THE GENERAL THEORY OF INNOVATION (GTI)

Fundamentals, Capabilities, Applications

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Innovation as We See It: A Delta

- Innovation is perceived by the majority as a change in an object state.
- 5 types of innovations:
  - Product
  - Method of production
  - Sources of supply
  - Markets
  - Way to organize a business

Schumpeter, J. 
*The Theory of Economic Development* (1934)

- The world complexity demands for the universality of a theory of innovation, but this complicates its creation.
Subjects of innovation are systems

As any result, innovation is determined by the preceding process!

Definitions

1. **Innovation** is a process of value creation, which consists in changing the composition of a set of variables describing a system.
2. **Innovation** is a result of the process that fits the definition 1
The Definition Benefits

Definition 2 benefits: alignment with the rest of the world

Definition 1 delivers MAJOR benefits:

- Innovation as a Process with clearly defined stages
- The need for control over the process of innovation
- Identifies the **ROOT CAUSE** behind the **UNIVERSAL** phenomenon of “Growth Cessation, Market Share Loss and Eventual Death” of business entities
- Defines a set of requirements for a theory of innovation
The GTI Foundation

- **Requirements for a theory**
  - Universal (any type of a system)
  - Analyze and solve existing problems
  - Forecast (identify) future problems (needs of the market)
  - Establish objective criteria of judgment

- **Approach**
  - Evolutionary analysis of systems

- **Investigation double focus**
  - Various systems; modifications
  - Relationships between systems and their respective Environments, including
    - Emergence of systems
    - Results: success / failure
Finding 1: Evolution as A Continuum of Problems and Solutions

- Evolution is a sequence of problems and solutions
  - Multiple implications; major one: the supremacy of problems
- There are generic problems and generic respective solutions
  - “To control the outcome of an interaction, Create / Destroy the path of least resistance for attracting / diverting the Flow toward / away from a system.”
MAJOR FINDING: Systems Evolve in the Predominant Direction

- Evolution is governed by a set of Natural Laws.
- The Law of an Increasing Degree of Freedom
  - The direction of a system evolution coincides with an increase of the CF of its Environment
- GTI is a theory concerned with the Natural Laws of the Evolutionary Cycle and their applications

\[
C_{\text{Freedom}} = \frac{\Sigma \text{ Functions}}{\Sigma \text{ Connections}} = \text{VALUE}
\]
The Law of an Increasing Degree of Freedom: an Example

WHAT IS THIS???

This is the first **Hard Disk**. In September 1956 IBM launched the 305 RAMAC, the first computer with a hard disk drive (HDD). The HDD weight was over 1 ton, and it stored **4.4MB** of data.

**2007**

Weight: less than **0.1 lb**
Capacity: **4GB**
Size: **64mm x 21mm x 10mm**
GTI Major Capabilities and Implications for a Business

- The nature of being ‘problem-free’
  - Correspondence to the Natural Laws of Evolutionary Cycle assures the ‘problem-free’ existence and business success

- The nature of problems
  - The conflict between the Choices we make and the Natural Laws of Evolution

- Effective solution of problems
- Reliable evolution forecasting
- Objective judgment of proposed changes
### GTI Applications

<table>
<thead>
<tr>
<th>Description</th>
<th>Applications</th>
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<tbody>
<tr>
<td><strong>Reactive Innovation</strong></td>
<td></td>
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<tr>
<td>1. <strong>Value is known</strong></td>
<td>1. A performance-based challenge</td>
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<td></td>
<td>2. Cost reduction</td>
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<td></td>
<td>3. Quality / Reliability improvement</td>
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<td>4. Innovation assessment</td>
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<td></td>
<td>5. Failure prevention*</td>
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<td></td>
<td>6. Patent circumvention/protection*</td>
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<tr>
<td><strong>Pro-active Innovation</strong></td>
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</tr>
<tr>
<td>1. Business goal is typically known</td>
<td>1. System evolution forecasting</td>
</tr>
<tr>
<td>2. <strong>Value is unknown</strong></td>
<td>2. Strategic Innovation Portfolio</td>
</tr>
<tr>
<td></td>
<td>3. Business applications such as</td>
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<tr>
<td></td>
<td>- Growth (HYLR), incl. turnaround</td>
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<tr>
<td></td>
<td>- Business strategy and/or model</td>
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<td></td>
<td>- Increasing ROI (incl. R&amp;D)</td>
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<tr>
<td></td>
<td>- Investment opportunities (M&amp;A)</td>
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<tr>
<td><strong>On-Demand Innovation</strong></td>
<td></td>
</tr>
<tr>
<td>1. <strong>Capability</strong></td>
<td>1. Entity’s capability (deployment)</td>
</tr>
<tr>
<td></td>
<td>2. Entity’s resilience / survivability</td>
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Business Applications

- GTI DOES work for technical issues!
- Business applications provide greatest **IMPACT:**
  - Long-term Advantage
  - Sustainable Growth
- GTI Tools
  - Evolutionary Templates
  - Generic Growth Strategies
  - Value Matrix
  - Value Growth Templates
  - **Time-to-Value Reduction Template**

\[
C_{\text{Freedom}} = \frac{\sum \text{Functions}}{\sum \text{Connections}} = \text{VALUE}
\]

No late fees
No trips to stores
Limited number of movies on hands
Market: the Movie Rental Niche Is on the Verge of a Major Change
Movie Rental Niche Ultimate Destination: Movie On-Demand
The Future of Movie Rental: Download On-Demand

- In addition to Internet, download on-demand alternatives

- Phones, PDAs, DVD players
- Office buildings, hotels, hospitals
- Houses
- Cars
- Office buildings, hotels, hospitals
Movie Rental Retail Business: the Future of Competition

- The retail will *stay* but *shrink greatly*
  - When download is not suitable
    - Airports
    - Vacations
    - Cars
  - Other opportunities
    - Use resources
  - Lower end of the market, incl. third world
- Retail stores will be replaced by
  - Gas stations
  - Convenience (grocery) stores
Blockbuster’s 2005 Stock Performance

Blockbuster Inc. stock performance in 2005

1/1/05 - $9.30
12/30/05 - $3.75

BLOCKBUSTER STK A (3.53000, 3.76000, 3.37000, 3.75000, +0.21000)
August of 2007: The Saga Continues As Predicted

In 2007, both Blockbuster and Netflix entered the DOD niche

Netflix Subscriber Growth
(In thousands)

<table>
<thead>
<tr>
<th>Year</th>
<th>Netflix Subscribers (in thousands)</th>
</tr>
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<tbody>
<tr>
<td>'00</td>
<td>107</td>
</tr>
<tr>
<td>'01</td>
<td>292</td>
</tr>
<tr>
<td>'02</td>
<td>458</td>
</tr>
<tr>
<td>'03</td>
<td>857</td>
</tr>
<tr>
<td>'04</td>
<td>1,487</td>
</tr>
<tr>
<td>'05</td>
<td>2,610</td>
</tr>
<tr>
<td>'06</td>
<td>4,179</td>
</tr>
<tr>
<td>'07</td>
<td>6,613</td>
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Netflix has enjoyed rapid subscriber growth since it invented online DVD rentals.

Financial Highlights

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue (in millions)</th>
<th>GAAP Net Income (in millions)</th>
<th>EPS</th>
<th>Free cash flow (in millions)</th>
<th>Cash and cash equivalents (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>$270.4</td>
<td>6.5</td>
<td>0.10</td>
<td>26.8</td>
<td>89.9</td>
</tr>
<tr>
<td>2004</td>
<td>$500.6</td>
<td>21.6</td>
<td>0.33</td>
<td>34.8</td>
<td>174.5</td>
</tr>
<tr>
<td>2005</td>
<td>$682.2</td>
<td>42.0</td>
<td>0.64</td>
<td>24.3</td>
<td>212.3</td>
</tr>
<tr>
<td>2006</td>
<td>$996.7</td>
<td>49.1</td>
<td>0.71</td>
<td>62.0</td>
<td>400.4</td>
</tr>
</tbody>
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08/2007: BBI might be a good buy now
Blockbuster’s Stock Grew With an Improvement of Its Strategic Position

- August 4, 2007
  - Blockbuster acquired Movielink
- August 13, 2007
  - BBI $4.20
- October 2, 2007
  - BBI $5.69
- Growth
  - More than 35% in less than 2 months
Acknowledgements
Concluding Thoughts

- The needs being addressed
  - To succeed continually, any entity **MUST** continually control the process of competition
    - Innovation is the very first stage of this process that determines the content of Value Offer and, in principle, entity’s fate!
  - CAI movement success is directly dependent on the quality of an underlying theory of innovation

- General Theory of Innovation
  - Satisfies the requirements
  - Has proven capabilities
  - Enables the “On-Demand” Innovation