Actuarial Control Cycle

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Topics...

- Risk, Life Insurance and Reserve
- What is Actuarial Control Cycle?
- Decision Contexts
- What can it be applied for?
- Examples
- Q&A and experiences sharing
What is risk?

Risk is an uncertainty arising from the possible occurrence of given events.
Why risk is insurable?

- Why insurance company collect small amount of premium and promise to pay big amount of money if there is a lost of insured?
- Insurance companies use the central limit theorem to be able to manage the risk.
Group of 10 males age of 30 issue Term one year life insurance with sum assured at 1MTHB.

That means everyone has identical risk.
Insurance company expect that within this 10 people, there will be 2 people die in the next 1 year. Therefore, cost of death is 2 MTHB for this group.

Therefore, if everyone contribute 0.2 MTHB, it will cover cost of death occur during the year.
Central Limit Theorem

• The Central Limit Theorem describes the characteristics of the *population of the means* which has been created from the means of an infinite number of random population samples of size (N), all of them drawn from a given *parent population*. The Central Limit Theorem predicts that regardless of the distribution of the parent population:
What is Actuarial Control Cycle?
1. Identify And Specify the Problem

2. Developing And Implementing the Solution

3. Monitoring And Responding to Experience

Simplified Control Cycle
Definition of Actuarial Control Cycle

The **actuarial control cycle** is a specific business activity which involves the application of **actuarial science** to real world business problems. The actuarial control cycle requires a professional within that field (i.e. an **actuary**) to specify problems, develop solutions, monitor the consequences thereof, and repeat the process.

Source: wikipedia
Decision Contexts
Control Cycle and the Contexts

1. Identify And Specify the Problem

2. Developing And Implementing the Solution

3. Monitoring And Responding to Experience

Professionalism

Demographic trend
Climate Change
Disaster
Government Policy
Taxation
Competitor
Legislation/Regulation
Accounting Standards
Economic Structure, Condition and Trend
Technology
Marketing
Social Trend
The Importance of Contexts

Contexts can vary from country to country, from state to state, from practice area to practice area, as well as from time to time.

It is proper to train actuaries in full awareness of the importance of these interfaces.
## Possible Contexts

- Demography
- Economic/Business
- Environments
- Cultural/Social Value
- Government/Regulator Influences
- Technology
- Others
What can the Control Cycle be applied for??

EVERYTHING!!
Sample 1:
Keeping good relationship with your partner
Sample 1: Keeping good relationship with your partner (1)

Situation:
You’re being in the 7th year relationship. You and your partner feel that you both fight easily. Both would like to fine-tune to better your relationship as well as your understanding.
Sample 1: Keeping good relationship with your partner (2)

Define Problem:

• Less communication?
• Less activities doing together?
• Third party entering in between?

>> Less time spending for each other?<<

Decision Maker(s):

• Both of you!
Sample 1: Keeping good relationship with your partner (3)

Contexts of decision making:

• Unexpected Situation – arising of new problem
• Age and Maturity – view of love throughout past experiences
• Social Factor – meet up new people
• Feeling – love and willingness to forgive
Sample 1: Keeping good relationship with your partner (4)

Develop and Implementing the Solution:

- Scheduling daily/weekly/monthly/annually activities.
- Speak out! Tell your couple why you didn’t have time. Convince him/her to understand and accept the fact.
- Break up!
Sample 1: Keeping good relationship with your partner (5)

Monitoring the effectiveness:

• Yes
  – Both of you feel better.

• No
  – Even feel more depress as you needed to change yourself and your routine too much.
Sample 1:
Keeping good relationship with your couple (6)

Find Prospect and Building up Relationship

Yes

How does the relationship be after trial? Improved?

Continue the relationship

Fight?
“Less time spending for each other”

How to better situation?
Daily/ Half-Daily call

No
Sample 2:
Insurance Product Design
Sample 2: Product Design (1)

Situation:
Company would like to launch new product.
Define Problem:

- There are needs!!

Understand the originated needs

Target Group’s needs

Existing products?

Company’s needs

Can the needs be met?
- Insurable?
- Investable?

Cost of Sale/ Price

Supply

Demand

Volume Sales
Sample 2: Product Design (3)

Develop and Implementing the Solution:

• Design product
  – Definition and Term
  – Pricing
  – Underwriting
  – Marketing and Distribution Channel
  – Customer Services
  – Reinsurance
  – Etc.
Sample 2: Product Design (4)

Monitoring:

• See if any modification along the way has bared out from original needs?
**Product Design Cycle**

**Understand the needs**
- Understand the originated needs
- Target Group’s needs
- Existing products?
- Company’s needs

**Can the need be met?**
- Financial Availability
- Affordability
- Timing
- Legal Requirements

**Design the product**

<table>
<thead>
<tr>
<th>Product Definition</th>
<th>Underwriting</th>
<th>Pricing</th>
<th>Marketing and Distribution</th>
<th>Reinsurance</th>
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<tbody>
<tr>
<td>Customer Service</td>
<td>Capital Requirements</td>
<td>Administration Systems</td>
<td>Monitoring</td>
<td>Legislation &amp; Compliance</td>
</tr>
</tbody>
</table>

**PRODUCT DEVELOPMENT COMMITTEE**

**FINANCIAL PRODUCT**
- Fortuitousness
- Accessibility
- Independent of Risk
- Criminal Activities

**INSURANCE PRODUCT**
- Fortuitousness
- Accessibility
- Independent of Risk
- Criminal Activities

**Review the product design**
- Any modification made change against the original Specification?
  - No
  - Yes

**Launch new product**
- Review
Sample 3: Actuarial Control Cycle from the bird eyes view
Actuarial Control Cycle

CONTEXT (legal, marketing force, social, demography, tax etc.)

Experiences → Needs → Risks → Design → Solvency → Profit → Experiences
Q&A and Experiences Sharing