7 Steps of Problem Solving

QP Case Analysis Competition 2012

22 September 2012
What is problem solving?

“Problem solving is a mental process and is part of the larger problem process that includes problem finding and problem shaping. Considered the most complex of all intellectual functions, problem solving has been defined as higher-order cognitive process that requires the modulation and control of more routine or fundamental skills.”

McKinsey’s 7 key steps to problem solving

1. Define problem
2. Structure problem
3. Prioritize issues
4. Plan analyses and work
5. Conduct analyses
6. Synthesize findings
7. Develop recommendation
Defining the problem is a critical first step

Think impact: What does the client need to know?

Problem-solving

Client problem

Communications

Define problem

Structure problem

Prioritize issues

Plan analyses and work

Develop recommendation

Synthesize findings

Conduct analyses
Basic question to be resolved
The basic question brings focus to the analytic work. It should be SMART: specific, measurable, action-oriented, relevant and time-bound. It should not be so narrow that important levers to solve the problem are missed.

Context
Sets out the “situation” and “complication” facing the client - e.g., industry trends, relative position in the industry

Constraints within solution space
Defines the limits of the set of solutions that can be considered - e.g., must involve organic rather than inorganic growth

Criteria for success
Defines success for the project. Must be shared by client and team and must include qualitative and quantitative measures - e.g., impact, financial returns, effect on staff

Stakeholders
Identifies who makes the decisions and who else could support (or derail) the study - e.g., CEO, CFO, Board

Scope of Solution Space
Indicates what will and will not be included in the study - e.g., international markets, research and development activities, uncontrolled corporate costs

Key sources of Insight
Identifies where best expertise, knowledge, and approaches exist
Problem structuring is an early and critical task

- Define problem
- Structure problem
- Prioritize issues
- Plan analyses and work
- Develop recommendation
- Synthesize findings
- Conduct analyses

Think **disaggregation & early hypotheses:** What could be key elements of the problem?
What is a logic tree?

A problem solving tool that breaks a problem into discrete chunks

Why use logic trees?

- To break a problem into component parts
- To ensure integrity of the problem solving is maintained
- To build a common understanding within the team of the problem solving framework
- To help focus team efforts
Quality logic trees are consistent, relevant, and MECE

Problem statement worksheet

Basic question to be resolved

1. Perspective/context
2. Criteria for success
3. Decision makers/stakeholders
4. Scope of solution space
4. Barriers to impact

First line of support

Second line of support

Consistent

Mutually

Exclusive

Collectively

Exhaustive
2 main types of logic trees

**Issue tree**

- “What?” or “How?”
  - Breaks issue or question into smaller issues/questions
  - Addresses the entire solution space
  - Used for study starts or new problems

**Hypothesis-driven tree**

- “Why?”
  - Argument 1
  - Argument 2
  - Argument 3

Hypothesis (potential answer)
How could you reduce your shopping expenses each month?

- Buy fewer items
  - Food
  - Clothing
  - Entertainment
  - Travel
- Pay less for same quantity of items
  - Buy lower-quality items
  - Buy items at discount/on sale
  - Share costs of items (e.g., split rent with roommate)
2 main types of logic trees

Issue tree

- Issue (question)

  “What?” or “How?”

Hypothesis-driven tree

- Hypothesis (potential answer)
  - Argument 1
  - Argument 2
  - Argument 3

  “Why?”

- Asserts a possible solution, with necessary proofs
- Narrows the solution space to focus problem-solving
- Used when you have enough data to support a hypothesis
Issue tree example: how to reduce customer churn in telecom?

How to reduce total churn?

Outward churn
- Customers that churn and reapply with the same operator
  - Specially relevant for prepaid users
  - 85%

Rotational churn
- Customers switching products internally (e.g., migration from postpaid to prepaid and vice versa)
  - -0%

Migration
- Customers changing operator
  - Number portability
  - New number
  - 80%

Structural churn
- Death/closure of company
- Moving out of service area/country
- Stop using mobile services
- Substitution for fixed line
- Involuntary churners that stop using their mobile phone
  - Nonpayment
  - Bankruptcy
  - Theft
  - 28%

Involuntary churn
- Fraudulent actions that end up increasing churn (e.g., fake acquisitions by fraudulent distributors)
- 17%

Out of market
- 5%

Canceling service

Fraud
Issue tree example: why does competitor churn occur?

**Causes**

**Sub-causes (Illustrative)**

**Corrective lever (illustrative)**

<table>
<thead>
<tr>
<th>Causes</th>
<th>Sub-causes (Illustrative)</th>
<th>Corrective lever (illustrative)</th>
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<tbody>
<tr>
<td>Price</td>
<td>- Too expensive, inadequate plan</td>
<td>- Self-/right planning actions</td>
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<tr>
<td></td>
<td>- Too expensive, adequate plan</td>
<td>- Improve clients’ price perception</td>
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<td></td>
<td>- Too many calls to other networks</td>
<td>- Improve perception of % on-net calls</td>
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<td>- Other</td>
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<tr>
<td>Handset</td>
<td>- Dissatisfaction with renewal programs</td>
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<td>- Too infrequent</td>
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<td>- Too expensive</td>
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<td>- Program is not transparent</td>
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<td>- Can’t renew handset (prepaid)</td>
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<td>- Dissatisfaction with current handset</td>
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<td>- Ease of use</td>
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<td>- Battery life</td>
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<td>- Dropped calls</td>
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<td>- Bad reception at home/work</td>
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<td>Network coverage</td>
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<tr>
<td></td>
<td>- Subscription</td>
<td>- Improve coverage perception</td>
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<tr>
<td></td>
<td>- Handset reparation</td>
<td>- Deploy more base stations</td>
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<tr>
<td></td>
<td>- Subscription to services</td>
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<td>- Problem resolution</td>
<td>- Optimize service quality at key contact points (customer care hotline, proprietary stores, etc.)</td>
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<td></td>
<td>- Billing</td>
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<td>Service quality</td>
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<tr>
<td>Other</td>
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Reasons for competitor churn

NOT EXHAUSTIVE
To reduce your monthly expenditure, you should spend less on the items you currently buy.

Buying lower-quality versions of items will save money

Buying important items at a discount/on sale will ensure quality at lower price

Sharing costs of some items can be done without sacrificing quality completely

Buying fewer items is not an option, since you need everything you currently buy

- Buy generic versions of toiletries, over the counter medicines, paper goods
- Substitute cheaper means of travel and entertainment (e.g., bus instead of plane, DVD instead of movie in theater)
- Buy dry groceries, packaged goods in bulk at discounters
- Stock up on clothes, books, etc during sales
- Split rent with roommate
- Carpool to work rather than driving alone
Hypothesis tree example – levers to improve EBIT and volume growth

**Revenue**
- **Day-definite**
  - Increase rates
- **Less-than-truckload (LTL)**
  - Optimize rates
  - Increase volume
  - Improve customer mix
- **Both**
- **Auxiliary revenue**
  - Optimize additional fees

**Cost**
- **Variable cost**
  - Direct cost
  - Indirect cost
  - Optimize hubs / T1 points
- **Fixed cost**
  - Optimize network
  - Reduce overhead cost

**Lever**
- Capture willingness to pay more
- Improve service quality
- Right-price to maximize volume
- Open new retail outlets
- Increase sales productivity in existing retail outlets
- Reduce priority of KA development or reduce discount
- Optimize charges for door-to-door, insurance and COD
- Improve procurement in linehaul
- Increase linehaul reallocation flexibility
- Improve procurement in fuel and maintenance/parts
- Outsource maintenance and component / parts
- Reduce reliance on part-time staff
- Unblock T1 bottlenecks for growth
- Own ultra-large trucks
- Launch more point-to-point for DD
- Reduce executive compensation
- Streamline region layer
- Consolidate shared services
- Cut down on recurring cost

**In-charge**
- YH+PTA
- AL+YH+EK
- YH+PTA
- YH
- YH
- YH
- AL
- AL
- AL
- AL
- AL
- AL
- AL+YH+EK
- AL
- Client HR
- Client HR
- YH
- Client IT
7-step problem-solving process

Client problem

Communications

Problem-solving

Define problem

Structure problem

Prioritize issues

Think speed: Which issues are most important?

Plan analyses and work

Develop recommendation

Synthesize findings

Conduct analyses
As you gather information, you can start pruning your issue tree

- Keep focusing in to work efficiently
- Prioritize your effort on what is most important
- Drive toward hypothesis as early as possible
- Don't boil the ocean
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