SPSS at Santam Insurance to measure the benefits of predictive analytics. Analysts found benefits including the detection of a fraud ring in the first 30 days of use, ability to accelerate 50 percent of processing claims, and savings equivalent to the cost of 30 external assessors.

ROI: **244%**
Payback: **3.7 months**
Average annual benefit: **R34,407,024 (US$ 3,815,085)**

THE COMPANY

Santam is South Africa's largest short-term insurance company with assets of over R17 billion (US$ 1.88 billion). It provides personal, commercial, agricultural, and specialist insurance policies throughout South Africa and holds additional businesses in Zimbabwe, Malawi, Uganda, Tanzania and Zambia.

THE CHALLENGE

Santam faced the challenge of operating in an environment where fraud was estimated to account for between 6 and 10 percent of all premium revenue because of the challenges of managing complex claims while maintaining a high level of customer service. To solve this problem, Santam sought to find a more personalized method for managing each claim and prioritizing the effort needed to successfully investigate and mediate each claim.

To support this claim analysis, Anesh Govender, Head of Finance, Reporting and Salvage at Santam, sought to automate and manage these claims through a predictive analytics solution. Santam's vendor evaluation process led to a decision to select either SAS Institute or Olrac SPSolutions, which was offering an IBM SPSS-based solution.

**Cost : Benefit
Ratio** | **1 : 1.5**

Two main factors led Govender's team to select Olrac SPSolutions. Santam sought to create an advanced predictive analytics deployment and were sure that Olrac SPSolutions had the skills and prior experience necessary to build the necessary functionality from an IBM SPSS base solution. In addition, Santam's analysis determined that IBM SPSS was better suited to integrate with the mainframe platform that supported claims management.

THE STRATEGY

Santam began implementing IBM SPSS in 2010 with a proof of concept designed to analyze personal motor insurance claims. By setting up business rules based on already existing data, Santam was able to create a risk score for each claim involved, which allowed Santam to automate the segmentation of these claims. This allowed auditors to focus on potential fraud and cases that represented a high degree of risk for the insurer. This proof of concept successfully resulted in financial benefits that exceeded the initial goals.

Based on the success of this initial proof of concept, Santam then scaled its predictive analytics deployment into a full production environment that analyzed over 360,000 claims per year in two stages. The first stage took approximately six months to integrate IBM SPSS into the mainframe environment. However, this initial stage included the development of complex connectors and interfaces that could be reused in following stages to reduce time to value. As a result, the second stage of this project was completed in less than half the time and approximately 5 percent of the cost compared to the first stage of this project.

KEY BENEFIT AREAS

By implementing IBM SPSS throughout its organization, Santam was able to improve its fraud detection capabilities and reduce the time associated with investigating each case, and reduce the need for remote agents.

Cumulative Net Benefit

		103,221,071
	62,584,157	
38,130,682		
Year 1	Year 2	Year 3
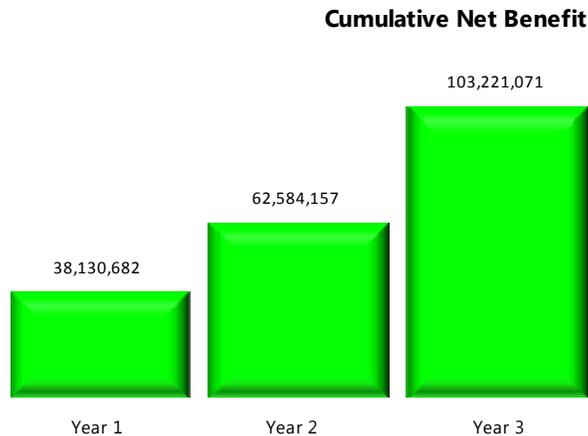
During the proof of concept, Santam was able to use the information from IBM SPSS to save R17.9 million (US$ 1.98 million) in the first four months of use. These savings included the detection of an insurance fraud syndicate that had previously gone undetected. As this deployment spread throughout the organization, Santam successfully identified over R80 million in repudiations due to invalid claims in 2011.

> We saw near-immediate benefits after implementing IBM SPSS, most specifically in the detection of a crime syndicate in the first six weeks of use. This one-time benefit alone paid back the initial investment in IBM SPSS.
>
> Anesh Govender, Head of Finance, Reporting and Salvage, Santam Insurance

In addition, the use of predictive analytics to categorize claims also reduced the time and cost associated with settling cases. Low risk cases no longer have to go through the exhaustive due diligence that previously took at least three days to perform. Now, approximately 50 percent of these claims are accelerated through improved categorization. Fifteen percent of claims, or about 54,000 claims, can be processed in less than an hour, representing a 95 percent savings in time. This productivity gain has led to a reduction of 30 assessors over a three year period, representing an annual savings of R33 million (US$ 3.66 million).

KEY COST AREAS

Costs of the project included hardware, software, consulting, training, and personnel. The initial implementation included IBM SPSS Decision Management to optimize claims, IBM SPSS Collaboration & Deployment Services to integrate data with process management, IBM DB2 database software, and IBM Infosphere DataStage to support high speed data integration on a real-time basis.

Net Cash Flows

	Initial	Year 1	Year 2	Year 3
	(14,591,140)	52,721,822	24,453,475	40,636,914
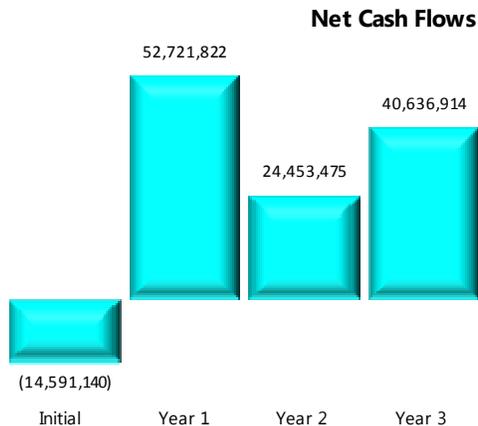
From a consulting perspective, Santam worked with Olrac SPSolutions to design the solution and support the initial implementation. This skill set allowed Santam to reduce the time needed to implement predictive analytics because of the expertise and

experience that Olrac SPSolutions both in designing the technical and business workflow aspects of the solution.

Santam assigned ten employees to complete the implementation and develop the integration and business rules associated with this predictive analytics deployment. This team included a project manager, a business analyst, two Natural developers, a Java developer, an architect, a business process management developer, two testers, and a database administrator. Training costs consisted of the time required for three engineers to attend training and the cost of the trainers.

BEST PRACTICES

The success of this project was due to a combination of factors. First, this predictive analytics deployment was predicated on identifying a core business challenge: managing high risk insurance claims. Rather than simply deploying a generic analytics platform, Santam identified a key problem and identified the appropriate tools to support its business needs. The combination of a mature data environment, process management, and decision optimization allowed Santam to effectively translate claims into action.

In addition, Santam made the decision to hire Olrac SPSolutions, which had prior experience both in quantitative analytical consulting and technical SPSS implementations. This integrated approach allowed Santam to consider the challenges of this implementation from both the backend and the end user perspective.

CALCULATING THE ROI

Nucleus calculated the costs of hardware, software, consulting, personnel, and training over a 3-year period to quantify Santam's investment in IBM SPSS. These costs were for a multi-stage project conducted in 2010 and early 2011.

The direct benefits associated with Santam's use of SPSS were determined by calculated changes in repudiations measured against the cost of field assessors and other processing costs. All South African Rand to US Dollar conversions are based on the exchange rate of 1 South African Rand to 0.11 US Dollar as of April 8, 2013.

FINANCIAL ANALYSIS (All Values in South African Rand)

IBM SPSS Decision Management - Santam

Annual ROI: 244%
Payback period: 0.3 years

ANNUAL BENEFITS	Pre-start	Year 1	Year 2	Year 3
Direct	0	96,491,382	99,160,768	111,298,180
Indirect	0	0	0	0
Total per period	0	96,491,382	99,160,768	111,298,180

CAPITALIZED ASSETS	Pre-start	Year 1	Year 2	Year 3
Software	0	0	0	0
Hardware	2,000,000	0	0	0
Project consulting and personnel	0	0	0	0
Total per period	2,000,000	0	0	0

DEPRECIATION SCHEDULE	Pre-start	Year 1	Year 2	Year 3
Software	0	0	0	0
Hardware	0	400,000	400,000	400,000
Project consulting and personnel	0	0	0	0
Total per period	0	400,000	400,000	400,000

EXPENSED COSTS	Pre-start	Year 1	Year 2	Year 3
Software	4,023,640	0	804,728	804,728
Hardware	0	0	0	0
Consulting	3,300,000	570,000	0	0
Personnel	5,000,000	43,199,560	73,902,565	69,856,538
Training	267,500	0	0	0
Other	0	0	0	0
Total per period	12,591,140	43,769,560	74,707,293	70,661,266

| FINANCIAL ANALYSIS	Results	Year 1	Year 2	Year 3
Net cash flow before taxes	(14,591,140)	52,721,822	24,453,475	40,636,914
Net cash flow after taxes	(8,925,127)	29,177,002	13,629,411	22,530,303
Annual ROI - direct and indirect benefits				**244%**
Annual ROI - direct benefits only				244%
Net Present Value (NPV)				48,638,993
Payback period				**0.3 years**
Average Annual Cost of Ownership				67,909,753
3-Year IRR				284%

FINANCIAL ASSUMPTIONS	
All government taxes	45%
Cost of capital	7.0%

By the Numbers

Santam Insurance's deployment of IBM SPSS Analytics Decision Management
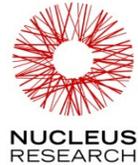
NUCLEUS RESEARCH

Annual Return on Investment **244%**

3.7 Months — The total time to value, or payback period, for the IBM SPSS Analytics Decision Management project.

Cost : Benefit Ratio **1 : 1.5**

R34,407,024
Average annual benefit

THE PROJECT

Nucleus Research examined the use of IBM SPSS at Santam Insurance to measure the benefits of predictive analytics. Analysts found benefits including the detection of a fraud ring in the first 30 days of use, ability to accelerate 50 percent of processing claims, and savings equivalent to the cost of 30 external assessors.

THE RESULTS

Reduced 30 assessors over a three year period
Santam used IBM SPSS to save R17.9 million in the first four months of use

---

Number of **users:** 220

4 Months — Time for Santam Insurance to deploy IBM SPSS Analytics Decision Management

---

"We saw near-immediate benefits after implementing IBM SPSS, most specifically in the detection of a crime syndicate in the first six weeks of use."

\- Anesh Govender, Head of Finance, Reporting and Salvage, Santam Insurance