

# Data Mining Techniques

## Chapter 2: The Virtuous Cycle of Data Mining

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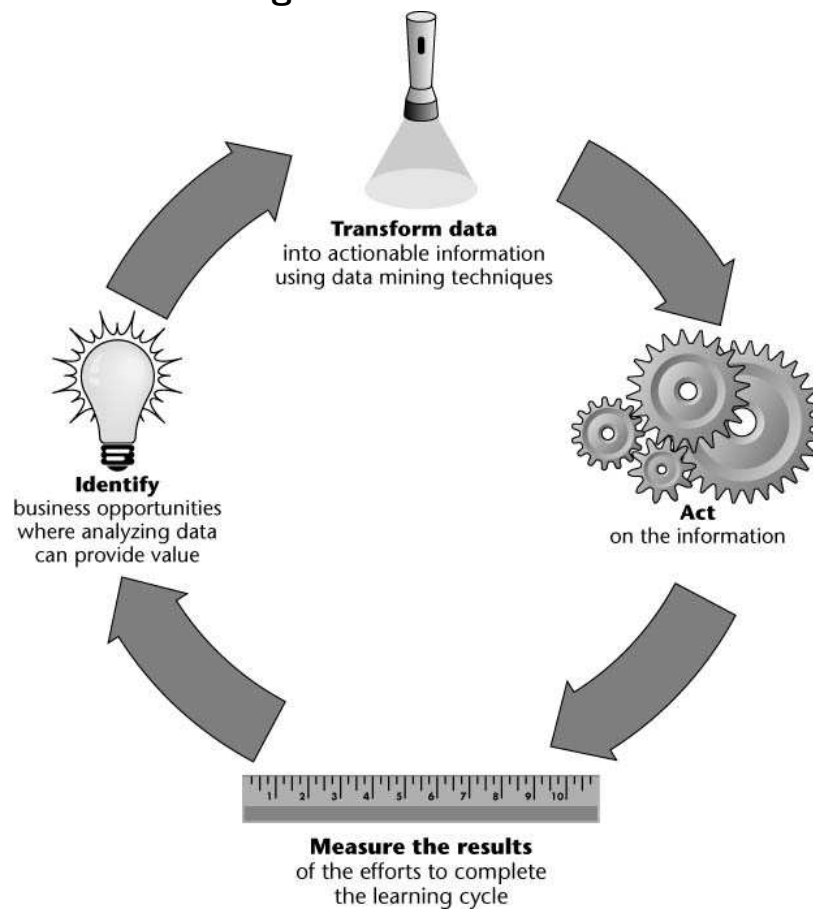
## Iterative learning process

- Focus is actionable results of DM, not DM itself.
- Case studies:
  - p. 22–25 on home equity credit lines (increase response rate from 0.7% to 7%);
  - p. 34–39 on wireless phone service (increase response rate 3% to 15%);
  - p. 39–42 on sport-utility vehicles.

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## Virtuous cycle of data mining



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## Virtuous cycle of data mining

1. Identify opportunities:
  - enhance existing business processes;
  - effect of proposed changes must be measurable;
  - communicate with business/functional area experts.
2. Data mining to transform data into information:
  - potential pitfalls include bad data formats, unclear data definitions, too rigid computer systems or forms, legal concerns, organizational inflexibility, lack of timeliness.
3. Act on information:
  - DM results feed into business processes.
4. Measure results:
  - allows continuous improvement.

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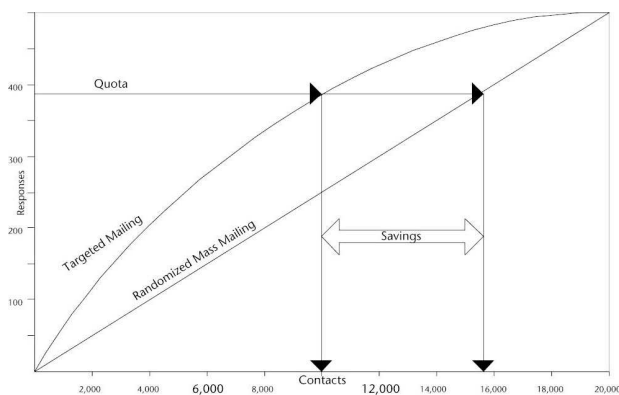
## Cumulative gains or lift

- Apply DM tool (e.g., neural network or decision tree) to training sample with input variables and a target variable:
  - need useful input data (ask experts).
- Obtain model scores (e.g., predicted response probability):
  - Apply scores to validation sample to rank customers.
- Lift chart plots cumulative responses (vertical) versus cumulative contacts (horizontal): see next slide.

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## Lift chart



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