Customer Inbound Contacts as Sales Opportunities

Selecting “Next best Action” proposals at ING-DiBa

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ING-DiBa at a Glance: „Deutschlands beliebteste Bank“

- More than 8.5 mn retail clients in the product categories savings, payment, loans and Investments.
- No branches. Digital leader.
- 11x in a row elected as Germanys most popular Bank („Deutschlands beliebteste Bank“ der Zeitschrift Euro). Continuously high Net Promoter Score (NPS of 70)
- A „Great Place to Work“: ING-DiBa belongs to the best 100 employers in Germany.

Customers ING-DiBa (mn) 2004-2017

![Graph showing the number of ING-DiBa customers from 2004 to 2017](chart.png)
From a Union‘s Bank to Germany‘s leading Digital Bank

1965

- 1965 founded as BSV Bank by the trade unions to support savings and pensions for employees.
- Branchless since launch.
- Letter and telephone have been the most relevant customer channels in these early days.

2018

- More than 50 years servicing clients without branches.
- 99% of our customer contacts now digital, with massive growth in mobile contacts.
- Smartphones as a „game changer“ in the retail banking industry to boost a purely digital business model.
Our two pillars of growth

- More than 1,3 mn new account openings in 2017
  - >550,000 new savings accounts
  - >350,000 new payment accounts
  - >200,000 new consumer loans
  - >120,000 new Investment products
  - …

- 40% of these new accounts were opened by new-to-bank clients,
- 60% by given clients.
- Cross-Selling in the given customer base therefore crucial for our success

**Acquisition of new-to-bank clients**

- >500,000 new customers p.a.
- Most relevant acquisition channels:
  - Member-get-Member
  - Search engines
  - TV and “direct type”
  - Comparison sites and affiliates

**Cross-Sell in the Customer Base**

- >700,000 account openings p.a. via cross-sell
- Most relevant channels for cross-sell:
  - Inbound Digital Channels (Internet banking + mobile)
  - E-Mail
  - Inbound Calls
  - Direct Mail (paper based)

**My focus of today’s presentation**

- Use of new to bank clients
- Use of cross-sell
- Use of acquisitions

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Available Channels for Cross-Sell Activities in the Customer Base

**Digital/mobile inbound Channel**
- >300 mn contacts p.a.

**E-Mail**
- >50 mn contacts p.a.

**Direct Mail (paper based)**
- >5 mn contacts p.a.

**Inbound Telephone (when clients dial in)**
- >3 mn contacts p.a.
Shift from outbound to inbound sales...

- The "traditional" offline customer sales strategy: OUTBOUND sales contacts, initiated by the bank

- The digital online customer sales strategy: Using INBOUND contacts, initiated by the customer, as sales opportunities

The "traditional" offline customer sales strategy:

The digital online customer sales strategy:

Outbound Sales Contacts
(direct paper mails) (mn)

Customer inbound contacts (mn)
Challenge OUTBOUND:
- Select the “best” customers (with highest propensity-to-buy) for a given product (mail) offer.
- “Which are “best” clients to offer product 1?”
- Calculation of propensity-to-buy using predictive modeling (regression etc.)

Challenge INBOUND:
- Select the “best” product offer for given client contacts
- “Which is best product to offer when customer 1 contacts us?”
- Calculation of “Next best Action” models

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**Outbound: Product View**

<table>
<thead>
<tr>
<th>Product</th>
<th>Product 1</th>
<th>Product 2</th>
<th>Product 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5%</td>
<td>0.5%</td>
<td>2.9%</td>
<td></td>
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<tr>
<td>2.6%</td>
<td>0.9%</td>
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**Inbound: Customer View**

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Selecting „Next best Action“ for Inbound contacts: 3 steps

When contacting our clients with a certain sales related information, we run through a selection process of three steps:

- **Step 1**: Identify customers with high likelihood to buy (per product).
- **Step 2**: Forecast channel usage for every client. Which clients will visit us inbound (therefore no need for a direct mail)?
- **Step 3**: Bringing Product and Channel together; defining an “optimal” sales channel mix.

### Step 1: Identifying Likelihood to buy per product and client

<table>
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<tr>
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<th>1</th>
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### Step 2: Forecasting Inbound Channel Usage for all Clients

<table>
<thead>
<tr>
<th>Email</th>
<th>Direct Mail</th>
<th>Internet Banking + Mobile</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%</td>
<td>30%</td>
<td>10%</td>
</tr>
<tr>
<td>100%</td>
<td>80%</td>
<td>0%</td>
</tr>
<tr>
<td>0%</td>
<td>20%</td>
<td>100%</td>
</tr>
<tr>
<td>100%</td>
<td>0%</td>
<td>0%</td>
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### Step 3: Managing and optimizing channel mix

- Email Contacts
- Direct Mail Contacts
- Internet Banking + Mobile Contacts
Step 1: Identify customers with high likelihood to buy

- **Variables used**
  - Dependent Variable: Product opening (binary target variable)
  - Independent Variables: all client data on accounts, channels, balances, tenure,…

- **Methods used**
  - Logistic Regression technique still delivers stable and decent results...
  - …but Machine Learning algorithms like Random Forests and Gradient Boosting continuously show higher model performance.

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**Example for a comparison of model performance**

<table>
<thead>
<tr>
<th>Method / Algorithm</th>
<th>Area under ROC curve (AUC)</th>
</tr>
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<tbody>
<tr>
<td>Simple log. Regression w/o data transformation</td>
<td>0.65</td>
</tr>
<tr>
<td>Log. Regression incl. Modelling of non-linear effects; splines, bins etc.</td>
<td>0.71</td>
</tr>
<tr>
<td>KNN Nearest Neighbor</td>
<td>0.70</td>
</tr>
<tr>
<td>Decision Tree</td>
<td>0.69</td>
</tr>
<tr>
<td>Random Forest</td>
<td>0.73</td>
</tr>
<tr>
<td>Gradient Boosting</td>
<td>0.74</td>
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Step 2: Forecasting channel usage for every client and define preferred communication channel

- **(2a) Estimation of customers’ channel usage**
  - ...Forecast likelihood that clients...
  - ...enter the web page with the forthcoming 14 days,...
  - ...will use our app or use mobile banking...
  - ...will open an email when receiving
  - This forecast is mainly driven by customers’ past channel behavior.

- **(2b) Definition of banks’ channel priorities**
  - Most (cost) efficient channels has highest priority..
  - ...our first priority is the digital inbound channel...
  - ...followed by email and telephone.
  - If none of these channels is available, last option to contact a client is the direct mail
Campaign Management in the Age of "Big Data": Embedding Sales in a Real-time Environment

1. Preselected and Near-time data
   E.g. behaviour and sales scores from predictive modeling

2. Real Time data
   E.g. client behaviour during web session (BigData), session data, placementID, account information (IBBR).

3. Rules and Selection
   All data is used to define which sales or service signals clients see during web session

4. Client contact
   Sales and Service signals go live

Rule Engine
Administration by Customer Intelligence

Big Data
IBBR
SAS
Successful Cross-Selling is a crucial part of ING-DiBa's growth story.

Digital Inbound contacts grow massively and generate an opportunity for cross-sell.

We use inbound contacts for sales offers when possible but still send direct mails when needed.

We generate a channel mix that reflects both customers' product and channel preferences.

Summary: Inbound Contacts as Sales Opportunities