A Lean Six Sigma Approach to Traditional IT Call Center Staffing

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Topics

• Company Background
• Balanced Business Scorecard
• IT Customer Service Center (CSC)
• Overall Methodology
• Lean Assessment
• Staffing Analysis and Recommendations
• Takeaways
Depository Trust & Clearing Corp.

• Largest post-trade financial services infrastructure organization in the world

• “Cradle-to-Grave” management of securities

• Primary business focus on clearance, settlement and asset servicing for equity and fixed income securities

• Industry owned
DTCC Customers

More than 11,000 companies within the global financial services industry

Banks
Broker / Dealers
Investment Managers
Securities Firms

NYSE / NASD
Mutual Funds
Insurance Companies
Trust Companies
2005 Performance Highlights

Total number of shares traded: 853 billion

6.8 billion: Total number of transactions processed

Value of securities settled through DTCC: $1.4 quadrillion

$127.5 trillion: Financial obligations eliminated through netting

Value of securities on deposit: $31.2 trillion

$1.7 trillion: Value of mutual fund transactions processed

Rebates, discounts and interest given back to customers: $528 million
Topics

- Company Background
- **Balanced Business Scorecard**
- IT Customer Service Center (CSC)
- Overall Methodology
- Lean Assessment
- Staffing Analysis and Recommendations
- Takeaways
Balanced Business Scorecard

Stakeholder / Financial

Strategic Positioning

Customer / Service Delivery

Employee / Learning and Growth
**Customer / Service Delivery**

- Meet and Exceed Customer Service Level Expectations
- Improve Customer Cost-Effectiveness
- Maintain Operational Excellence in Customer Critical Processes
- Ensure System/Service Reliability
Topics

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Customer Service Center (CSC)

IT Service Centers
- New York, NY
- Tampa, FL

Current Staffing
- ~20 agents
- Fully staffed during core business hours, 0800-1700
- Skeleton staff off hours, weekends and holidays

Inquiry Demographics
- 10,000 inquiries per month
  - Phone
  - Email
  - Internal and external inquiries

CSC Customer Satisfaction
- 2005 = 60%
- 2006 = 87%
Anatomy of a Phone Inquiry

**Speed to Answer**
- Call initiated
- Caller selects from menu(s)
- Available agent greets caller
- Agent prompts caller for contact information
- Discuss problem
- Troubleshoot req’d?
  - Troubleshoot
  - Resolve inquiry?
    - Y
      - End call
    - N
      - Complete ticket
  - N
    - Agent provides ticket number to caller
    - End call

**Talk Time**

**Wrap-up**
- End call
- Complete ticket
- Close ticket

**Service Factor**
- Y
- N

**Abandon Rate**
- Y
- N
### Effectiveness & Efficiency Metrics

#### Assessments

<table>
<thead>
<tr>
<th>Assessments</th>
<th>Factors of Measurement</th>
<th>Efficiency or Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Causal Agents - accurately predict caller satisfaction</td>
<td>Average abandonment rate</td>
<td>Effectiveness</td>
</tr>
<tr>
<td></td>
<td>First call resolution</td>
<td>Effectiveness</td>
</tr>
<tr>
<td>Correlative but non-causal agents - do not necessarily represent direct causal relationships to customer satisfaction</td>
<td>Average speed of answer</td>
<td>Efficiency</td>
</tr>
<tr>
<td></td>
<td>Average time in queue</td>
<td>Effectiveness</td>
</tr>
<tr>
<td></td>
<td>Service level - center's ability to achieve its call answer goal</td>
<td>Effectiveness</td>
</tr>
<tr>
<td>Not statistically significant - exhibit no statistically significant correlation to customer satisfaction</td>
<td>Average calls per agent shift</td>
<td>Efficiency</td>
</tr>
<tr>
<td></td>
<td>Average time before abandonment</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Average talk time</td>
<td>Efficiency</td>
</tr>
</tbody>
</table>

#### Other Operational Metrics

<table>
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<th>Efficiency or Effectiveness</th>
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<tbody>
<tr>
<td>After-call work time</td>
<td>Efficiency</td>
</tr>
<tr>
<td>Annual turnover</td>
<td>Efficiency</td>
</tr>
<tr>
<td>Complaints percentage</td>
<td>Effectiveness</td>
</tr>
</tbody>
</table>

#### Efficiency Metrics

Agent-centric measurements that deliver interaction optimization by measuring agents' productivity

#### Effectiveness Metrics

Customer-centric measurements that deliver business optimization by providing a view of the quality of the customer's experience

**Source:** (1) Operations Council, *Primary Research Brief: Call Center Capacity Planning*, Corporate Executive Board, June, 2005
CSC Performance
Benchmarking*

• **Length of Time for First Level Calls**
  - **Mean:** 5.4 min
  - **Median:** 4 min

• **Abandonment Rate**
  - **Target**
    - **Mean:** 3.5%
    - **Median:** 3.0%
  - **Actual**
    - **Mean:** 5.2%
    - **Median:** 4.0%

• **Average Speed to Answer**
  - **Target:** 21.1% between 21-30 sec, 23.3% between 10-20 sec
  - **Actual:** 58% 20 seconds or less (Financial Services)

• **Availability (% of time on phone + call wrap-up + email)**
  - 77%
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Overall Methodology

Lean Assessment

• Observed two supervisors and 7 agents randomly selected by
  Site: NY and FL
  Shift: First/Second
  Experience: High/Low
  Performance: Variable
  Days of Week: MTWThF

Staffing Analysis

• Reviewed overall trends from Jan05 – Jun06
  • Analysis based on Jan06-Jun06 volumes & metrics
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Opportunities to Eliminate Waste

7 Types of Waste

- Overproduction
  - Mismatch between ticket and call workflow

- Inventory
  - Multiple blank tickets open

- Waiting
  - System response lag
  - Variability in second level support

- Extra Processing
  - Retyping
  - Legacy fields
  - Follow-up on open tickets

- Defects
  - Ticket workflow

- Transportation
Existing 5S Practices

**Sort**
- Training and background material available online

**Straighten**
- N/A

**Shine**
- N/A

**Standardize**
- Standard call flow
- Goals for average handle time

**Sustain**
- Training program for new hires
- Click2Coach and agent quality score sheet
- Sametime instant messaging for on call consultation
Total Productive Maintenance in Place

Overall Equipment Effectiveness (OEE)

- Availability \( (1 - \text{Shrinkage}) \)
- Performance Efficiency \( (\text{Average Handle Time}) \)
- Quality Rate \( (\text{eSurvey}) \)

Preventative Maintenance

*Click2Coach*

- Supervisor reviews 10 calls per month per agent
- Agents rated using quality scorecard
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Staffing Analysis Framework

Calls Offered per Hour
Average Handle Time (AHT)*
Wait Time

Erlang C Staffing Calculator

Agents Required ÷ (1 – Shrinkage) = Shrinkage Adjusted Agents Required

* Average Handle Time = Talk Time + Wrap-up

Is CSC Staffed Appropriately?
Shrinkage Factors

- Vacation, Personal Days, Holidays
- Sick
- FMLA
- Meetings
- Coaching and Mentoring
- Project Work
- Training
- Breaks
- Administrative Non-Phone Activity

27-30%
Call Arrival Pattern

Peak Hours
9:30 – 11:00 AM
2:00 – 4:00 PM

Core Hours
8:00 – 5:00 PM

Heavier call volumes on Mondays

Voice of the Business

What does the data say?
Average Calls Per Day

Higher call volume on Mondays

What is the impact of higher call volumes?
* Variances of daily half hourly abandon rates are equal between 0800-1230, but the Monday mean is statistically different from the remaining days of the week.
* Day of week variances of half hourly ASA are equal between 0800-1230, but the Monday mean is statistically different from the remaining days of the week.
Average Handle Time (AHT)

- Average Handle Time = Talk Time + Wrap-up

Handle Time Does Not Vary with Day of Week
Impact on Staffing Analysis?

- Statistically significant difference between Mondays vs. Tuesdays – Fridays
  - Average abandonment rate
  - Average speed to answer

- Perform staffing analysis with appropriate average call volumes
  - Mondays
  - Tuesdays – Fridays
### Results: FTE Gap on Monday Mornings

<table>
<thead>
<tr>
<th>Hour</th>
<th>FTE GAP @ xx.x% Shrinkage</th>
<th>30.4%</th>
<th>27.0%</th>
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<tbody>
<tr>
<td>800</td>
<td></td>
<td>-1.5</td>
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<td>0.6</td>
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### FTE GAP @ xx.x% Shrinkage

**Mondays**

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**Tuesdays - Fridays**

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Recommendations

• Maintain current staffing level
  • Part time solution may not be viable for one day a week
  • Statistical significance <> business significance

• Leverage opportunities identified in lean assessment as requirements for
  • 2007 upgrade of call tracking system
  • ITIL implementation, e.g. operating level agreements

• Revisit staffing analysis
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Takeaways

• **Lean assessment is integral to**
  • Process analysis
  • Process excellence

• **Numbers alone do not tell the entire story**

• **Project success depends on**
  • Sponsor and management support
  • Setting expectations
  • Open and honest feedback from the line
Questions?

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