Building Growth in Troubled Times

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Who am I?

- Eastman Kodak LFM Professor, MIT Sloan School
- SB in Mechanical Engineering, MIT
- PhD in Business Economics, Harvard
- Research focus: Using technology to generate growth: why is it so hard and what can be done?
- Work in: Semiconductor capital equipment, Aerospace, Automotive, Branded Consumer Goods Pharmaceuticals & Biotech, IT, Telecommunications
The Issue:

- Most successful firms are being pressed for internally generated growth.
- New technology should be a driver of such growth.
- But too often it is not.
Transitions often challenge existing organizations severely

Cumulate share of sales of photolithographic alignment equipment, 1962-1986, by generation

<table>
<thead>
<tr>
<th></th>
<th>Contact</th>
<th>Proximity</th>
<th>Scanner</th>
<th>S&amp;R (1)</th>
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<td>Nikon</td>
<td></td>
<td></td>
<td></td>
<td>70</td>
<td></td>
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<td>61</td>
<td>75</td>
<td>99+</td>
<td>81</td>
<td>82+</td>
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</table>
But they also create major opportunity

- Corning glass
  - Cookware to optical fiber
- HP
  - Instrumentation to computers
- IBM
  - Mainframes to PCs to Services
- Eli Lilly
  - “Random” drug discovery to genetics and genomics
The Question

How can one manage the core business and real growth simultaneously?
The Answer

You need a strategy
And you need to be able to implement it
Effective strategies answer three key questions:

- How will we *Create* value?
- How will we *Deliver* value?
- How will we *Capture* value?
Why have a strategy?

1. To make choices
Is This Your Project Pipeline?
## Overload at PreQuip

<table>
<thead>
<tr>
<th>Active Projects</th>
<th>Resources Required for Completion (months)</th>
<th>Months to Completion (desired)</th>
<th>Implied Development Resource Allocation (months)</th>
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<tr>
<td></td>
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<tr>
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<td>3</td>
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</table>

All Other Support Activity
(customer support, troubleshooting)

|                         |                               |                                | 430       | 430       | 430             |

Total Development Requirements

|                         |                               |                                | 2783      | 2956      | 2178            |

Available Resources (months)

|                         |                               |                                | 960       | 960       | 960             |

**Rate of Utilization (percent)**

|                         |                               |                                | 289.9     | 307.9     | 226.9           |
Overcommitment destroys productivity

Average Value-Added Time on Engineering Tasks

Number of Projects per Engineer

0% 100%

1 2 3 4 5 6

65 43 21 0 20 60

60% 80% 100%
The Timing and Impact of Management Attention

Index of Attention and Influence

Phases

Knowledge Acquisition | Concept Investigation | Basic Design | Prototype Building | Pilot Production | Manufacturing Ramp-Up

High

Actual Management Activity Profile

Low

Ability to Influence Outcome
Why is it so hard to kill project #26?

- It’s a “good” project!
- Good managers can meet stretch goals
  (and I’m a good manager)
- Making difficult decisions takes time & energy

It’s very hard to kill projects without a strategy
Reasons to have a strategy:

2. To be able to have many different strategies at once
A Key Framework: The industry life cycle

- Era of Ferment/Discontinuity
- Maturity
- "Dominant design" emerges
- Incremental Innovation
The Industry Life Cycle as an S curve

- Performance
- Takeoff
- Maturity
- Fermnt
- Discontinuity
- Time
The S-curve Maps Major Transitions

- Performance
- Time
- Ferment
- Takeoff
- Maturity
- Discontinuity
New opportunities present tough strategic choices:

- Answers to the key strategic questions:
  - How do we create value?
  - How do we capture value?
  - How do we deliver value?

- CHANGE!
Growth as a strategic problem

- **Genuine uncertainty**
  - *It’s not going to happen – certainly not now*
- **Cannibalization**
  - *It will compete with our current products*
- **Shifts in the customer base**
  - *Our current customers don’t want it*
- **Margin erosion**
  - *It will make less money*
Growth as an organizational problem

- Time horizons & Incentives
- Fear of (individual) cannibalization
- Overload
- Competency Traps
Growth as a Strategic Problem
New opportunities are hard to spot in advance
Evaluating alternatives for next generation automobile propulsion systems
(Joanne Woestman, SDM Thesis, 1999)

<table>
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<tr>
<th>Parameter</th>
<th>Fuel Cells</th>
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<td>Cost</td>
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<td>Good</td>
<td>Ok</td>
<td>Bad</td>
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<tr>
<td>Efficiency</td>
<td>Good</td>
<td>Ok</td>
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<td>Operating Cost</td>
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<td>Good</td>
<td>Ok</td>
<td>Ok</td>
</tr>
<tr>
<td><strong>Performance</strong></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>0 to 60 time</td>
<td>Ok</td>
<td>Good</td>
<td>Good</td>
<td>Ok</td>
</tr>
<tr>
<td>Top speed</td>
<td>Ok</td>
<td>Good</td>
<td>Good</td>
<td>Ok</td>
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<td>NVH</td>
<td>Good</td>
<td>Ok</td>
<td>Ok</td>
<td>Good</td>
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<tr>
<td><strong>Utility</strong></td>
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<tr>
<td>Range</td>
<td>Ok</td>
<td>Good</td>
<td>Good</td>
<td>Bad</td>
</tr>
<tr>
<td>All weather reliability</td>
<td>Bad</td>
<td>Good</td>
<td>Ok</td>
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<td>Capacity</td>
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<td>Ok</td>
<td>Ok</td>
<td>Ok</td>
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<td>Refueling time</td>
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<td>Bad</td>
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<td><strong>Safety</strong></td>
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<td>Crashworthiness</td>
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</table>
Many new opportunities doesn’t meet our current customer’s needs
Managing customers at moments of discontinuity

Who buys a technology when it is first introduced?

New technologies sell to:
- New customers
- With new needs
- Often at lower margins
The Innovator’s Dilemma: “Disruptive” technologies may threaten established firms

Clay Christensen: *The Innovator’s Dilemma*
Many new opportunities don’t appear to offer the same margins as the current business.
Three key ideas:

- **Uniqueness**
  - *Controlling the knowledge generated by an innovation*

- **Complementary assets**
  - *Controlling the assets that maximize the profits from innovating*

- **Understanding the dynamics of the value chain**
  - Should we buy our suppliers? Distributors?
  - Should we outsource our manufacturing... distribution... sales... capability?
Uniqueness is very important:

- If a particular innovation, or the knowledge on which it rests, can be completely “appropriated” (i.e., completely controlled or protected) then the innovating firm may be able to maintain a unique position. This is a tremendous source of bargaining power.
Uniqueness is powerful but often difficult to maintain

- Legal mechanisms can be costly to create, and then even more costly to enforce: and sometimes they require public disclosure
- Secrecy may be difficult to maintain
- Speed is hard work, and sometimes imitable
What are Complementary Assets?

- Those assets that allow a firm to make money, even if the innovation is not unique:
- The answer to the question:
  - If our innovations were instantly available to our competitors, would we still make money? Why?
The interaction between c.assets and uniqueness determines profitability...

Complementary assets are:

<table>
<thead>
<tr>
<th>Available</th>
<th>Tightly held</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy to maintain</td>
<td></td>
</tr>
<tr>
<td>Hard to maintain</td>
<td></td>
</tr>
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</table>

Uniqueness is:

| Easy to maintain    |              |
| Hard to maintain    |              |
Uniqueness & Complementary Assets over the Life Cycle:
Growth as an Organizational Problem
Discontinuous Innovation as an organizational problem

- Time horizons & Incentives
- Fear of (individual) cannibalization
- Overload
- Competency Traps
Overload: Is This Your Project Pipeline?
Overload can give you “worse before better”

+ Performance Gap
- Pressure to fix short term problems
- Pressure to invest in longer term opportunities

DELAY

- Time spent in “next generation” projects
  Growth projects available
- Time spent fighting

+ DELAY

No longer term projects initiated
Competencies evolve over time, creating “competency traps”
New initiatives challenge every aspect of the organization

Leadership & Strategy

Structure & Process

Incentives

Culture & Mental Models

- Individuals become invested in old approaches. Strategic/competitive problems may provide an excuse for inertia.
- Whole scale changes to structure and process are very disruptive: Two years of lost time?
- Existing incentives often work against significant change, and new incentives take time and work.
- Strong cultures & deeply rooted mental models are extraordinarily resistant to change.
The Organizational Challenge:

Entrepreneurial Drive, Freedom from the “old ways”

Successful growth unites entrepreneurial insight with effective coordination

Control & Coordination

Startups
In summary:

“"I see”, he said, “you’re suggesting that we invest millions of dollars in a market that may or may not exist but that is certainly smaller than our existing market, to develop a product that customers may or may not want, using a business model that will almost certainly give us lower margins than our existing product lines. You’re warning us that we’ll run into serious organizational problems as we make this investment, and our current business is screaming for resources. Tell me again just why we should make this investment?"”

- Divisional Manager, Telecommunications Equipment Provider
What can be done?
What can be done?

- **Lead:**
  - Build the “ambidextrous” senior team: communicate the strategy, allocate resources

- **Structure:**
  - Explore transitional and intermediate forms

- **Incent:**
  - Explain “just what’s in this for me?”

- **Build:**
  - Lay the foundations for a new culture, new expectations
What can be done?

- **Lead:**
  - Develop a clear strategy
  - Generate energy
  - Build an “ambidextrous” senior team
  - Make decisions
Develop a clear strategy

How will we *Create* value?

How will we *Deliver* value?

How will we *Capture* value?
And allocate resources to it!

How will we Create value?

How will we Deliver value?

How will we Capture value?
Generate Energy

- Position the discontinuity as an urgent threat:
  - Flirt with bankruptcy
  - Make vivid the idea that the firm might flirt with bankruptcy

- Position the discontinuity as an opportunity
  - Generate some small successes: build enthusiasm and “infect” the organization
  - Leap boldly into the future
Build an Ambidextrous Senior Team

- Ambidextrous senior teams must manage:
  - both more mature, operationally focused businesses
  - and higher growth, emerging businesses

- High performing senior teams show:
  - High conflict, high respect decision making capabilities
  - High levels of trust and truth telling
  - The ability to manage divergent incentive systems and career paths

- Coupled with processes that support the divergent management of quite different business units
  - E.g. Resource allocation processes that allow for different time horizons, milestones, rates of return
Make Decisions

Average Value-Added Time on Engineering Tasks

Source: IBM Development Efficiency Study

Number of Projects per Engineer
Make real decisions

Consumer Value Perception

- New Core Product
- New Benefits
- Improvement
- Variant
- No Change

Enabling Technology

- Radical
- Next Generation
- Incremental
- Base

Resource Levels

- Low Resource
- Moderate Resource
- High Resource

Innovation Types

- Breakthrough
- Platform
- Derivative
- Brand Support

Functional Drivers

- Natural
- Incremental
- Next Generation
- Radical

Decision Making

- Low Resource
- Moderate Resource
- High Resource
What can be done?

- Lead:
- **Structure:**
  - Implement appropriately
  - Choose the right people
  - Manage linkages
Balance entrepreneurial energy and coordination

Successful disruptive innovation unites entrepreneurial insight with effective coordination
Choose a structure that fits the firm’s strategic positioning and skills

Entrepreneurial Energy

Control & Coordination

Acquire/Partner
Joint venture/alliance
Internal venture
Build inside existing unit
Manage it using every lever that you have

Entrepreneurial Drive, Freedom from the “old ways”

- Acquire/Partner
- Joint venture/alliance
- Internal venture
- Build inside existing unit

Control & Coordination
What can be done?

- Lead
- Structure:
- **Incent**
  - Explain “just what’s in this for me?”
  - Manage the balance between:
    * Individual outcomes and team/firm outcomes
    * “Objective” and “subjective” measures
The incentive problem is an inherently difficult one...

Entrepreneurial Drive, Freedom from the “old ways”

Control & Coordination

Startups

B as U
Using “high powered” incentives may reduce coordination

Entrepreneurial Drive, Freedom from the “old ways”

Acquire/Partner
Joint venture/alliance
Internal venture
Build inside existing unit

Control & Coordination
What can be done?

- Lead
- Structure
- Incent
- **Transform the culture:**
  - Build on core values
  - Practice thinking in new ways
  - Manage from the heart
Summary
Remember what you’re dealing with:

- “I see”, he said, “you’re suggesting that we invest millions of dollars in a market that may or may not exist but that is certainly smaller than our existing market, to develop a product that customers may or may not want, using a business model that will almost certainly give us lower margins than our existing product lines. You’re warning us that we’ll run into serious organizational problems as we make this investment, and our current business is screaming for resources. Tell me again just why we should make this investment?”

- Divisional Manager, Telecommunications Equipment Provider
Make sure you’ve fixed (or are at least aware of) the strategic problem
And manage the organizational issues aggressively
Good Luck!