Analytical CRM

Three Types of CRM

• Operational: automation of customer-related business processes such as marketing, sales, and customer service

• Collaborative: provides channels for communication with customers (email, video conferencing, internet)
  - different customers may require (prefer) different communication channels

• Analytical: provides understanding of customer behaviour through in-depth analysis of customer data

Analytical CRM

Traditionally, companies focused on operational CRM

• Problems: separate systems and databases that do not share information

• Analytical CRM consolidates customer data across the enterprise and provides unified view of the customer

• Objective is to increase customer profitability through better understanding of customers.
Analytical CRM process

Data Collection → Integration → Analysis → Action

- Collection: Collect customer-related data from
  - customer touch-points
  - operational systems
  - application forms, reports
  - external data sources (credit agencies, marketing agencies).

Data and data sources

- Data from customer touch-points
  - enquiries, complaints, transactions
    - which communication channels customers use
      (phone, fax, internet, mobile, telex, mail, e-mail, TV, magazines, ATM, reps, print media, etc).

- Demographic/geographic data
  - age, geographical location, income etc. to target promotional campaigns at specific segments of customers

- Transaction data
  - Point of sale input, POS product data and customer data from credit cards and other customer ID cards (fly buys)
  - Data from invoices, airline tickets, orders – can be collected from many different transaction processing systems (legacy, ERP, documents, etc.)
Data and data sources: transaction data

- data about what your customers are purchasing
- can be used to predict future purchases
- allows us to target promotional campaigns more effectively
- provides information about time, location, etc

Data and data sources: transaction data

- Data from order-processing systems
  - Which customers are ordering and which are not?
  - What products do our customer order
  - What percent of our customers are bad risks?
  - What are the paying habits of our customers?

(Zikmund, 2003)

Data and data sources: online interaction data

- Internet clickstream data
  - records every page that the customer saw leading up to a decision
  - provides information on customers’ decision processes and the navigational steps they took to find what they desired (Fayyad, 2003)
- Interactions through wireless devices, and more
Data and data sources: external data sources

- Governments’ public records
- Data suppliers: credit agency, demographic data vendors
- Competitors (competitive intelligence)

Analytical CRM process

- Integration:
  - consolidate and integrate collected data into a central repository
- Analysis:
  - analysis of data in the repository including customer profiling, customer profitability, customer retention, customer segmentation etc.
- Action:
  - develop business processes and organisational structures to leverage the derived knowledge

Data Analysis

- “When it comes to data, many multichannel retail businesses face an embarrassment of riches. What’s missing is timely, actionable insight” (Fayyad, 2003)
Technologies for Analytical CRM

- Data warehousing, OLAP and Data Mining are main technologies for analytical CRM
- Data warehouse provides data infrastructure for analytical CRM

Architecture for Analytical CRM

- Customer Data Warehouse
- Operational systems and external info
- Prediction and discovery: Data Mining
- Analytical analysis: OLAP, Query, Reporting
- Customer contact points

Technologies for Analytical CRM

Data warehousing, OLAP, and Data Mining provide an
- integrated
- reliable
- historical
- analytical

unified view of each customer.
DW and Analytical CRM

- **Integrated:** DW integrates customer data collected from across all customer touch-points and systems.
- **Reliable:** With the emphasis on data quality in a data warehouse, it can provide a reliable view of customers.
- **Historical:** Historical data in DW facilitates analysis of customer behaviour over time.
- **Analytical:** Data warehouse facilitates analytical information processing.

Extracting Information from Data Warehouse: analysis tools, delivery systems

- Query and reporting tools.
- On-line analytical processing (OLAP)
- Data Mining
- Visualisation

On-line analytical processing (OLAP)

- OLAP is a technology that provides
  - multidimensional views (cubes) of data
  - sophisticated query and analysis capabilities
- It allows users to analyse the data using simple windowing techniques.
On-line analytical processing (OLAP)

• OLAP, reporting, query
  Allow exploration of existing customer data, typically by
  – transaction
  – location
  – product
  – time

Analysis of Customer Data

• Data mining, or knowledge discovery, is the process of discovering valid, novel and useful patterns in large data sets

Example pattern from market basket analysis:
If bread then milk and bananas
If income is High then risk is Low

Customer analytics

• Targeted marketing
  – propensity models (e.g., sell, cross-sell and up-sell)
• market basket analysis
• trend analysis
• market segmentation
• risk analysis
• customer retention
• customer behavior
• customer value modeling
• clickstream analysis
• and many more..
Analytics success story: “super models: using analytics to increase sales”

- large bank in US
- goal: Increase adoption of online banking
- marketing campaigns are expensive: typical response rate 1-2%
- they used analytics to identify characteristics of existing online banking customers
- developed propensity models identifying offline customers who have the characteristics
- Initial campaign 2000 customers (one group selected using the models second without)

<table>
<thead>
<tr>
<th>Customer response rate</th>
<th>Acquisition cost per customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>postcard</td>
<td>letter</td>
</tr>
<tr>
<td>Untargeted marketing</td>
<td>1.2%</td>
</tr>
<tr>
<td>Targeted marketing</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

• The targeted campaign reduced the bank’s cost of acquisition by over 80%.

Closed-Loop CRM

Using knowledge obtained from analytical CRM, collaborative and operational CRM can provide better customer service and more efficient processing
Close-Loop CRM

- Develop closed-loop CRM processes to share knowledge obtained as a result of customer data analysis with all relevant business units
- The information obtained through customer analytics must be readily available to all customer interaction points
- Develop strategy and processes for leveraging this knowledge

Integrated CRM architecture


References

Zikmund, R., McLeod, R., Gilbert, F. “Customer Relationship Management, Integrating Marketing Strategy and Information Technology”,

Berry, M. and Linoff, G., Data Mining Techniques for Marketing, Sales, and Customer Support

Snehota J., 2003, Customer Analytics Making the Difference in CRM, DM review


Fayyad U., 2002 Optimizing Customer Insight, May 2003, intelligententerprise.com

Fulcrum analytics, Super Models using analytics to increase sales (www.fulctrumanalytics.com)
Analytical CRM and Business Intelligence

- The key element of analytical CRM is customer intelligence.
- Customer intelligence has been described as “a subset of business intelligence that refers to the tools and strategies for collecting, analyzing, and leveraging customer information” (Nemati and Barko 2001).
- Any comprehensive CRM strategy must include the key business intelligence technologies: data warehousing, OLAP, and data mining.
- Analytical CRM applies BI technology to customer data.