Next Generation Data Mining.
Data Mining Automation & Realtime-Scoring "on-the-cloud".
Outline

1. DYMATRIX & Zementis Overview
2. Consulting & Product Expertise
3. DynaMine & ADAPA Solution Framework
4. Case Study: iPhone Real-time Scoring
5. iPhone LiveDemo – DynaMine® NBO: Realtime-Scoring “on-the-cloud” with Zementis ADAPA®
3 Leading Technology Companies – One Strategic Alliance

- **DYMATRIX CONSULTING GROUP**
  - Advanced analytics consulting firm located in Stuttgart, Germany
  - Since 2000 successfully managed about 600 projects
  - Consulting focus on Analytical CRM, Campaign Management & Optimization and Data Mining Automation

- Zementis
  - Advanced analytics software company located in San Diego & Hong Kong
  - Focus on operational Predictive Analytics
  - PMML Standard & Cloud Computing

- DYMATRIX and Zementis are strategic partners with KNIME
Consulting & Product Expertise

**Business Intelligence**
- Design and development of data warehouse and business intelligence environments
- Implementation of enterprise-wide reporting environments
- Dashboarding
- Sales Controlling
- Planning & Forecasting
- Balanced Scorecard

**Analytical CRM / CRA**
- Customer Segmentation
- Customer Value Analysis
- Cross- / Up-Selling Modeling
- Churn Analysis
- Fraud Detection
- Credit Scoring/Credit Limit Allocation
- Text Mining
- Data Mining Automation

**Campaign Management**
- Conception and optimization of campaign processes and campaign workflows
- Implementation of campaign management systems
- Integration of data mining models into campaign processes
- Campaign Optimization

**Product Framework**
- Fully integrated & extensible product suite
- Other Vendors/Tools via PMML open standard
- SOA- based integration
- DynaMine & DynaCampaign
- ADAPA
- KNIME

Domain Knowledge – Predictive Models – Product Framework
End-to-end Solution
Discover – Develop – Deploy – Execute - Monitor
DynaMine® is a revolutionary Advanced Analytics Framework for automated, adaptive model training and model management. DynaMine® enables streamlined, cost-effective and fully-integrated data mining processes and supports real-time model training and scoring for any KNIME predictive modeling algorithm.

• DynaMine® automates time- and resource-consuming data mining tasks (data preparation, creation, re-training, assessment and deployment of data mining models)

• Data Mining Models are always up-to-date and are easily administrated and adjusted by the DynaMine® closed-loop control.

• DynaMine® offers best-practice set-ups for data mining processes – gathered, combined and optimized from numerous data mining projects.

• DynaMine® overcomes the limitations imposed by existing modeling approaches - train as many data mining models with as many input variables as you want without any limits.
DynaMine® – Fields of application

- Next Best Offer / Next Best Activity
- Affinity modeling (Up Selling / Cross Selling)
- Churn-/Retention Modeling
- Credit Scoring / Credit Limit Allocation
- Fraud Detection
- Demand Forecasting
- Text Mining
- …any other application of Predictive Modeling…
Success Story: DataMiningAutomation@Vodafone

Benefits using automated model training and evaluation:

- **Time to Market**: Up-to-date data and scores in only 6 hours after entering first campaign response.
- **Individualization**: Using individualized offer- and point-of-time affinities campaign success raised up to 10% - 250%.
- **Automated data preparation**: 240 days per year less effort by cancellation of time-consuming data preparation processes.
- **Adaptive analysis framework**: Automated self-learning model-optimization in case of changes in behavior or market.
- **Protection of resources**: Continuous ROI of more than 200% by assignment of analysts for marketing optimization in multi-channel-mix.

After 2 months a saving of 200 days of effort was achieved and an additional turnover was generated (5-digit range).
DynaMine® in a distributed analytical environment: Plug & Score!

PMML Model Upload

ADAPA® Model Repository

Requests
Scores & Decisions

Model Deployment
Model Assessment
Evaluation
Pre-Processing
Training & Recalibration

Batch / Real-time Business Intelligence Hub

ERP
SCM
CRM
Legacy
Other

Mobile Applications
Web Applications
CRM, Sales & Service Applications
ERP & SCM Applications
Other Applications

Platform independent Scoring “on the cloud”

On-site Scoring via ADAPA®

Requests
Scores & Decisions
ADAPA Predictive Analytics Decision Engine Overview

Data → ADAPA

- Predictive Models
- Business Rules

Enhanced Decisioning → Web Services

Auditing & Reporting

Predictive Analytics

Business Rules
What is ADAPA?

Scalable Execution Platform
- Execute your models in real-time and on demand.
  Score in single decision or batch mode.

Environment to Manage Predictive Models
- Deploy one or many models in the same engine.
  Manage and maintain models through web console.

Framework for SOA-based IT Integration
- Completely standards-based models and API.
  Easily integrated into your existing infrastructure.

ADAPA is not...
- ADAPA is not a model development environment.
  Use best-of-breed commercial or open source tools.
ADAPA = Open Standards and Cloud Computing

Model Building

- SAP BusinessObjects
- PERVASIVE
- IBM
- KNIME
- R
- SPSS
- SAS
- Microsoft SQL Server
- Kxen
- MicroStrategy
- Salford Systems
- TIBCO

PMML

Predictive Model Markup Language Standard

Model Deployment Integration / Execution

Alternatively deploy ADAPA
- Amazon Virtual Private Cloud
- Private Cloud
- In-house
ADAPA® real-time decision management across systems and processes

- Business Process
- Data
- Applications
  - CRM, ERP, EXCEL, etc.
- Computer Systems
DynaMine – ADAPA Case Study: Mobile Scoring via iPhone

Request

Scores & Next Best Offers

PMML Modell Upload

DynaMine Data Mining Automation

Batch / Real-time Business Intelligence Hub

ERP

SCM

CRM

Legacy

Sonstige

Request
DynaMine NBO-Model-Training (based on KNIME)

NBO-Model Laptop Attaché

NBO-Model Desktop Hard Drive

NBO-Model Notebook Lock

NBO-Model Docking Station

NBO-Model Cordless Laser Mouse

NBO-Model Netbook Accessory Bundle
DynaMine ADAPA Model Manager

Connection Settings

- URL: https://ec2-79-125-51-199.eu-west-1.compute.amazonaws.com/adapaws/models
- Username: adapa@dymatrix.de
- Password: *******

Connect to ADAPA

Model Management

Existing Models:

<table>
<thead>
<tr>
<th>Modelname</th>
<th>Description</th>
<th>Nr. of Inputs</th>
<th>Nr. of Outputs</th>
</tr>
</thead>
</table>

Upload DynaMine Model

Upload any PMML

Delete Model
DynaMine ADAPA Model Manager [Model Upload]

Connection Settings

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Model Management

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<th>Description</th>
<th>Nr. of Inputs</th>
<th>Nr. of Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>cl_Product001</td>
<td>- keine Beschreibung hinterlegt -</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>cl_Product002</td>
<td>- keine Beschreibung hinterlegt -</td>
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<td>3</td>
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<tr>
<td>cl_Product004</td>
<td>- keine Beschreibung hinterlegt -</td>
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<td>3</td>
</tr>
<tr>
<td>cl_Product005</td>
<td>- keine Beschreibung hinterlegt -</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>cl_Product006</td>
<td>- keine Beschreibung hinterlegt -</td>
<td>12</td>
<td>3</td>
</tr>
</tbody>
</table>

Upload DynaMine Model
Upload any PMML
Delete Model
Zementis ADAPA – Registered DynaMine-Models

PMML File

Note: ADAPA attempts to upgrade and/or correct uploaded PMML files to version 3.2 as necessary.

Available Models

Name | Actions | Description | Creation Date
-----|---------|-------------|----------------
cl_Product001 | ✔️ | ✗ |
cl_Product002 | ✔️ | ✗ |
cl_Product003 | ✔️ | ✗ |
cl_Product004 | ✔️ | ✗ |
cl_Product005 | ✔️ | ✗ |
cl_Product006 | ✔️ | ✗ |

RPC Web Service Description (WSDL)

Score/Classify Data

Knowledge Base

Terms of Use

Zementis
DynaMine® – Fact Sheet (Abstract)

Pre-Processing
- Dynamic & automated identification of new input variables
- Automated role mapping of input variables (e.g. elimination of over-represented, redundant & irrelevant variables, missings, categorical variable having to many levels)

Adaptive Data Mining & Scoring System
- Automated evaluation of models
- Automated re-calibration if model quality differs
- “Pilot-on-the-fly“ for new models

Multi-Model Training
- Inter-Multi-Model training (one DynaMine-run for training/calibration of different models)
- Intra-Multi-Model training (training of different challenger models)
- Model configuration standards to assure comparability of multi-model score values

Model Management
- Monitoring & Reporting on model performance (comprehensive assessment metrics like Lift, ROC, Classification Matrix, ASE, etc.)
- Model Lifecycle Management
- Integrated Model Repository (PMML Code & Native Score Code)

Supported Data Mining Workbenches
- SAS Enterprise Miner® 5.x/6.x
- Microsoft SQL Server Analysis Services® 2005/2008
- KNIME 2.x, Angoss Knowledge Studio, IBM SPSS Modeler®

Real-time Interfaces
- Online-Scoring: Zementis ADAPA®
- Online-Training: Ensovis IFF (Realtime-Interface to SAP®)
- Any interface supported by the above mentioned data mining workbenches
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