From Reactionary to Strategic: 
Using Competitive Technology Intelligence in R&D

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Tectonic Market Shifts through Disruptive Technology

- **Cable TV Industry**: 1976-2014
- **Big Box Retail Industry**: 1962-2012
- **Record Industry**: 1889-2003
- **Travel Planning Industry**: 1758-2007
- **Telephone Industry**: 1876-2008
- **Brokerage Industry**: 1801-1997
- **Newspaper Industry**: 1605-2000
- **Book Industry**: 1439-2011

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“Surprise Attacks”

Johnson and Johnson vs. Guidant

- Product line: stents
- J&J Share:
  - 91% (1996) to 8% (1998)
- “Most dramatic transfer of wealth between two companies in medical device history.” (WSJ 23 Sept 1998, p1)

Trends

- Direct Consumer Marketing
- Healthcare reform

Source: Ben Gilad, *Early Warning*, Amacon
# Strategic Risks

<table>
<thead>
<tr>
<th>Survey for “Least Managed Risk”</th>
<th>Companies affirming</th>
<th>Strategic Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currency fluctuations</td>
<td>10.3%</td>
<td>INTERNAL Risk</td>
</tr>
<tr>
<td>Health hazard to employees and customers</td>
<td>5.6%</td>
<td>1) operational or process, and</td>
</tr>
<tr>
<td>Negligent work by employees</td>
<td>6.0%</td>
<td>2) Financial or asset</td>
</tr>
<tr>
<td>Stock market fluctuations hurting marketplace securities</td>
<td>6.5%</td>
<td></td>
</tr>
<tr>
<td>Public relationship flop by an executive</td>
<td>6.9%</td>
<td></td>
</tr>
<tr>
<td>Customers needs not being met by future products/services</td>
<td>10.7%</td>
<td>EXTERNAL Risk arising from the competitive environment</td>
</tr>
<tr>
<td>Competitors introducing a proprietary or alternative breakthrough product/service</td>
<td>17.1%</td>
<td>“Industry dissonance”</td>
</tr>
<tr>
<td>New competitor entering your segment with new skills</td>
<td>16.3%</td>
<td></td>
</tr>
<tr>
<td>Suppliers integrating into your markets</td>
<td>8.6%</td>
<td></td>
</tr>
<tr>
<td>Alternative technology replacing the need for your offering</td>
<td>12.0%</td>
<td></td>
</tr>
</tbody>
</table>

Companies find that external risks are the most difficult to manage – yet these are the ones that directly impact R&D efforts and strategy.

Source: Ben Gilad, Early Warning Systems and Roger Simons, HBS #9-199-031 1998
Managing Market and Technology Risk in R&D

**THE INNOVATION AMBITION MATRIX**

Firms that excel at total innovation management simultaneously invest at three levels of ambition, carefully managing the balance among them.

**NEW technology – NEW Market**

Only 1 – 5% Success Rate

<table>
<thead>
<tr>
<th>R&amp;D</th>
<th>Investment</th>
<th>Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core</td>
<td>70%</td>
<td>10%</td>
</tr>
<tr>
<td>Adjacent</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Transformational</td>
<td>10%</td>
<td>70%</td>
</tr>
</tbody>
</table>

P&G

- 1994: P&G lost $157 M due to derivative trading
- 2000: $35B loss in stock value
  - January - $120/share
  - March 1- $87/share
  - March 7 - $60/share
- A.G. Lafley’s Response
  - Open Innovation
Competitive Technical Intelligence in R&D

• Managing external risk
  – Insights on Competitive R&D strategy
  – Early warning systems
  – Disruptive technologies

• Growth challenge
  – Increasing probability of success of profitable, sustainable, differentiated products
  – Managing new technology and new market risk

• Rise of open innovation and alliance strategies
  – Inventing beyond the “R&D vertical”
Voice of the Customer + Internal Core Technologies = Profitable and Sustainable New Business

Customer Inspired Innovation Necessary....but not sufficient
• **Framework for competitive technical intelligence (CTI):**
  – Supports early warning systems
  – Growth initiatives
  – Open innovation partnerships

• **Illustrate why R&D has a particularly important role in CTI**
The Motorola CI Model
Identifying Management’s Intelligence Needs

Types of KIT’s:
1. **Strategic decisions**
   - Supports strategic planning
   - Tech briefs on emerging technologies
2. **Early warning topics**
   - Competitive activities
   - Technology trends and disruption
   - Government or regulations
   - Market changes and drivers
3. **Key players**
   - Competitive profiles
   - Customer profiles
   - Supplier, regulators, etc.
   - M&A Due diligence
4. **Partnership Identification**
   - Potential partnerships & licensing

Source: Jan Herring, *Competitive Intelligence Review*, Vol 10(2) 1999
Competitive Intelligence Early Warning

Four key change drivers

New social or demographic trends (Mega or market trend)
New competitive behavior
New technology
New regulations, government or political actions

Source: Ben Gilad, Early Warning, AMACON 2003.
Competitive Early Warning System

Identifying Risk and Opportunity

Step 1: Is it high impact? Does it directly affect one of Porter’s 5 forces?

Step 2: Set up Early Warning system on High Impact

CI Database: Tailored for the audience

Competitive Intelligence Portal – Key Components
The low-cost, nearly universal CI technology solution

It’s free! It’s secure! It offers you at least five ways to track your competition!
1 - RSS Secondary Feeds
2 - WIKI Space for Collaborative Analysis
3 - Documents Library
4 - Competitive News Barometer (Customizable)
5 - Expertise Directory

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Competitive Technical Intelligence
Understanding the uniqueness of a competitor or competitive technology within the R&D, market and partnership landscape

Competitive R&D Strategy Profile

- Product market success
- Overall R&D investment trends
- Core technology platform(s)
- Core IP strength
- New growth initiatives
- IP strength in growth area

Sources

- Patent
- Technical literature
- Internet
- Primary intelligence
- Market studies
- Social media
- Current awareness

“Follow the money. Where ever there is a transaction, there is information.”
Leonard Fuld: The New Competitor Intelligence, John Wiley & Sons 1995
Patent landscaping:
Technology trends in the competitive Landscape

Patent Landscape to Identify:
• Relative patent intensity
• Key players and competitors
• Acquisitions and patent assignments
• R&D trends - f(time, company)
• Concept relationships
• Potential partners
• Alerts on changes

N ~ 1400 patent families

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High value problems in Microneedle Drug Delivery

Source: Dolcera at www.dolcera.com

What high value problems are competitors focused on?
What approaches are they investing in?
Understanding Competitive Trends

**Competitor A**
- 27 patents average age 3 years
- Only in 1 country

**Competitor B**
- Increasing R&D investment

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**Traditional Approach:**
- Market share (product acceptance)
- Product analysis

**Landscape Analysis:**
- Correlate products to patents
- Understand technology platforms
- Relative patent strength
- Relative R&D investment (velocity, density,
- Dynamics of the Invention team
- New growth initiatives
- Partnerships, M&A activity, etc.
- Changes in activity

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Landscape Analysis gives us insights into Competitive R&D strategy
**Competitor “A” R&D Profile**

**Background**

**Entity:**
Corporate Family:
Incorporated:
Headquarters:
Branch:
Revenue:
Net Income (2011):
Assets:
Employees:
Web site:
CEO:
BRAND:

**R&D Investment Strategy**

- **Single technology platform** supporting products
- **Core competencies**
  - Electroplating
  - Simulation and modeling
  - Total quality and supporting analytical expertise
- **Invention team and strategy**
  - Regional IP. One inventor.
  - 23 patents with average age of 3 years
  - Filing strategy - single country focus
- **R&D Brand**
  - Low cost provider
  - Tech service orientation – customer needs focus
- **Growth initiatives**
  - New technologies from “Institute”
  - Global expansion in distribution (Linked in)
  - Single publication with University

**Products**

*Source: Business library, technical and patent literature, internet, June 2012*
Competitive R&D Analysis: Opportunities and Threats

“A” Threat to market share

“B” Emerging threat

“C” Alliance candidate

Open Innovation Opportunities
Open Innovation (OI)  
*Using technology in-sourcing for growth*

Source: Chesbrough (2006)

- Licensing
- Technology Spin-offs
- New Market
- Technology Insourcing

“Open” innovation strategies

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OI Patent Pools and Consortia

Patent Pools
- GlaxoSmithKline (GSK) patent pool for neglected diseases
  - 800 GSK patents
  - 1500 Alnylam patents

Consortia
- **Diabetes Genetics Initiative**
  - MIT, Harvard, and Lund University and Novartis
  - Focus: Type II Genetic variants
- **Dundee Kinase Consortium (DSTT)**
  - AstraZeneca, Pfizer, SmithKline Beechham, Novo Nordisk
  - Focus: Kinase biology
- **Structural Genomics Consortium (SGC)**
  - Structural analysis of > 1000 target proteins and development of open-access chemical probes
- **Enlight BioSciences**
  - Focus: Develops platform technologies for 6 big Pharma
- **Centre for Inflammation Research**
  - GSK and AstraZeneca, Manchester University, UK

Source: Nature Reviews Drug Discovery, 9, 87-88 (February 2010)
Competitive Technical Intelligence Tools

**Actionable CTI**
- Competitive profiles
- Early warning alerts
- Quarterly dashboards
- CTI database
- Key intelligence questions
- War gaming and scenario planning
CTI Applications

• New product introduction programs
• New technology programs
• High growth programs
• IP Strategy
• Competitive product analysis
• Technology briefs
• Key account insights
• Technical business opportunity assessments
• Licensing and alliance candidate identification
• M&A due diligence
• Strategic planning
## Obtaining Competitive Intelligence

<table>
<thead>
<tr>
<th>Topic</th>
<th>Useful Sources of Intelligence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive Products</td>
<td>Primary intelligence, company website, internet, distribution, value chain, patent marking</td>
</tr>
<tr>
<td>Competitive Technology Platform</td>
<td>Patent landscape, technical literature, manufacturing capabilities</td>
</tr>
<tr>
<td>Competitor Growth Platforms</td>
<td>Earnings calls, patent mapping (assignments, acceleration, trends, invention teams), alliance information, portfolio purchases and licenses, capital expenditures, Internet sources, Technical literature</td>
</tr>
<tr>
<td>IP Landscape</td>
<td>Patent landscape mapping Trademarks and other IP assets</td>
</tr>
<tr>
<td>IP Strength</td>
<td>Patent mapping (citation, licensing, assignments, counts, legal status, age, geographic coverage); patent strength algorithms; standards activities; patent pools; spin offs</td>
</tr>
<tr>
<td>R&amp;D Investment</td>
<td>Business analysis, patent investments, licenses or portfolio purchase, patent mapping trends, capital investments, social media</td>
</tr>
</tbody>
</table>
SUMMARY

“OUTSIDE –IN”
Hard Problems

Inspired, Profitable and Sustainable New Business

CUSTOMER

MKT
MFG
R&D

VOC & Bench-to-Bench

Mega/market trends

Technology Capability

Competitive Intelligence & Differentiated Value

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Competitive Technical Intelligence

*Playing to win*

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