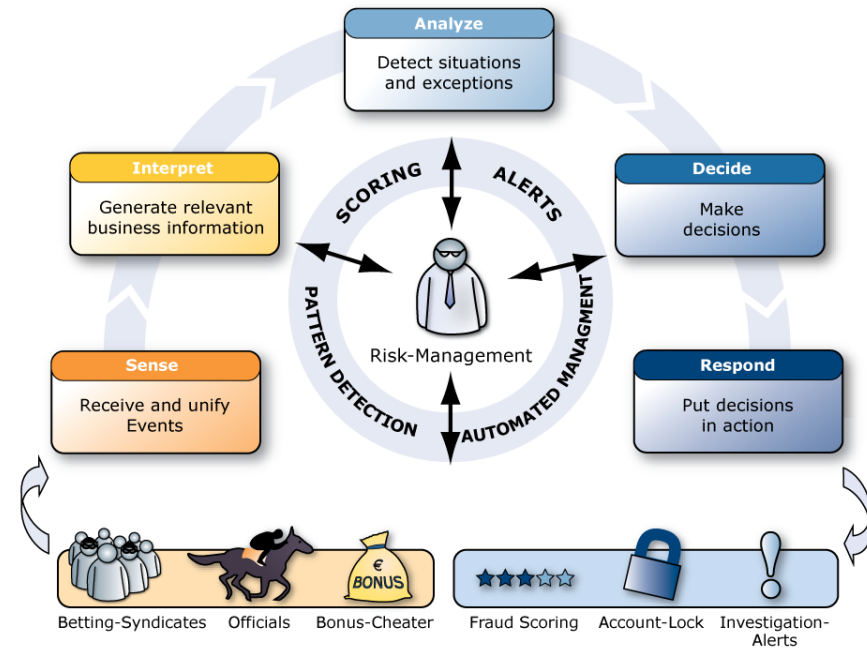


Event-Driven Business

Early fraud detection and active customer protection

CITT - 6th Expert Meeting for
BPM / BAM / CEP / SOA / EDA

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Agenda

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What are the challenges of early fraud detection and active customer protection?

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Applications in fraud prevention and customer protection

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Architecture and implementation

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Results and experiences

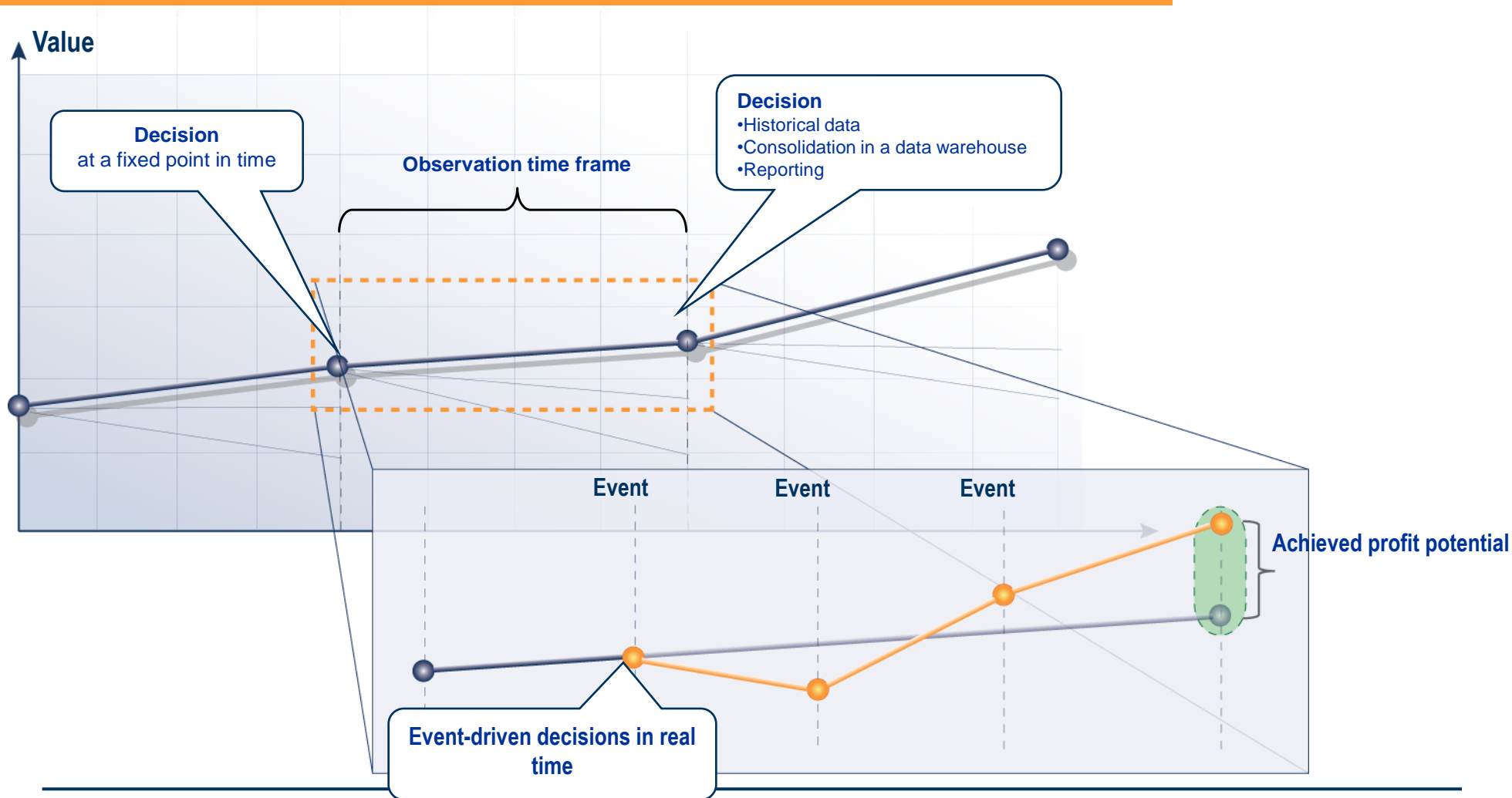


Addictive behaviour and fraud patterns are identified when bets are placed, and the necessary measures are automatically triggered

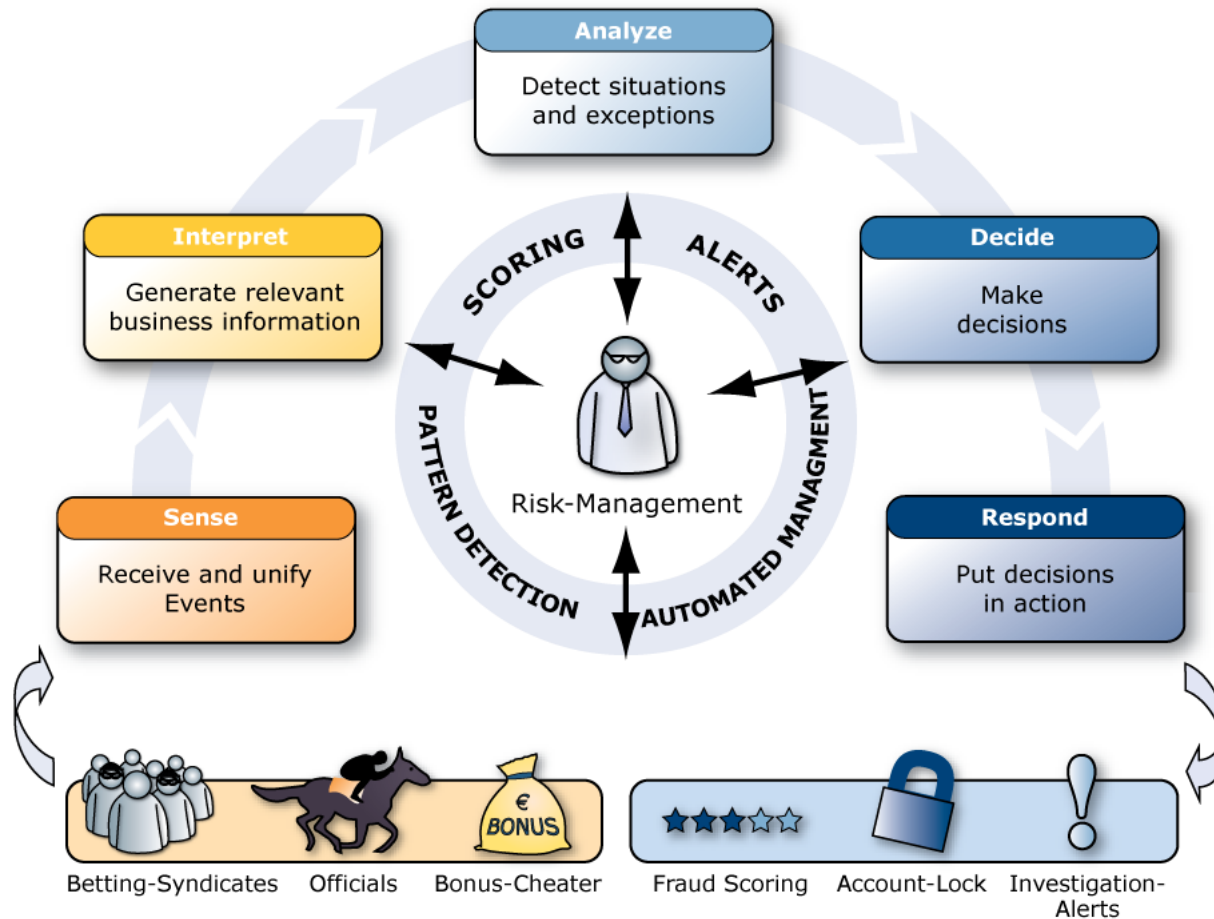
Range of challenges

- » **Early detection of fraud and addiction patterns**
 - » For individual users, customer groups and also for syndicates
- » **Automatic counter measures** when a fraud was detected
 - » Bets are not accepted, limiting bets, blocking customer accounts, triggering investigations, adapting odds...
- » **High volume of system transactions (= events)**, no impact on performance of gambling platform
- » User-friendly interface for the
 - » **Creating and adapting rules** for detecting fraud and addiction patterns
 - » **Integrating events from source systems** (gambling platforms, bookmaker tools, payment systems, content management systems, messaging systems, ERPs, e-commerce systems, call center systems, etc.)
 - » **Visualizing and analyzing historical data** about behavioural patterns of customers

What does „event-driven“ mean for fraud prevention and customer protection? Classic decision making processes vs. cycles in adaptive enterprises

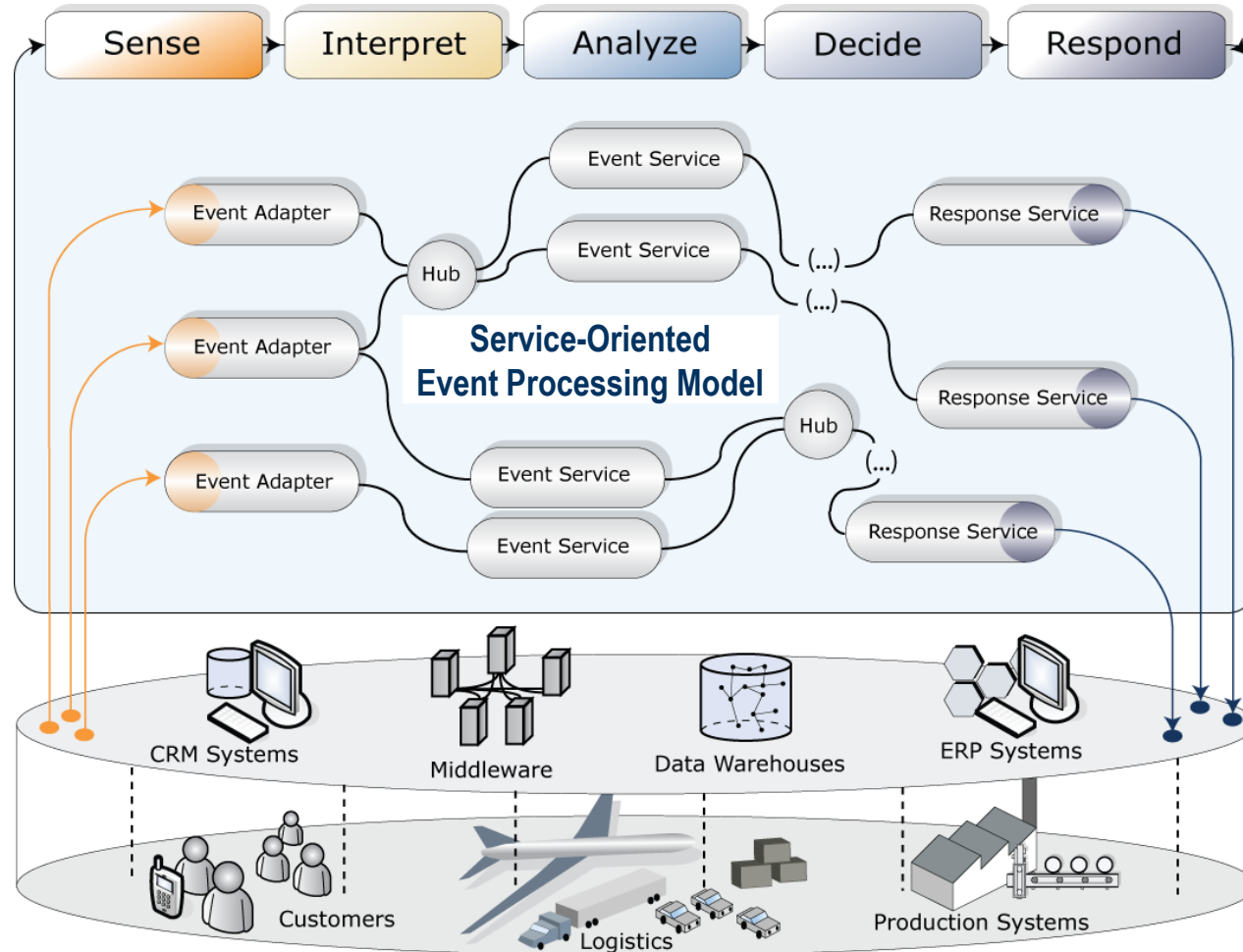


Events are processed in 5 stages of sense & response loops



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Event-driven business will be embedded into existing IT structures and processes



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Project approach and experiences

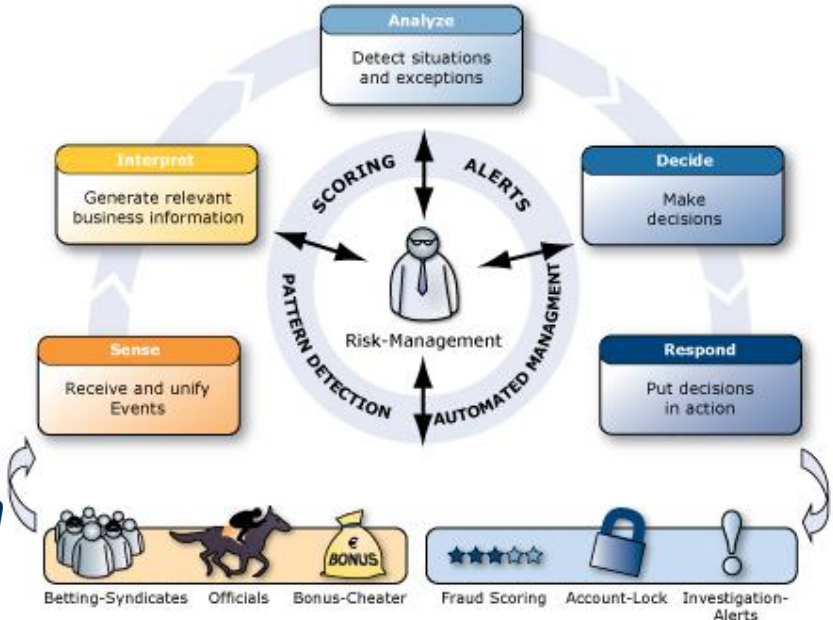


Applications for Real-Time Fraud Prevention



Application examples

- » *Betting syndicates*
- » *Money laundering*
- » *Bonus Cheater*
- » *Cash-In/Cash-Out Fraud Prevention*
- » ...



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Indicators to identify fraudulent or addictive behaviour

- » When do people play?
 - » Late at night, after salary payment, ...
- » How often do people play?
- » How much time do customers spend on the platform, in the casino, ...
- » How high is the stake?
- » How high is the risk / the odds (sport bets, keno, ...)
- » What kind of games and services are used
- » Limits
 - » Daily, weekly, monthly limits for bets, cash-ins, cash-outs, bonuses, etc.
- » Does the customer switch to other offers (other games, other bet types,...)
- » Credit rating and debts
- » Cash-in, cash-out behaviour
- » ...

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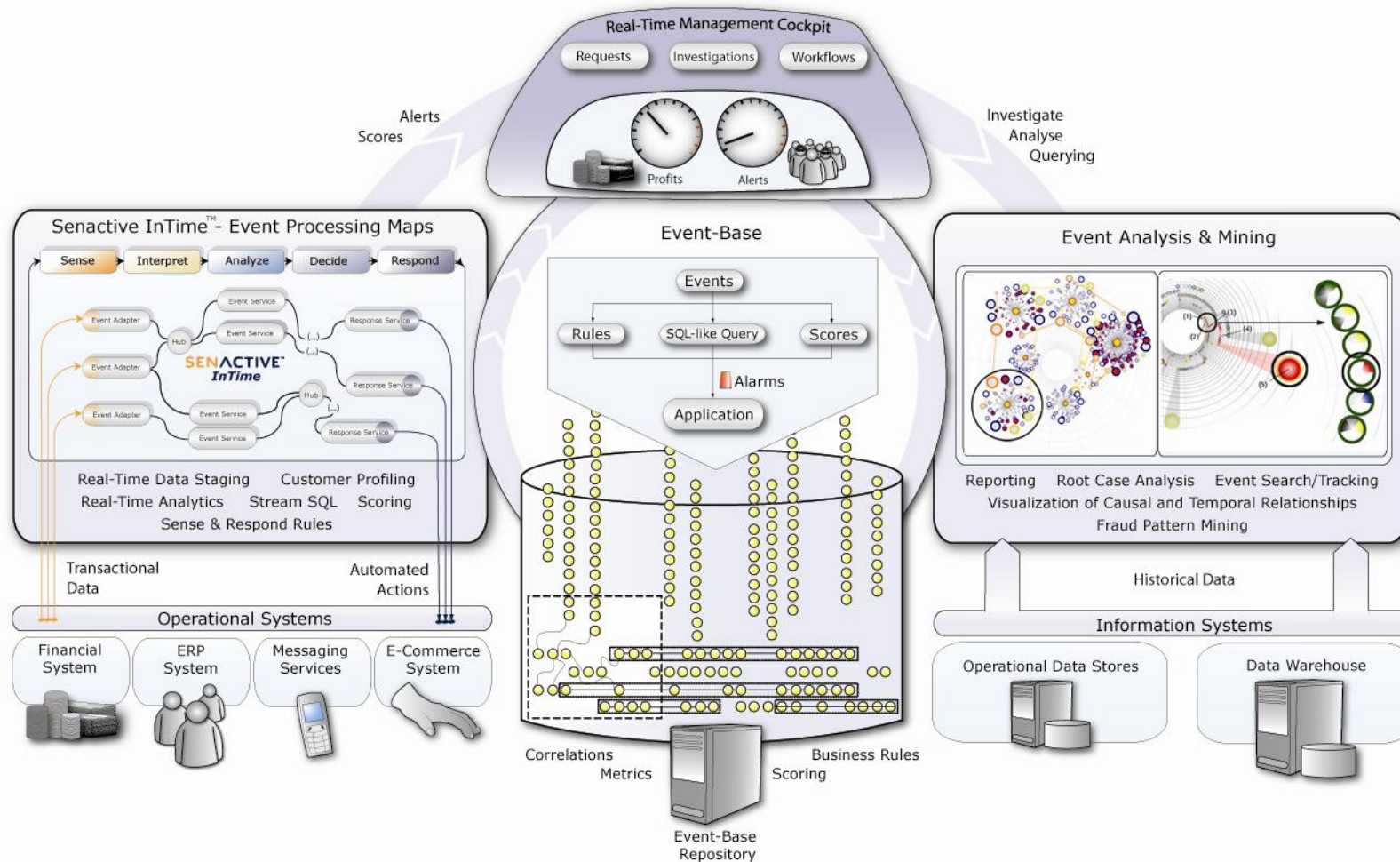
Architecture and implementation

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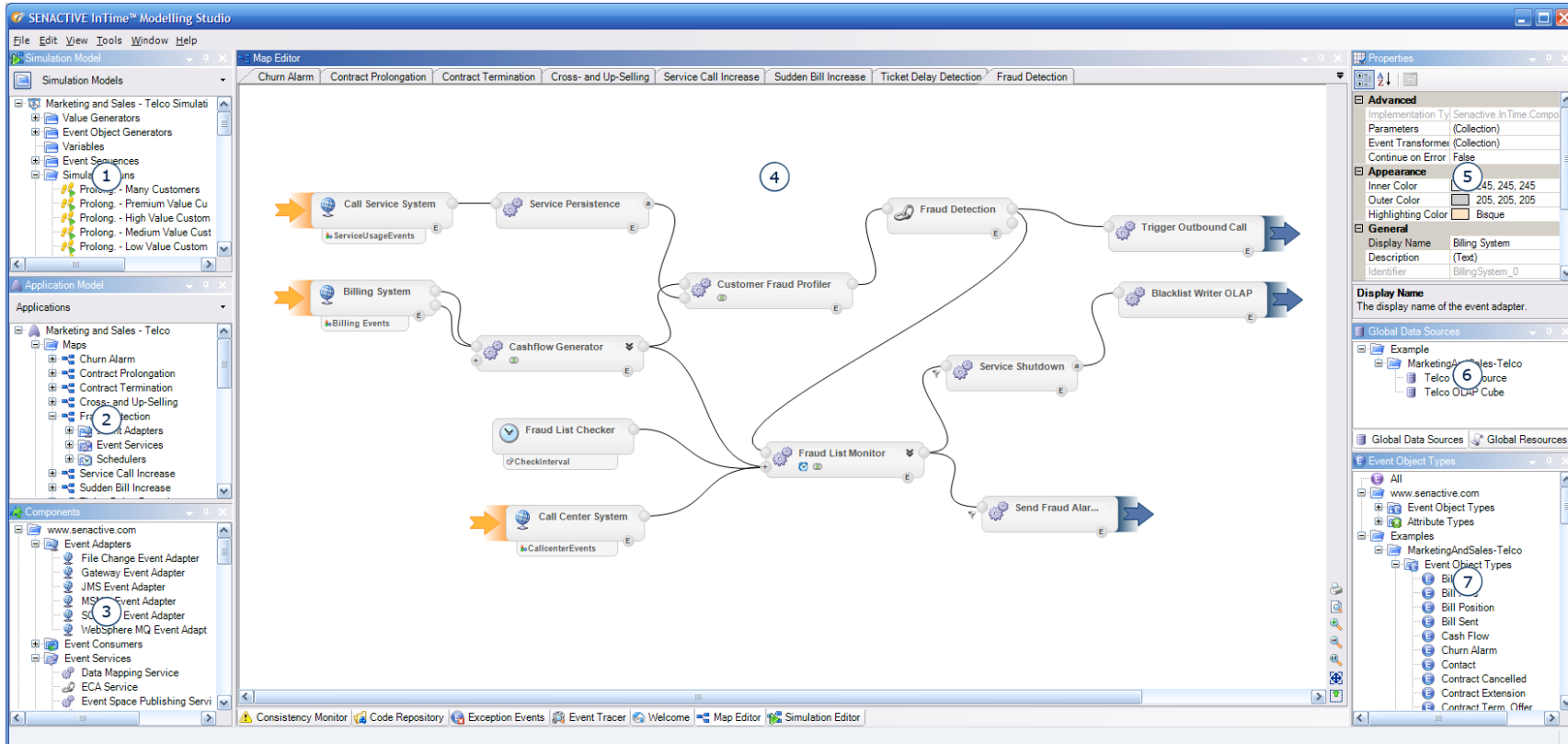
Results and experiences



Real-Time Event Processing & Event Analysis and Mining



Modelling sense & respond loops

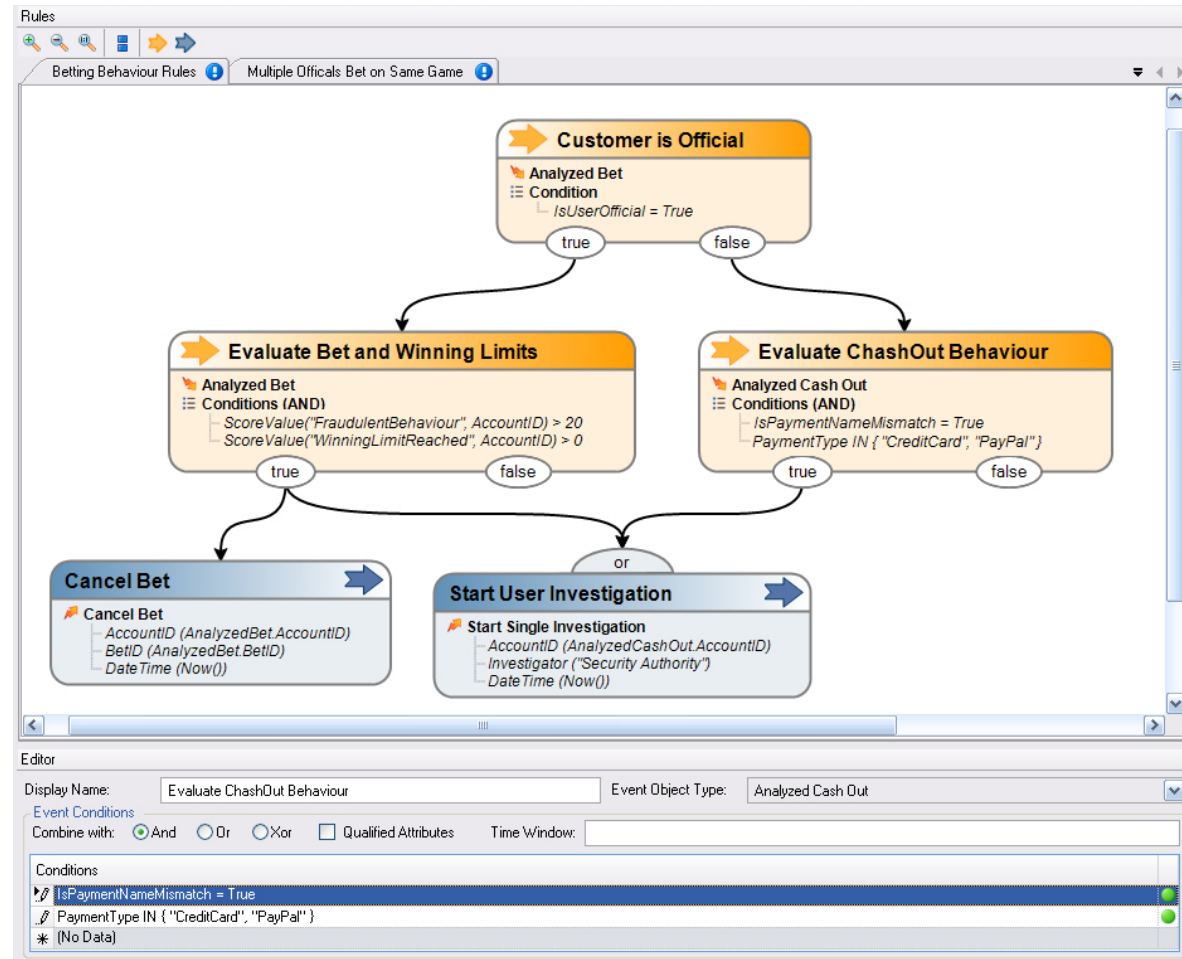


- ① Simulation model
- ② Elements of the current application
- ③ Component catalog (adapters, transformers, event services)
- ④ Modelling Studio workspace with drag-and-drop function
- ⑤ Parameter of the element currently being edited
- ⑥ Management of the database connections
- ⑦ Map-specific event types, SAP events, exceptions...

Graphical editor of business rules enables simple modelling of fraud situations

Advantages of a decision tree:

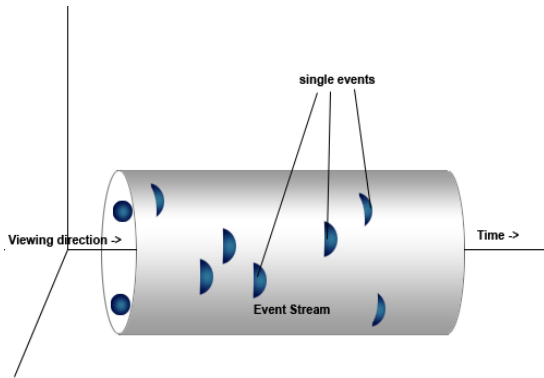
- » Event patterns and conditions are graphically depicted in the rule editor, making them easily understandable.
- » Complex decisions are clearly broken down.
- » The rule editor allows to use powerful functions for within decision trees (e.g. aggregation functions for time windows).
- » The rule editor automatically validates the correct syntax of the entered expressions via a green light.



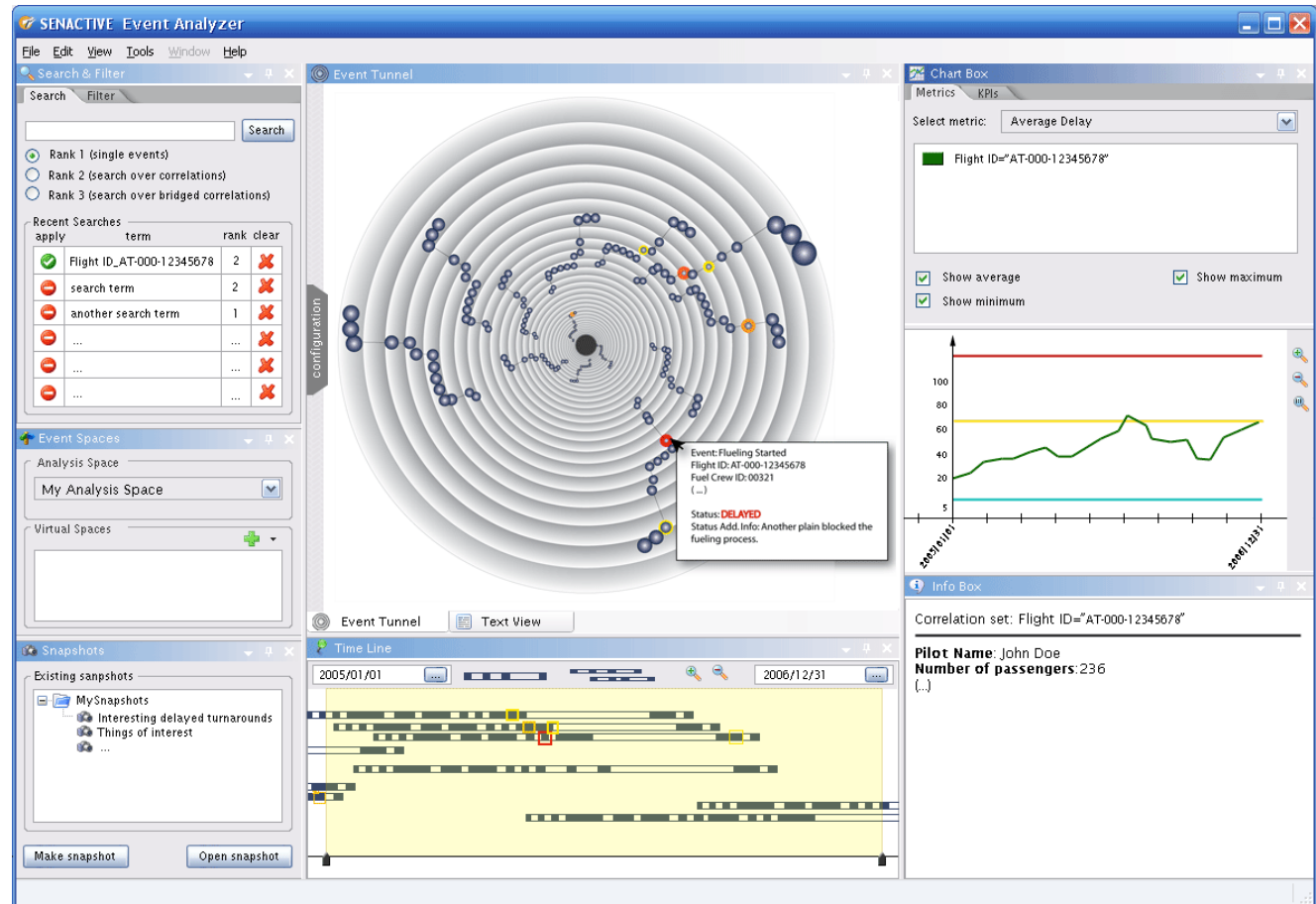
The example shows the real-time monitoring of limits and the identification of officials (athletes, referees, ...) by pay-out parameters (orange box) and the resulting actions that are triggered (blue box).

Business intelligence tool that makes simple analyses and visualizations of complex event streams possible

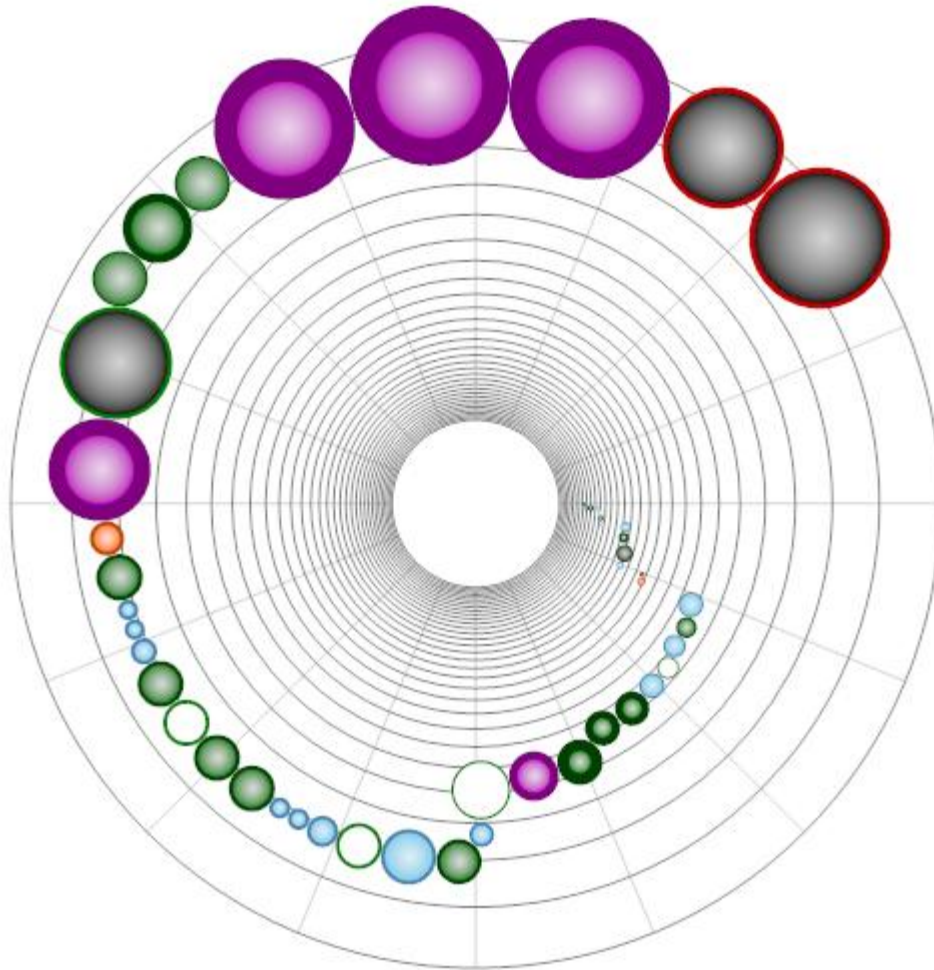
Historical events are viewed in a cylinder.



The reproduction of events in a tunnel enables the visual recognition of process patterns.



With color and size coding suspicious user behavior can be visualized by showing attributes of events in various ways



EXAMPLE: Gambling activities of a user

Size: Bet Amount

Border Size: Average stake

● Casino ● Gamesworld ● Lottery

Cash-In

Size: Cash-In Amount

○ Pre-Paid ● Credit card
○ Cash-In OK ● Limit reached

● Cash-Out FAILED

- » The user increases the number of bets and the average stake per bet
- » Change from Gamesworld and Lottery to Casino Games
- » Failed cash-in attempts with credit card

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Experiences of Fraud Prevention and Customer Protection Projects

- » Project duration 3 - 4 months
- » In the first 3 months, damages of fraud cases could be reduced by about 20%
- » The manual follow-up of fraud cases could be reduced by about 25%
- » Reduction of manual changes in odds and offers could be reduced by about 20%
- » For customer addictive behaviour we are not allowed to publish any results

SENACTIVE – The Real-Time Sense & Respond Company

Your partner to set your business into real time

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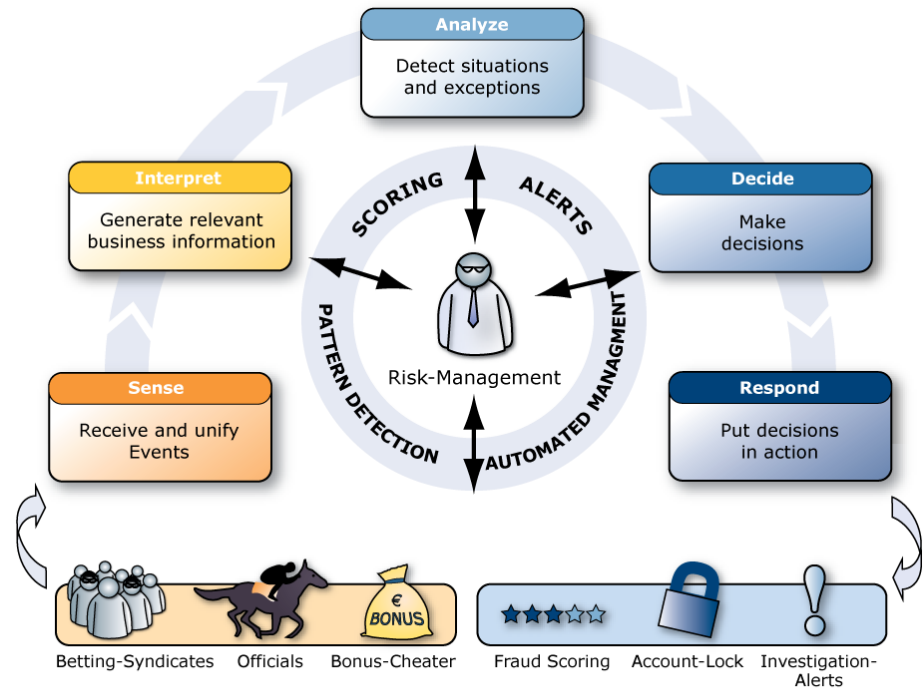
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