

## Scoring Model Development Training



JZ Partners has extensive experience of scorecard and rating model design and implementation for financial institutions, and up to date understanding of the impact of the Basel regulations.

We offer training in scorecard and rating model design led by experienced consultants. We operate this training in partnership with an expert risk scoring consultancy, and can cover both the design theory and technical details, and practical implementation and build of scorecards for financial institutions.

The training offers both a business and technical introduction to the implementation of a rating model within an organisation. This course provides a thorough overview of the main techniques used in the financial industry for the development of models, and how best to manage design and implementation of a model for a business line.

### Summary Course Syllabus

The duration, content and focus of our training can be tailored based on audience requirements. To cover the theory of model design, modelling techniques, model development phases, and spend time developing a model, a 2 day course would be typical. 3 days would allow greater coverage and practice of scorecard development.

#### **PART A: INTRODUCTION. CREDIT SCORING BASIC FOUNDATION**

- Credit Scoring tasks
- Introduction to the scorecard
- Scoring model development methodology
- Introduction to scoring model development tools

#### **PART B: DATA PREPARATION AND PROCESSING**

- Concept of representative selection
- Fraud and its impact on data fineness
- Temporary parameters. Sample window. Performance window. Outcome period
- Good, Bad, Indeterminate data
- Data for model development. Practice and validation sets
- Data cleaning. Missed values. Processing

#### **PART C: DATA EXTRACTION METHODS**

- Visual data analysis methods
- Distributions
- Histograms
- Web diagram
- Analysis of characteristics' forecast ability
- Forecast ability, validation of variables and Information Value
- Translation of continuous variables into categorical
- Cluster analysis. Self-organizing Kohonen Maps

#### **PART D: EXPERT MODELS AND NEURAL NETWORKS**

- Neural network methodology
- Model development, parameters and examples

#### **PART E: CLASSIFICATION TRESS**

- Classification tress methodology
- Model development, parameters and examples

#### **PART F: LOGISTIC REGRESSION**

- Logistic regression methodology
- Model development, parameters and examples

#### **PART G: OPTIMAL MODEL SELECTION**

- Classification quality validation. Non-parametric curves Model development, parameters and examples
- ROC Curve
- Lorence Curve
- Kholmogorov-Smirnov Curve
- Scoring model operational characteristics validation
- Best cut-off point selection
- Validation of model operation basing on credit portfolio data

#### **PART H: CREDIT PORTFOLIO DATA ANALYSIS**

- Data analysis
- Scoring reports

#### **PART I: BASEL II REGULATIONS AND RATING MODELS**

- Introduction to the Basel II regulations
- Requirements for rating model design and development
- Basel data history requirements
- Data history challenges and low default portfolios
- Validation of rating models. Requirements and techniques
- Stress testing of rating models
- Future direction of Basel regulations

#### **PART J: RATING MODEL IMPLEMENTATION**

- Rating model development plan and team structure – practical examples
- Issues faced and lessons learned by banks implementing rating models
- Integration of rating models into risk decision making

#### **PART K: INDEPENDENT MODEL DEVELOPMENT WORK**

Attendees will have the opportunity to work with industry leading scorecard development software to build a model and consolidate their understanding. Depending on time allocated to this, the following can be included:

- Data preparation for analysis and building practice and validation sets
- Data analysis
- Neural network, decision tree and logistic regression model development
- Discussion of model interpretability and best model selection
- Validation of scoring model operational stability, income distribution and best cut-off point selection
- Scoring reports development and analysis