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15.369 Corporate Entrepreneurship: Strategies for Technology-Based New Business Development  
Fall 2007

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# Minority Equity Investing

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## Background & Strategic Approach

## Air Products' Principles and Guidelines

### APD Venture Investment Guidelines

<b>Funding Stage</b>	<i>Start-up &amp; Early</i>
<b>Regional Area</b>	<i>U.S. &amp; Europe</i>
<b>Sector Focus</b>	<i>Strategic Materials, Medical &amp; Energy</i>
<b>Structure</b>	<i>COE with oversight by board governance</i>
<b>Investment</b>	<i>\$500,000 to 5 Million</i>
<b>Placement</b>	<i>Private Equity or approved VC Funds</i>
<b>Preference</b>	<i>Co-investment with Strategic Partners/VC's</i>
<b>Ownership</b>	<i>&lt;20% equity</i>
<b>Horizon</b>	<i>3-7 years</i>
<b>Governance</b>	<i>No board seats, prefer observation rights</i>

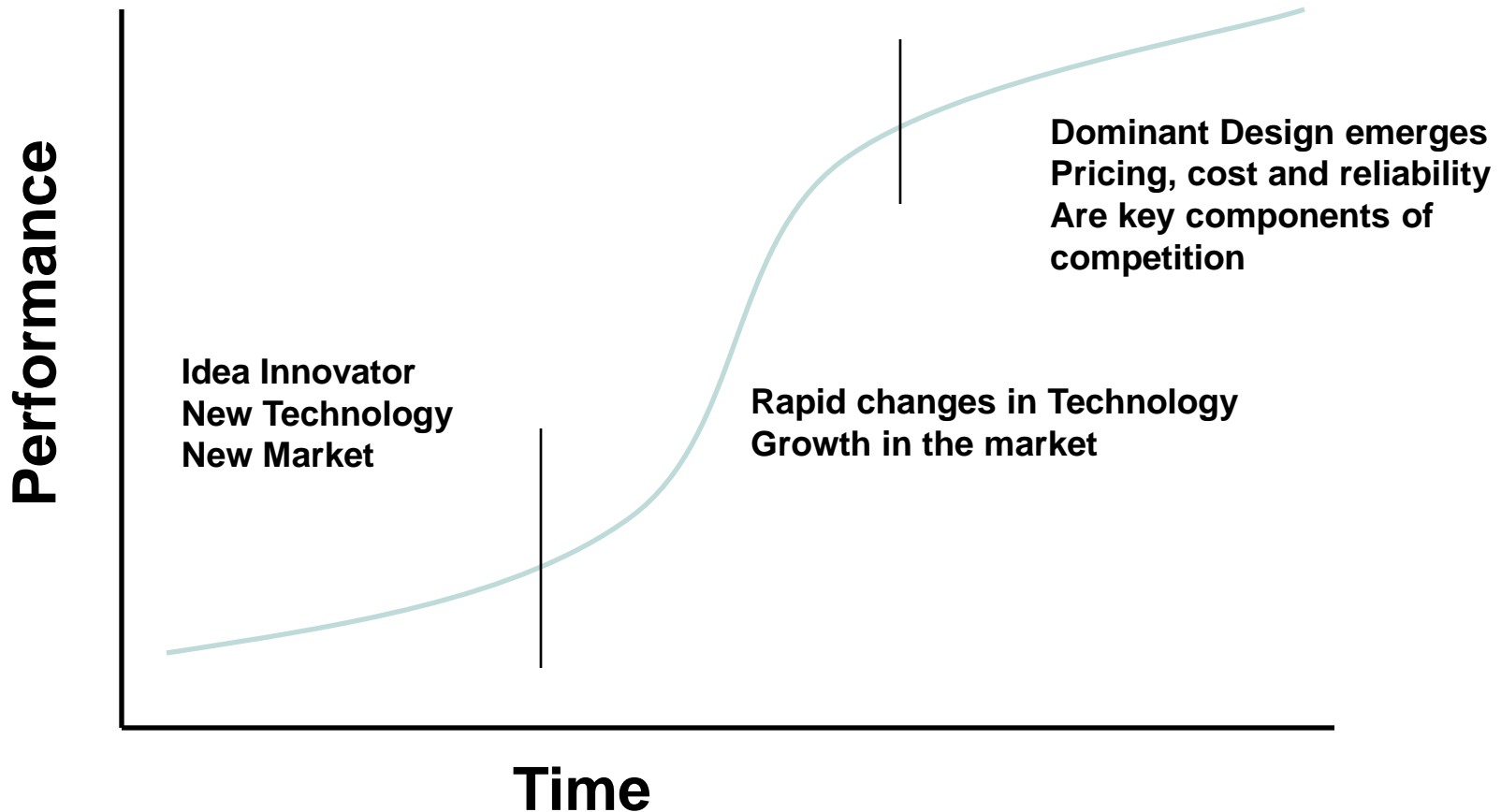
### Strategic Fit

- Existing growth business
- New growth platform
- Approved Growth Board initiative
- Cross group synergy

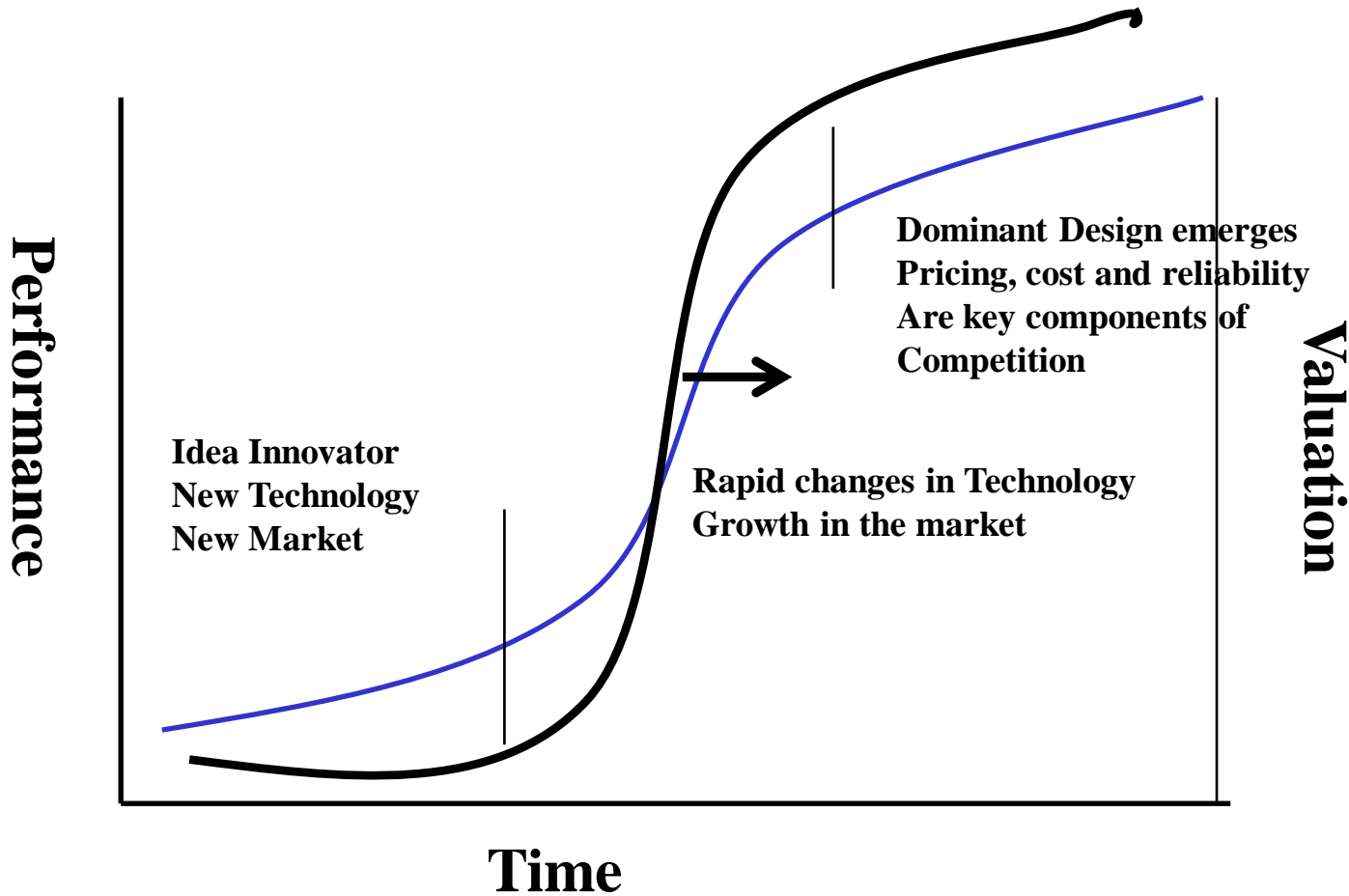
### Strategic Intent

- Access enabling technologies to improve existing business positions
- Identify emerging business opportunities / breakthrough technologies to create new market positions
- Outsource R&D and technology development
- Develop new applications to drive product demand

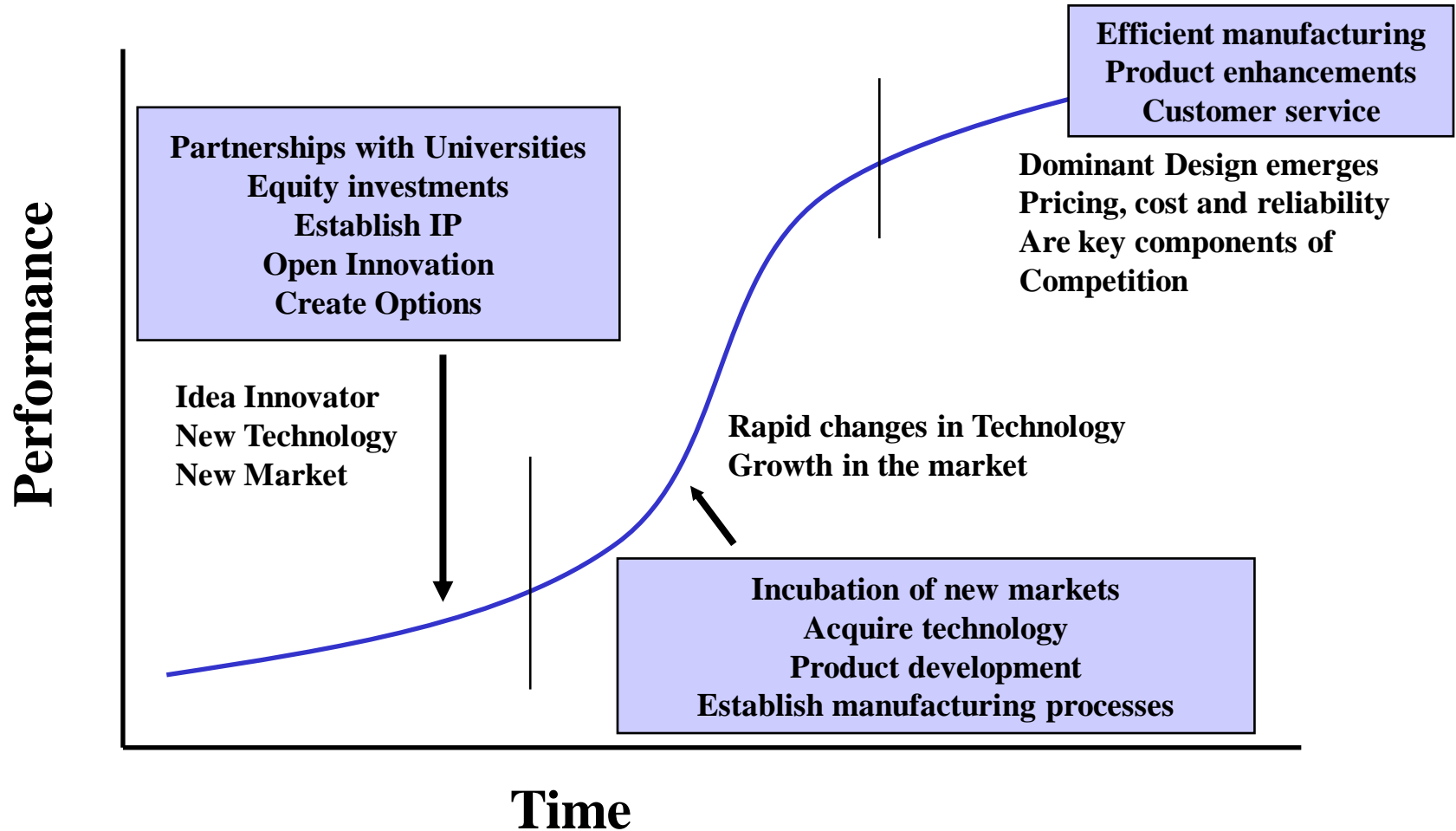
# Technology Evolution



# The Real Dilemma!



# Potential Approaches to New Technology



# Fit vs. Objective

## Corporate Investment Objective

**Strategic**

**Financial**

**Linkage to Capability**

**Tight**

**DRIVING**  
Advances our  
Strategy pace

**EMERGENT**  
Allows exploration  
of potential  
new businesses

**Loose**

**ENABLING**  
Develop  
Skills in emerging  
area

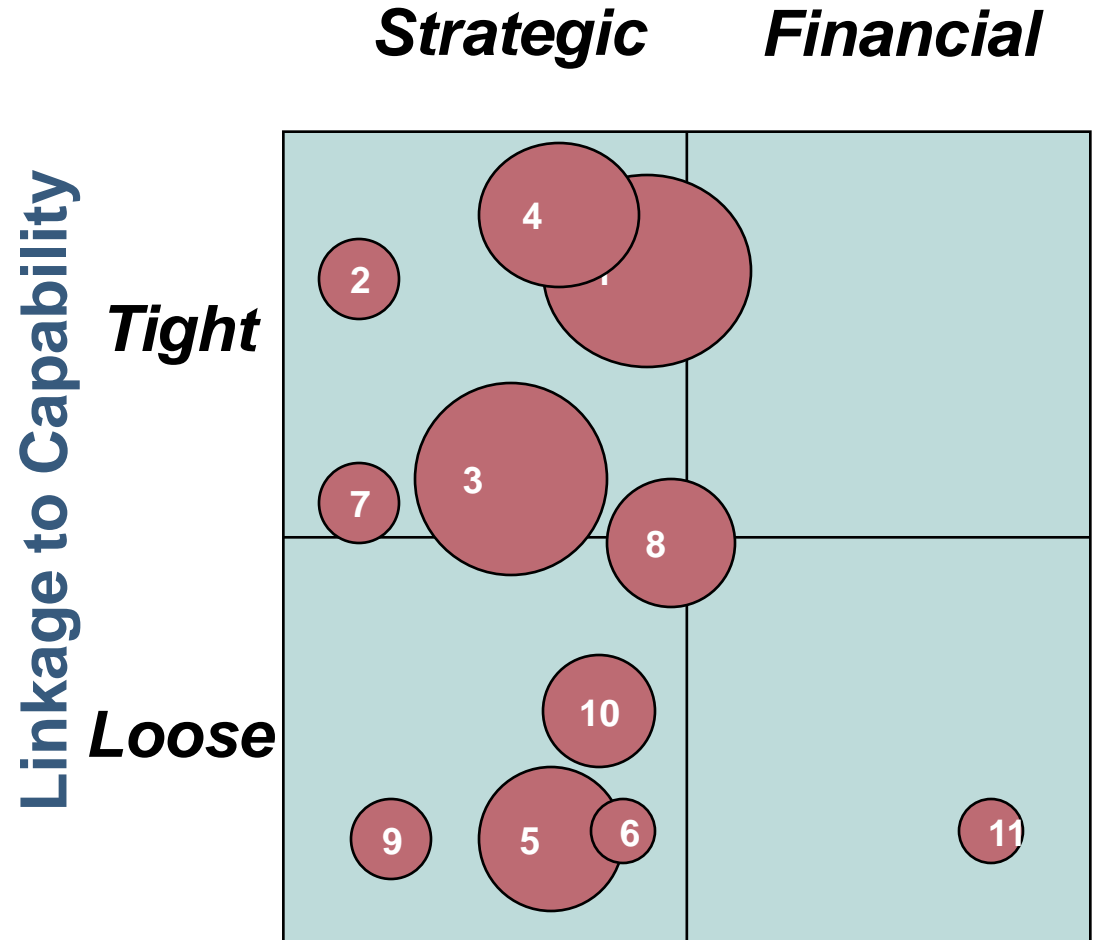
**PASSIVE**  
Provides financial  
Returns only

# Potential Applications of the Technology

## Corporate Investment Objective

Each bubble represents an Application of the technology

Bubble size is indicative of the Revenue potential





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# When To consider Strategic Investment?

## For the Large Strategic Partner

**Start up has already demonstrate some product performance at customer site**

**Insure that you have a value proposition for your existing business operation**

**Clearly articulate your ability to create value beyond what start up is doing**

**Assign resources to capture strategic value**

**View this an as option to enter a new market or technology space**

## For start up

**Articulate your needs for resources, market channels, technology etc.**

**Do not do a strategic investment unless you are ready to go to market**

**Do not do a strategic investment if all you need is cash! That is what VC's are for**

**We are active in corporate venturing and have strategically invested less than 3% of our capital budget in twelve companies & two VC funds**

	<b>Venture Business Opportunity</b>	<b>Strategic Relevance</b>
<b>Parelec</b>	<ul style="list-style-type: none"><li>■ Low temperature conductive inks &amp; pastes for electronic interconnects &amp; advanced materials for circuit metallization</li></ul>	<ul style="list-style-type: none"><li>■ New market entry for Electronics Materials</li></ul>
<b>Quantum Clean</b>	<ul style="list-style-type: none"><li>■ Semiconductor tool parts cleaning services to the global industry</li></ul>	<ul style="list-style-type: none"><li>■ New outsourced parts cleaning services business for Electronics</li></ul>
<b>E-Ink</b>	<ul style="list-style-type: none"><li>■ Electronic ink technology &amp; materials for paper-like displays</li></ul>	<ul style="list-style-type: none"><li>■ Expand presence of Electronic materials in emerging display industry</li></ul>
<b>psiloQuest</b>	<ul style="list-style-type: none"><li>■ Proprietary CMP pad offerings for the semiconductor manufacturing market</li></ul>	<ul style="list-style-type: none"><li>■ Complementary products to DAN JV with DuPont for CMP slurry applications</li></ul>
<b>Elemica</b>	<ul style="list-style-type: none"><li>■ Neutral, business-to-business e-marketplace for the chemicals industry</li></ul>	<ul style="list-style-type: none"><li>■ Low cost alternative to point-to-point connection for e-business &amp; SAP applications</li></ul>

Continued.....

**Venture Business Opportunity**

**Strategic Relevance**

**General Hydrogen**

- Hydrogen fueling systems & hydricity packs to enable deployment of fuel cell powered vehicles

- Fuel cells & hydrogen dispensing/generation equipment

**H2 Gen**

- Low cost, high purity small scale hydrogen generators to enable fuel cell powered vehicles & power generation

- Fuel cells & low cost small SMR equipment

**APJet**

- Low temperature atmospheric plasma technology for etching, cleaning, decontaminating or coating

- Semiconductor deposition, barrier coatings in plastic & optical coatings

**Nanotechnologies**

- High-performance nanoparticles via proprietary pulsed plasma technology

- Transparent coatings, anti-microbial products, and Electronic materials

**Solicore**

- Thin flexible polymeric solid-state battery technology & materials

- Advanced Materials battery electrolytes & polymers

**NGEN Fund**

- \$70 MM Venture capital materials science fund with an early stage focus

- Access enabling/emerging materials technologies

**Inverness Capital Partners Fund**

- \$125 MM SBIC industrial technology fund with a later stage focus

- Access enabling/emerging industrial technology

# The VIB provides oversight & administration of our equity investments across the corporation, including participation in external VC funds

## VIB Oversight & Administration

Investment  
Governance

Deal Review  
& Approval

Portfolio Management  
& Performance

## VIB Membership

- Executive Sponsor
- Venture Investments
- SBU
- Technology
- Legal Department
- Controllership
- External Advisor

## Corporate-wide Linkage

### VI Manager

- Owns the Venture Investment process
- Maintains COE, best practices & linkage to SBU's & CDO
- Monitors portfolio performance

### SBU's & CDO

Strategic Business Unit  
& Corporate  
Development Office

- Allocate capital, resources & skill base
- Define strategic needs
- Evaluate & execute deals

### VC Funds

- Provide proprietary deal flow
- Lead investment rounds
- Provide co-investment opportunities

### Fund Secondees

- Identify strategically relevant opportunities
- Direct relevant deal flow to SBU's & CDO
- Influence fund focus for co-investment