Supply Chain Analytics

Lecture 4: Introduction to Supply chain analytics

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EXPERIENCE

- Ernst & Young – Depreciation Studies, Excel, Access
  - Time value of money
  - VBA, Data Quality, Change Control
- Guaranty Bank – Access
  - Audit work, data analysis
- We Energies – ACL
  - Run a program
    - Data Analysis
    - Continuous Monitoring
- Associated Bank – IDEA
  - Build a Program
    - Data Analysis
    - Continuous Monitoring

PITFALLS IN BUILDING A PROGRAM

- In hindsight, some things could have been done more efficiently.
  - Associated Bank subscribes to the CEB-Corporate Executive Board (Gartner).
  - CEB has created several guidance and framework documents around data analytics and continuous monitoring.
  - The following slides discuss some of the missed opportunities we experienced in the context of selected excerpts from the CEB analytics documents.

PITFALLS - 1

1. Define analytic objectives
    a. Success Criteria
        i. A prioritized list of analytic objectives.
        ii. Greater understanding of data analytic applications within the audit function.
    b. Red Flag
        i. Overemphasis on technology rather than capabilities that analytics can help improve.

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    b. Red Flag
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We got the technology first and did not prioritize objectives until later.

PITFALLS - 2

2. Assess talent needed to meet your objectives.
    a. Success Criteria
        i. A list of necessary skills to fulfill objectives.
        ii. A good understanding of existing talent in the department.
        iii. Agreement on the best talent model.
    b. Red Flag
        i. Limited staff do not meet skill needs in addition to limited budget.

PITFALLS - 2

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    b. Red Flag
        i. Limited staff do not meet skill needs in addition to limited budget.

We tried to do analytics in our “spare time” of which we had none.

PITFALLS - 3

3. Identify current technologies and evaluate them against analytic objectives.
    a. Success Criteria
        i. Assessed value of technology options.
        ii. Technology options to pursue.
    b. Red Flag
        i. Technology options do not reflect objectives.

PITFALLS - 3

3. Identify current technologies and evaluate them against analytic objectives.
   a. Success Criteria
      i. Assessed value of technology options.
      ii. Technology options to pursue.
   b. Red Flag
      i. Technology options do not reflect objectives.

Buying software was done before priorities established and without input from users.

PITFALLS - 4

4. Moving Beyond the Maturity of Your Organization

PITFALLS - 4

4. Moving Beyond the Maturity of Your Organization

We assumed strong data governance and integrity.

SUCCESSES IN BUILDING A PROGRAM

- Through learning and experience, improvements were accomplished.
  - Associated Bank subscribes to the CEB-Corporate Executive Board (Gartner).
  - CEB has created several guidance and framework documents around data analytics and continuous monitoring.
  - The following slides discuss some of the successes we experienced in the context of selected excerpts from the CEB analytics documents.

SUCCESS - 1

1. Define analytic objectives
    a. Success Criteria
        i. A prioritized list of analytic objectives.
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SUCCESS - 1

1. Define analytic objectives
    a. Success Criteria
        i. A prioritized list of analytic objectives.
        ii. Greater understanding of data analytic applications within the audit function.
    b. Data Analytics Library
        i. Input from all areas of Audit

SUCCESS - 2

2. Assess talent needed to meet your objectives
    a. Success Criteria
        i. A list of necessary skills to fulfill objectives.
        ii. A good understanding of existing talent in the department.
        iii. Agreement on the best talent model.

SUCCESS - 2

2. Assess talent needed to meet your objectives
    a. Success Criteria
        i. A list of necessary skills to fulfill objectives.
        ii. A good understanding of existing talent in the department.
        iii. Agreement on the best talent model.
    b. Dedicated Data Analytics Position
        i. Right Skill Set.
        ii. Right Experience and Organizational Level.

SUCCESS - 3

3. Identify current technologies and evaluate them against analytic objectives.
    a. Success Criteria
        i. Assessed value of technology options.
        ii. Technology options to pursue.

SUCCESS - 3

3. Identify current technologies and evaluate them against analytic objectives.
   a. Success Criteria
      i. Assessed value of technology options.
      ii. Technology options to pursue.
   b. Perform tasks in appropriate tool
      i. Excel
      ii. Data Warehouse
      iii. Data Visualization

SUCCESS - 4

4. Moving Beyond the Maturity of Your Organization

SUCCESS - 4

4. Moving Beyond the Maturity of Your Organization
    a. Build data validation into the process.

CURRENT STATE

- **Projects**
  - CAS has a library of potential continuous monitoring / continuous auditing projects. This can be added to any time.
- **Tool: IDEA**
  - Installed both test and production environment.
- **Data**
  - Many ad hoc data sources are available.
  - We have monthly data feeds from HRIS and Active Directory (Network Access).
  - We are working with IT on additional data feeds.
- **Process**
  - Started with a pilot project to define a baseline process.
  - Continue to improve the process.

PROJECT PROCESS

1. **Define the Project Goal or Question**
2. **Locate and Define the Data**
3. **Validate the Data**
4. **Compare / Analyze Data**
5. **Analyze Output**
6. **Document the Process**

CASE : MERRILL LYNCH INTEGRATED CHOICE

- Problem: How should Merrill Lynch deal with online investment firms without alienating financial advisors, undervaluing its services, or incurring substantial revenue risk?

MERRILL LYNCH (CON'T)

- Objectives and Requirements: Evaluate new products and pricing options, and options of online vs. traditional advisor-based services.

MERRILL LYNCH (CON'T)

- Model Structure: Merrill Lynch's Management Science Group simulated client-choice behavior, allowing it to:
  - Evaluate the total revenue at risk
  - Assess the impact of various pricing schedules
  - Analyze the bottom-line impact of introducing different online and offline investment choices

MERRILL LYNCH (CON'T)

- Project Value:
  - Introduced two new products which garnered $83 billion ($22 billion in new assets) and produced $80 million in incremental revenue
  - Helped management identify and mitigate revenue risk of as much as $1 billion
  - Reassured financial advisors

CASE 3: NBC’S OPTIMIZATION OF AD SALES

- Problem: NBC sales staff had to manually develop sales plans for advertisers, a long and laborious process to balance the needs of NBC and its clients. The company also sought to improve the pricing of its ad slots as a way of boosting revenue.

NBC AD SALES (CON'T)

- Strategic Objectives and Requirements: Complete intricate sales plans while reducing labor cost and maximizing income.

NBC AD SALES (CON’T)

- Model Structure: NBC used optimization models to reduce labor time and revenue management to improve pricing of its ad spots, which were viewed as a perishable commodity.

NBC AD SALES (CON'T)

- Project Value: In its first four years, the systems increased revenues by over $200 million, improved sales-force productivity, and improved customer satisfaction.

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