



Creating Powerful Data Driven Insights

KPMG ESKAPADE Talkbook



Our Purpose



We help our clients to make **data driven decisions**. We do this by combining **artificial intelligence** with **sector knowledge and experience**.



Creating value through data driven insights

Determine which insurance claims can successfully be claimed back at other parties



Predict what part of the outstanding balance, e.g. on gift cards, will not be cashed



Determine which customers will go in payment arrears



Determine the highest-need location or object for pro-active maintenance



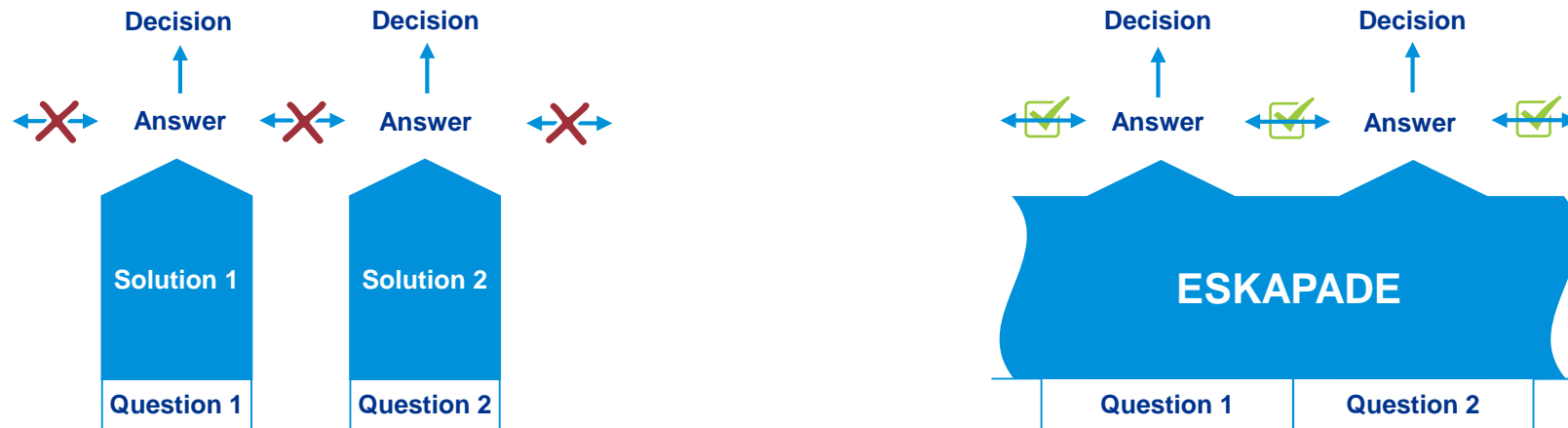
Determine which customers are most susceptible to return after churn



Recurring question:

What is the smartest allocation of resources or what action should be taken for which group?

Predictive analytics blueprint for the future



- New analyses faster into production
- Scalable computational and storage resources for analyses
- No inconsistencies between outcomes
- Uniform approach for monitoring, auditing, and maintaining analyses
- Analysis parts can be shared across solutions: no need for extra development

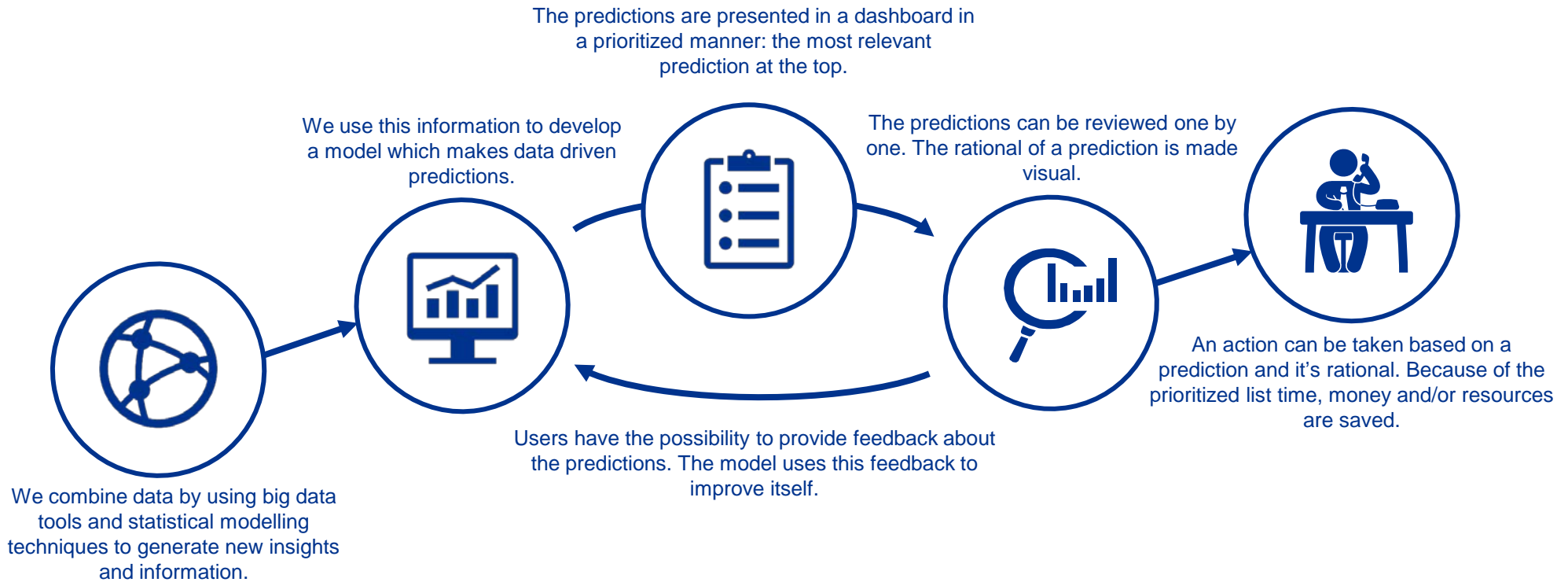
Data driven insights combined with human experience

Often, experts are capable of making the right decision based on experience and intuition. In addition, computer systems are nowadays able to process more information than human beings. We combine insights from both areas to extract the most relevant information. We do this by processing feedback from experts and the performance of our model. In this way we improve our model continuously.



How does ESKAPADE work?

ESKAPADE contains a self learning model because feedback from users, changing market circumstances and it's own performance are processed to improve the model. The figure below illustrates how the feedback from the users impacts the workings of ESKAPADE.



How does ESKAPADE work?

Our model is a self-learning model because it processes feedback from users, changing market circumstances and it's own performance to improve itself.

We need your knowledge and experience to give meaning to your data.

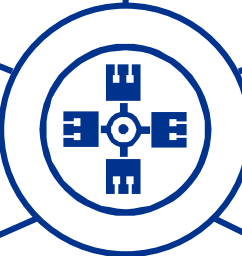
Our experienced data scientists develop statistical analysis.



We use the latest open source techniques to be able to process large amounts of data.



Our sector experts provide specific knowledge which will be processed in our model.



ESKAPADE

ESKAPADE as the basis for “Analytics-as-a-Service”

Developed analysis will always stay susceptible to control and maintenance: the most actual data must be processed and market circumstances and data sources can change. That’s why our data scientists control and monitor the developed analysis. The decision engine contains software components to make it easy to execute these controls and monitor activities. We provide in addition to these services also a web application to show the analysis results. We call these integrated services “Analytics-as-a-Service.”

A web application showing the predictions/action list in a prioritized manner. It is also possible to give your feedback about a prediction in this web application.

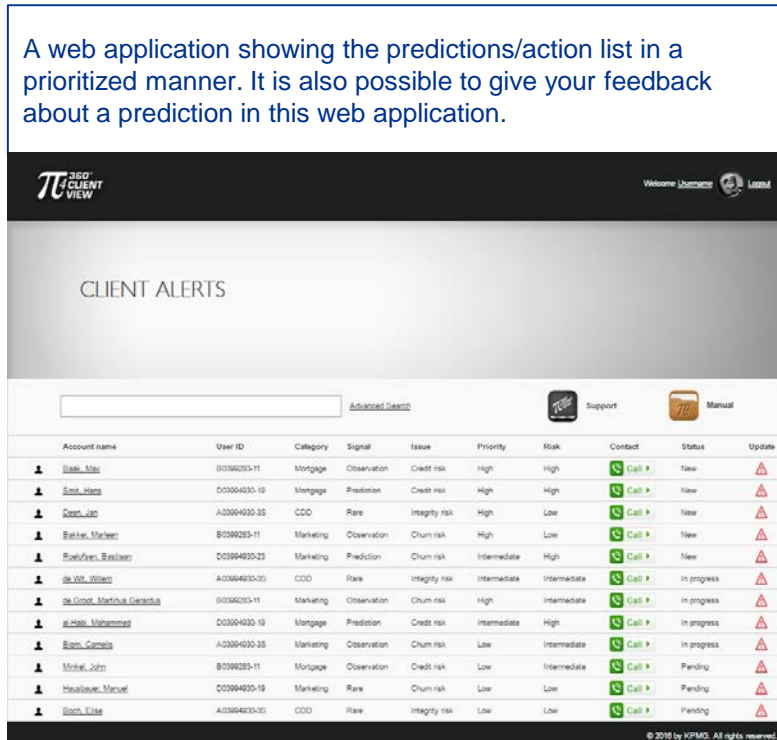


Figure 1: The Decision Engine shows clients in a sorted manner based on the change that some clients will gain liquidity problems.

An integrated business intelligence dashboard to make the rationale of a prediction understandable.

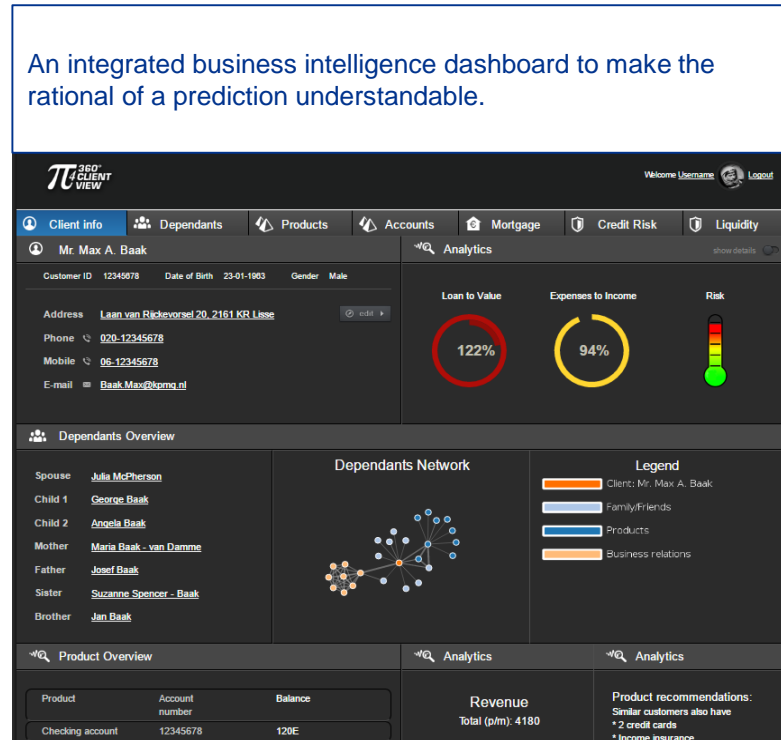


Figure 2: The Decision Engine offers the possibility to show a 360 degrees client view, with diverse information about the liquidity of a customer.

The “Technology Stack” of ESKAPADE

ESKAPADE is composed of several layers, the “Technology Stack”. The schematic view below shows the different components.



Web application

Our web application shows predictions in a clear way, adapted to your situations. It is possible to show multiple visualisations which give more background information on the rationale of a prediction generated by the decision engine. Users are able to provide feedback about the predictions which are used to improve the model.



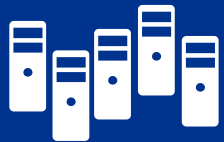
Decision Engine

The decision engine is a software application. We use this application to develop the self-learning and/or predicting algorithm. The application is able to take this algorithm in production making it possible to monitor vast amounts of data and to process the data batch-wise and real-time.



KAVE

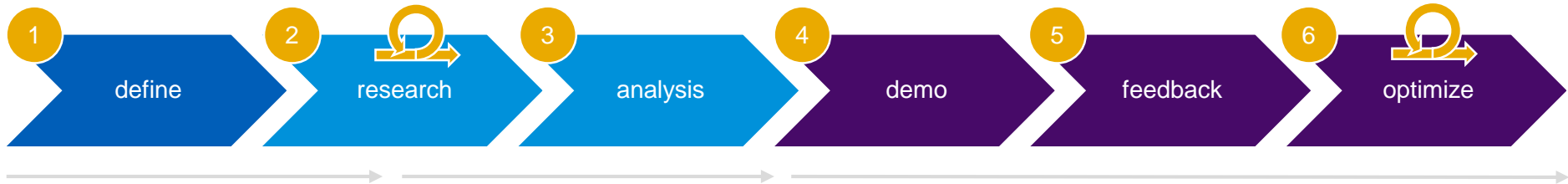
KAVE is our self-designed big data platform. KAVE includes all the components to perform scalable, manageable and cost-efficient (big) data analysis like data storage, analysis and software tools, web services and security guidelines. See <http://kave.io>



Hardware

The hardware, hosting KAVE and the decision engine, can be located in your own environment, at a third party or in the cloud.

Our Approach



Develop Value Case

1. A workshop, brainstorm session or small data exploration to create definitions about the events to predict or to find (risk, fraude). In the end, this is the information on which the data driven decisions are based to create more efficiency and focus.
2. Our data scientists start the data research. They will familiarize themselves with the data up to a detailed level and investigate the definition from step 1.

Step 1 and 2 are executed according to the agile methodology. As a result, the definitions from step 1 will become more fitting or more realistic because of the in step 2 accomplished results.

Result:
All required definitions to develop a Proof-of-Concept.

Develop Proof-of-Concepts

2. Our data scientists will look for information in the data about the in step 1 and 2 defined events using scientific and statistical. During this process, more than one data processing steps have to be developed usually. Then, a first version of the predictive model will be developed.
3. Optimization of the predictive model to achieve balanced and correct predictions

Result:
A first version of the model making the prioritized list of predictions/action list.

Implement “Analytics-as-a-Service”

4. Implementation of the model. New data will be processed and monitored by the decision engine. The users can view the predictions based on the new data in the dashboard.
5. Users are able to provide feedback about the predictions/information in the dashboard. The data scientists will configure the decision engine in such a way that it will use the feedback to improve the model.
6. The decision engine will be tuned in such a way that an optimal learning curve will be achieved. After this phase, the engine will be able to improve itself automatically. The user feedback and predictions made in the past will be taken into account to achieve this learning curve. After this phase, the engine will also be able to take changing market environments into account.

Result:
A trusted and tested model making a prioritized list of predictions/action list every time period (day, week, month) automatically. Het algoritme is zelf lerende: het leert van de gebruikers feedback en van de voorspellingen uit het verleden. De data wordt gemonitord en het model wordt geüpdate indien nodig (veranderende marktomstandigheden).

Our team



Max Baak
Chief Data Scientist

What do I add?

Max is chief data scientist in the Big Data & Analytics team of KPMG NL. Max has a lot of experience with processing and analysing big data sets, with developing and applying data analysis algorithms, and with leading analysis teams.

My background

Max his background is in the data-driven sector of experimental particle physics. He received his PhD working at Stanford and worked subsequently 8 years at one of the big CERN experiments. Max is interested in developing predictive analytics solutions. In addition, he advises companies how to become a data-driven organisation.



Martijn Gosselink
Data Scientist

What do I add?

Martijn is an expert in analysing, processing and modelling large amounts of data. He has a strong affinity with big data technology.

My background

Martijn holds a PhD in high energy physics and worked for several years as a researcher researching analyses and Monte Carlo simulations at CERN. At KPMG, he works as a data scientist and helps organisations to become more data-driven. He is proficient in identifying valuable information from transaction data from, among others, public transport, financial and telecom sector.



Roel Smits
Data Scientist

What do I add?

Roel is able to extract insights from data quickly. He is able to work with large amounts of data and is able to implement his algorithms in sustainable software.

My background

Roel studied applied physics and is graduated in the field of quantum mechanics. During his graduation project he developed advanced analytics algorithms. At KPMG, Roel gained experience with big data tools and machine learning. He developed predictive maintenance analyses and is developer of the decision engine.



KPMG sector expert



KPMG sector expert



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