

Einführung in Oracle Real Time Decisions

Echtzeitentscheidungen für eine flexible Business Logik

Dr. Daniel Reinert

Stand: 24.06.2009

Agenda

- Einleitung
- Überblick über RTD
- Komponenten der RTD
- Decision Center
- Decision Studio
- Lernen und Vorhersagemodelle in der RTD
- Diskussion

- IT-Beratungsunternehmen
- 1994: Gründung
- ca. 90 Mitarbeiter (Informatiker, Mathematiker, Betriebswirte,...)
- Standorte:





Dr. Daniel Reinert

- Studium, Arbeit und Promotion in Mathematik an der Ruhr-Universität Bochum
- Seit November 2007 bei viadee als Berater tätig
- Schwerpunkte:
 - Analyse und Design
 - Business Rules Engines
- Aktuell im Telekommunikationsbereich beratend tätig
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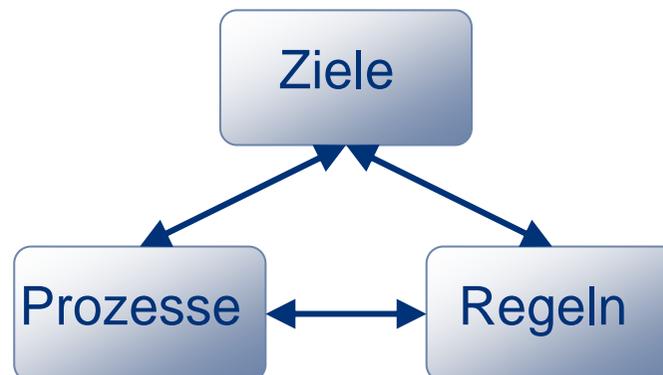
Agenda

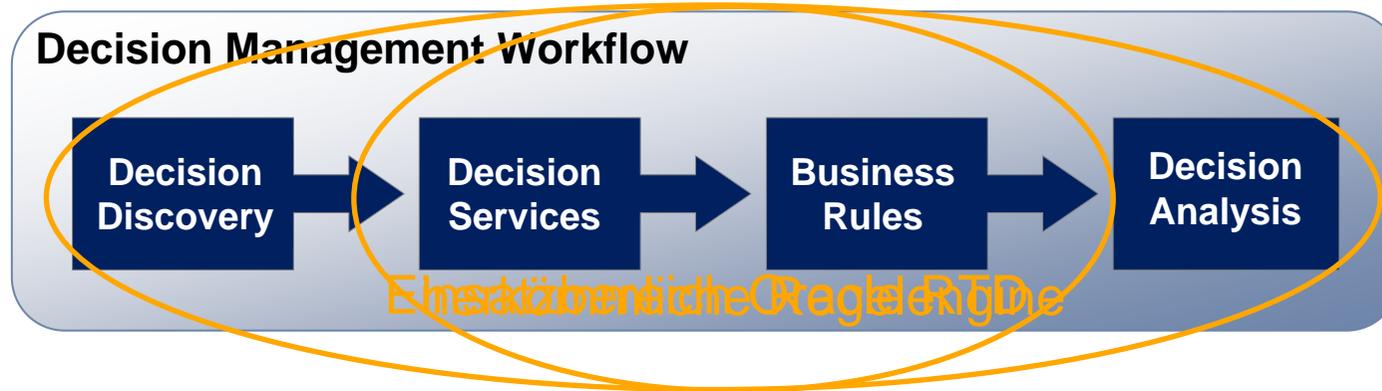
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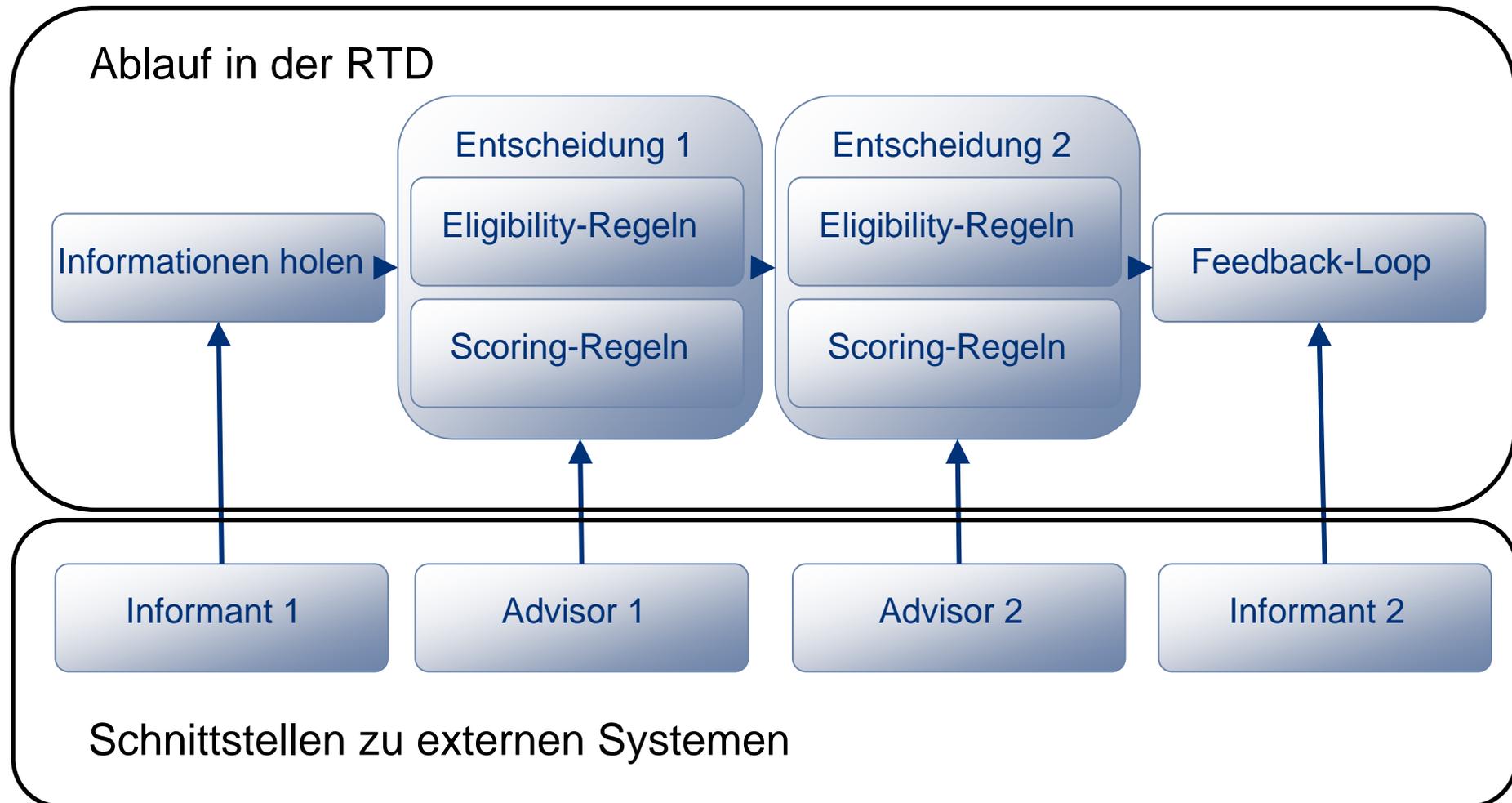
- „Real Time Decisions“ ist ein Geschäftsregel-System von Oracle:
 - Definition
 - Deployment
 - Ausführung von Regeln
- Wurde 2006 von Sigma Dynamics übernommen
- Teil von Oracles BI-Suite
- Technik: J2EE

- Prozesse und Entscheidungen sind Grundlage für den Erfolg eines Unternehmens
- Prozesse eines Unternehmens sind relativ statisch
- Die operativen Entscheidungen und ihre Grundlagen ändern sich häufig

⇒ Geschäftsregeln „intelligent“ verwalten

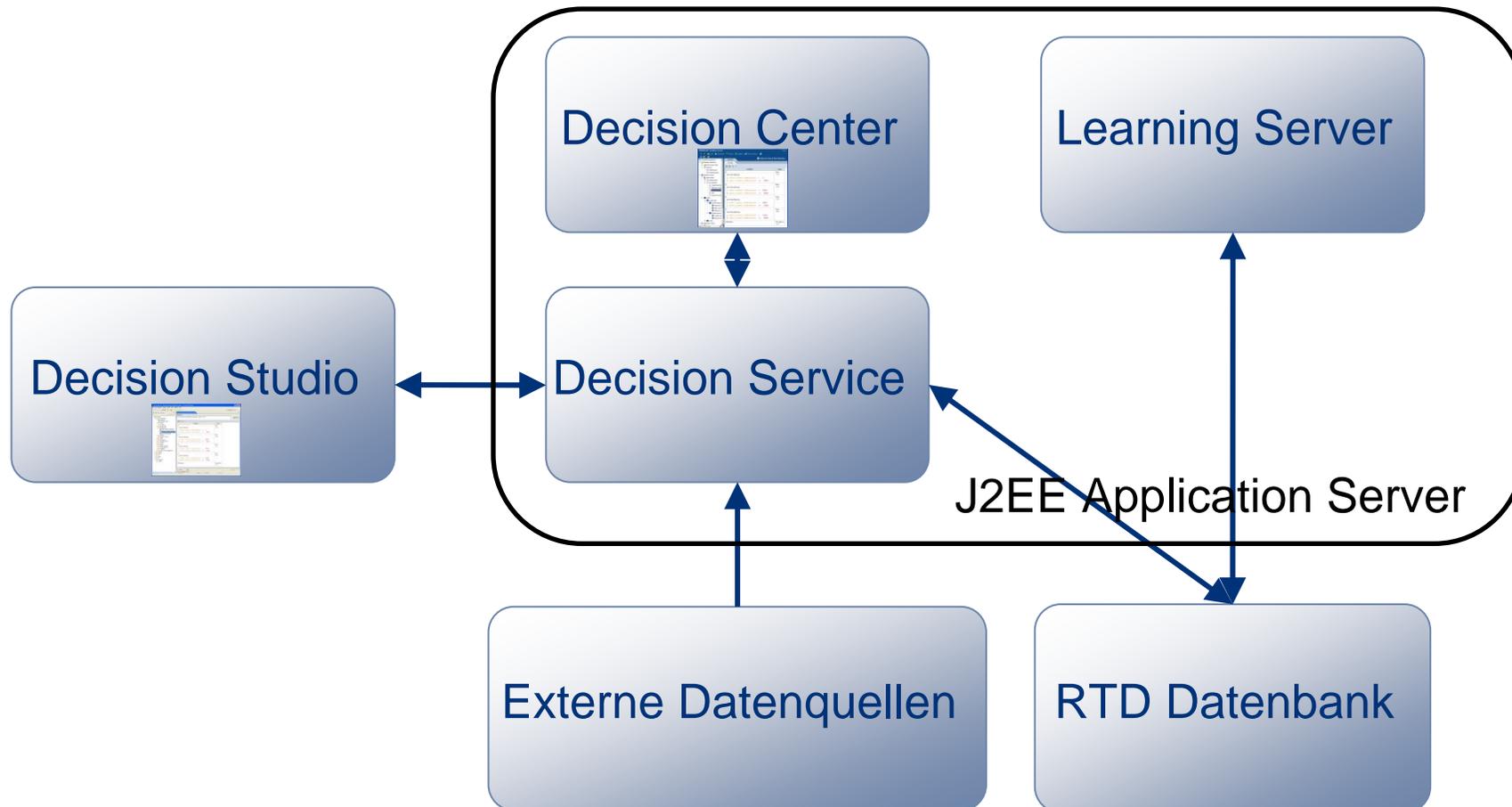






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- Weboberfläche
- Nutzer: Analysten und Fachanwender
- Konfiguration der Regeln
- Festlegen von Prioritäten
- Aufruf der Informants und Advisor
- Analyse der Entscheidungen
- Umfangreiches Reporting

Decision Center: Konfiguration der Regeln

The screenshot displays the Oracle Decision Center interface. The left sidebar shows a tree view of the project structure, including 'CrossSell (Development)', 'Strategic Objectives', 'Performance Goals', 'Decisions', 'Decision Process', 'Rules Library', 'Offers', and 'Integration Points'. The main workspace is titled 'Reduced Interest Rate Retention' and shows a 'Definition' tab with an 'Overview' view. The rule is configured as a series of 'If-Then' conditions based on 'CreditLineAmount'.

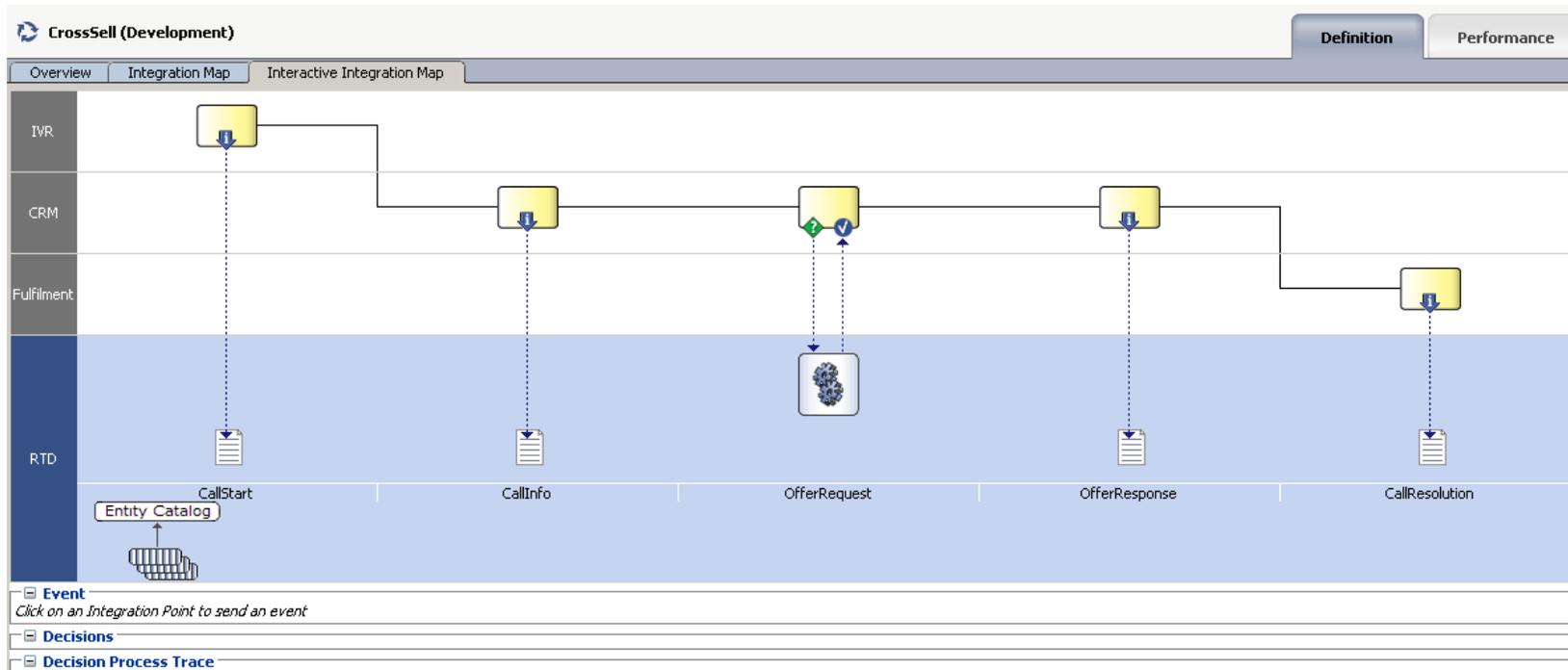
Condition	Value
If All of the following 1. <code>session / customer / CreditLineAmount</code> > 0 2. <code>session / customer / CreditLineAmount</code> <= 50000	Then 7.25
If All of the following 1. <code>session / customer / CreditLineAmount</code> > 50000 2. <code>session / customer / CreditLineAmount</code> <= 60000	Then 6.25
If All of the following 1. <code>session / customer / CreditLineAmount</code> > 60000 2. <code>session / customer / CreditLineAmount</code> <= 70000	Then 5.25
If All of the following 1. <code>session / customer / CreditLineAmount</code> > 70000 2. <code>session / customer / CreditLineAmount</code> <= 80000	Then 4.25
Otherwise...	The value is: 3.25

Decision Center: Festlegen von Prioritäten

The screenshot shows the Oracle Decision Center interface. The left sidebar displays a tree view under 'CrossSell (Development)' with categories like 'Strategic Objectives', 'Performance Goals', 'Customer Retention', 'Revenue', 'Decisions', 'Decision Process', 'Rules Library', and 'Filtering Rules'. The 'OfferDecision' is selected under 'Decisions'. The main workspace is titled 'Definition' and has tabs for 'Overview' and 'Priorities'. The 'Priorities' tab is active, showing a table with columns 'Segments' and 'Selection Function'. The table has two rows: 'Segment to Retain' and 'otherwise'. Each row has two columns for 'Customer Retention' and 'Revenue', each with a percentage value and a slider control.

Segments	Selection Function
Segment to Retain	Customer Retention: 70% Revenue: 30%
otherwise	Customer Retention: 30% Revenue: 70%

Decision Center: Aufruf der Schnittstellen



Decision Center: Analyse der Entscheidungen

The screenshot displays the Oracle Decision Center interface for the 'Credit Protection' model. The 'Analysis' tab is active, showing 'Report Settings' and a table of 'Highest correlating attribute values for Credit Protection'. The 'Report Settings' section includes a time window of 'Jul 1, 2003 - Sep 30, 2003', an offer acceptance level of 'Interested', and a channel of 'All'. The model quality is 82, and the count is 1324. The table below lists attributes and their correlation values, with a green bar indicating the correlation strength.

Count: 1324 Model Quality: 82

Attribute	Value	Correlation
customer CreditLineAmount	8000	
customer MaritalStatus	Divorced	
customer Age	47	
customer AvailableCreditAsPercentOfCreditLine	9 to 12	
customer Language	French	
customer Amount Of Pending Transactions	1801 to 2300	
customer DaysToDueDate	28	
customer NumberOfChildren	5 to 7	
customer LastStatementBalance	1001 to 1500	
customer MinimumAmountDue	201 to 250	

Export to Excel | Export to CSV

Decision Center: Reports

The screenshot shows the Oracle Decision Center Reports interface for the 'Miles Card' report. The interface is divided into three main tabs: 'Definition', 'Performance', and 'Analysis'. The 'Performance' tab is currently selected. Within the 'Performance' tab, there are two sub-tabs: 'Counts' and 'History'. The 'Counts' sub-tab is active, displaying a 'Report Settings' section and a 'Counts' table.

Report Settings

Time Window: Show Incomplete Time Window:

Channel:

Counts

Credit Products	Offer Acceptance Level	Count	%
Miles Card	Delivered	974	100% 
	Interested	68	7% 
	Purchased	7	1% 

Export to Excel | Export to CSV

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- Integriert in Eclipse
- Nutzer: Entwickler
- Entwicklung der Funktionen
- Festlegung der Schnittstellen
- Konfiguration der Regeln
- Test der Services

Decision Studio: Entwicklung der Funktionen

The screenshot displays the Oracle RTD Studio interface for configuring a function. The main window is titled "Inline Service - ShouldRespondPositively - Oracle RTD Studio". The "Inline Service Explorer" on the left shows a tree view with "ShouldRespondPositively" selected under "Functions".

The configuration panel for "ShouldRespondPositively" includes the following details:

- Description:** Should Respond Positively function.
- Return value:** Checked. Data Type: Boolean. Call Template: ShouldRespondPositively({0}). Negative Call Template: Not ShouldRespondPositively({0}).
- Parameters:** A table with one parameter:

Name	Type	Array	Type Restriction	Default Value
choice	Choice			

The **Logic** section contains the following code:

```
if (session().getCustomerPreferences() == null) {  
    return false;  
}  
String choiceName = choice.getSDOId();  
return session().getCustomerPreferences().contains(choiceName);
```

The bottom status bar shows "0 errors, 0 warnings, 0 infos".

Decision Studio: Festlegung der Schnittstellen

The screenshot displays the Oracle RTD Studio interface for configuring an OfferRequest. The main window is titled "OfferRequest" and contains several sections:

- Description:** A text area for describing the request, with an "Advanced..." button.
- Request | Response | Logic | Asynchronous Logic:** A tabbed interface for defining the request logic.
- Session Keys:** A list of session keys, currently containing "Session / customer / Customer ID". A "Select..." button is available.
- External System:** A dropdown menu set to "CRM".
- Order:** A text input field containing the value "3".
- Force session close:** A checkbox that is currently unchecked.
- Request Data:** A table with columns for Incoming Parameter, Type, Array, and Session Attribute. It contains one entry: "channel" (String, Array) with Session Attribute "Channel". "Add..." and "Remove" buttons are present.

The left sidebar shows the "Inline Service Explorer" with a tree view of the project structure, including folders like Application, Performance Goals, Choices, Offers, Filtering Rules, Scoring Rules, Decisions, Selection Functions, Entities, Data Sources, Integration Points, Informants, Advisors, External Systems, Functions, Models, Statistic Collectors, Type Restrictions, Categories, and Decision Center Perspectives. The "OfferRequest" node is selected under the "Advisors" folder.

The bottom status bar shows "0 errors, 0 warnings, 0 infos" and a table with columns for Description, Recurse, In Folder, and Location.

Decision Studio: Konfiguration der Regeln

The screenshot displays the Oracle RTD Studio interface. The main window is titled 'Reduced Interest Rate Retention' and shows a decision rule configuration. The left pane shows a project tree with 'Reduced Interest Rate Retention' selected under 'Scoring Rules'. The main area shows a table of conditions and their corresponding values.

Description: Scores Interest Rate Reduction for retention. Scale of 1 to 10.

Condition	Value
If All of the following 1. session / customer / CreditLineAmount > 0 2. session / customer / CreditLineAmount <= 50000	Then 7,25
If All of the following 1. session / customer / CreditLineAmount > 50000 2. session / customer / CreditLineAmount <= 60000	Then 6,25
If All of the following 1. session / customer / CreditLineAmount > 60000 2. session / customer / CreditLineAmount <= 70000	Then 5,25
If All of the following 1. session / customer / CreditLineAmount > 70000 2. session / customer / CreditLineAmount <= 80000	Then 4,25
Otherwise...	The value is: 3,25

Problems Test
0 errors, 0 warnings, 0 infos

Decision Studio: Test der Services

The screenshot displays the Oracle RTD Studio interface for configuring an 'OfferRequest' service. The main window is titled 'Inline Service - OfferRequest - Oracle RTD Studio'. On the left, the 'Inline Service Explorer' shows a hierarchical tree of project elements, including 'Application', 'Performance Goals', 'Choices', 'Offers', 'Filtering Rules', 'Scoring Rules', 'Decisions', 'Selection Functions', 'Entities', 'Data Sources', 'Integration Points', 'Informants', 'Advisors', 'External Systems', 'Functions', 'Models', 'Statistic Collectors', 'Type Restrictions', 'Categories', and 'Decision Center Perspectives'. The 'OfferRequest' service is selected under 'Advisors'.

The main configuration area is divided into several sections:

- Description:** A text field for the service description, with an 'Advanced...' button.
- Request | Response | Logic | Asynchronous Logic:** A tabbed interface where the 'Request' tab is active.
- Session Keys:** A list of session keys, currently containing 'Session / customer / Customer ID' with a 'Select...' button.
- External System:** A dropdown menu set to 'CRM' and an 'Order' field set to '3'. There is also a 'Force session close' checkbox.
- Request Data:** A table with columns 'Incoming Parameter', 'Type', 'Array', and 'Session Attribute'. It contains one entry: 'channel' (String, Channel). There are 'Add...' and 'Remove' buttons.

At the bottom, the 'Problems' window shows a 'Test' tab. The 'CrossSell' section is active, showing 'Integration Point' set to 'CallInfo' and 'Request Inputs' including 'CallInfo', 'CallResolution', 'CallStart', 'OfferRequest', and 'OfferResponse'. The 'channel' parameter is also visible in the 'Request Inputs' list.

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- Jedes Ereignis (Angebot bekommen, Produkt gekauft, Kunde interessiert, ...) kann in der RTD erfasst werden
- Mit Hilfe der anderen Parameter in der Session können Statistiken erzeugt werden, wie wahrscheinlich der Eintritt eines Ereignisses in der RTD ist
- Die Wahrscheinlichkeiten können in den Regeln zur Ermittlung der Entscheidung genutzt werden

Lernen in RTD: Konfiguration des Modells

The screenshot displays the Oracle RTD Studio interface for configuring the OfferAcceptance model. The main window is titled "Inline Service - OfferAcceptance - Oracle RTD Studio". The left pane shows a tree view of the project structure, with "OfferAcceptance" selected under "Models". The right pane shows the configuration details for the selected model.

Description:
The Offer Acceptance model gathers information about which offers were delivered and the customer either was interested or purchased the offer. It learns on this information to produce better offers.

Configuration Options:

- Use for prediction
- Default time window
- Algorithm: Regression
- Randomize Likelihood
- Time Window: Quarter
- Premise Noise Reduction

Choice Configuration:

- Choice Group: Offers
- Label for Choice: Offer
- Base Event: Delivered
- Label for Choice Outcome: Offer Acceptance Level
- Positive Outcome Events: Interested, Purchased

Integration Point: CallInfo

Request Inputs:

Name	
Customer ID	
channel	

Lernen in RTD: Zugriff auf die Vorhersage

The screenshot shows the Oracle RTD Studio interface. The main window displays the configuration for an offer named "Reduced Interest Rate Retention". The "Attributes" tab is active, showing a table of attributes. Two attributes are circled in orange: "Likelihood of Purchase" and "Predicted by OfferAcceptance:...".

Name	Category	Type	A...	T...	Inherit...	Value
Likelihood of Purchase	Targeting	Double				Predicted by OfferAcceptance:...
Message	Present...	String				
Price Margin	Targeting	Double				0.5
shouldRespondPositively	Present...	Boolean				ShouldRespondPositively(this)

The "Problems" window at the bottom shows the "CrossSell" integration point with "CallInfo" selected. The "Request Inputs" section lists "Customer ID" and "channel".

Lernen in RTD: Zugriff auf die Vorhersage

The screenshot displays the Oracle RTD Studio interface. The main window is titled 'Inline Service - OfferSelection - Oracle RTD Studio'. The left pane shows a tree view of the project structure, with 'OfferSelection' selected under 'Reduced Interest Rate Retention'. The right pane shows the configuration for the 'OfferSelection' rule. The 'Description' field is empty. Below it, a table defines the rule's logic:

Condition	Value
If All of the following 1. choice / Likelihood of Purchase > 0,3	Then 1
Otherwise...	The value is: 0

The condition '1. choice / Likelihood of Purchase > 0,3' is highlighted with a yellow circle. The bottom pane shows the 'Problems' and 'Test' tabs. The 'Test' tab is active, showing the 'CrossSell' integration point and request inputs: 'Customer ID' and 'channel'.

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Herzlichen Dank für Ihre Aufmerksamkeit.

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