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

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My Background

- **Ph.D. Chemistry**

- **27 years with Air Products and Chemicals, Inc.**
  - **Scientist**
  - **Technical Director**
  - **Director, New Business Development**

- **Managed internal and external venturing**

- **President and CEO, PPT Research**
  - **Materials for Solar and Semi-conductor markets**

- **Consultant – Cameron and Associates**

- **Lecturer – Wharton Business School**

Air Products and Chemicals, Inc

- **Global gases, chemicals, equipment and services provider**
- **Serving technology, energy, healthcare and industrial markets**
- **Fortune 500 company**
- **One of the safest large-scale chemical companies**
- **Operations in more than 30 countries**
- **>20,000 employees worldwide**
- **Known for our innovative culture and operational excellence**
- **Corporate responsibility commitment**

Five Levels To Drive Growth
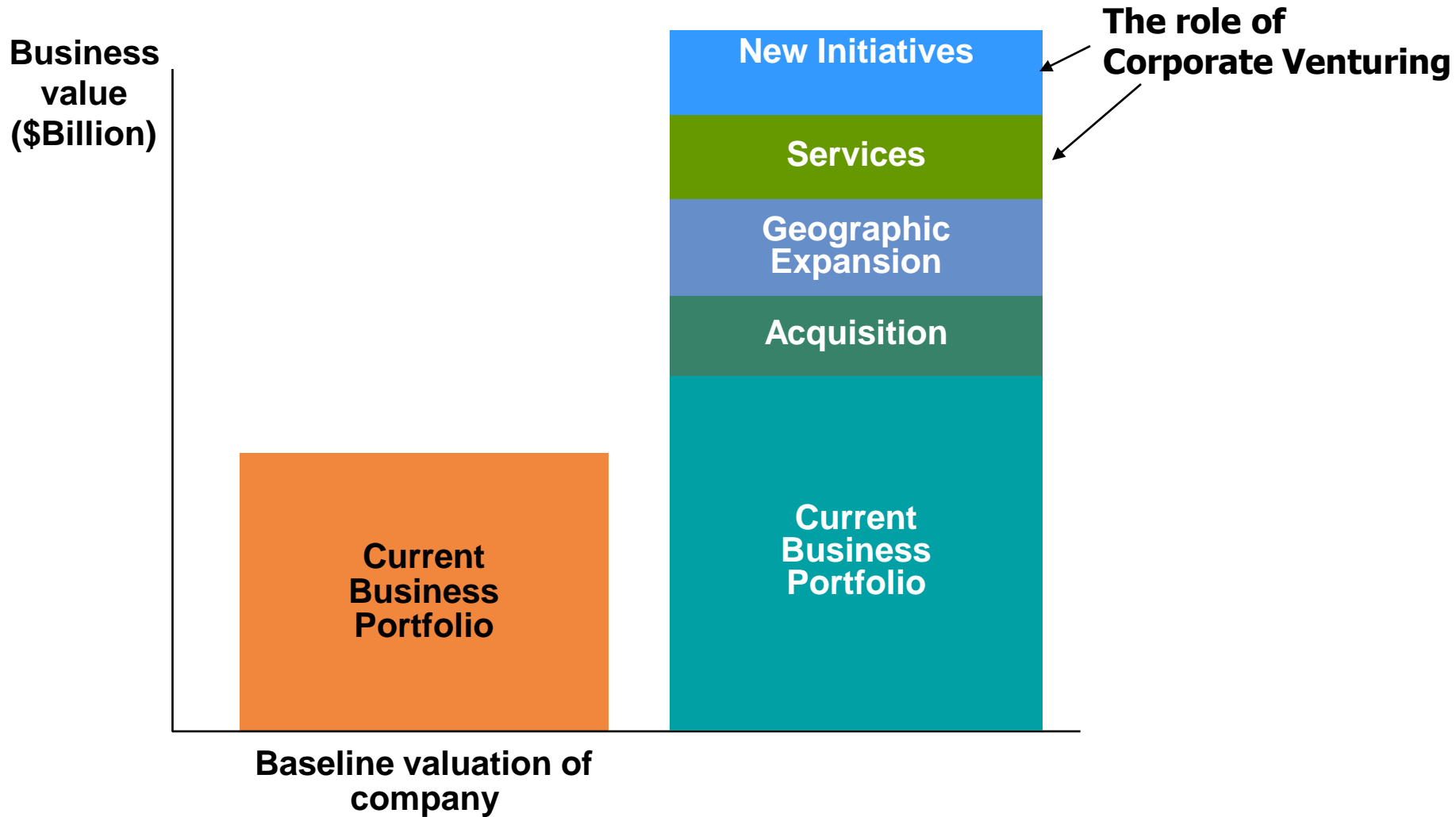
But For Most Companies.......

- **Markets well defined**
- **Product characteristics well understood**
- **Profit margins can be low**
- **Production is efficient, capital intensive**
- **Competition is price**
- **Change is costly**

The result is incremental innovation

For most companies

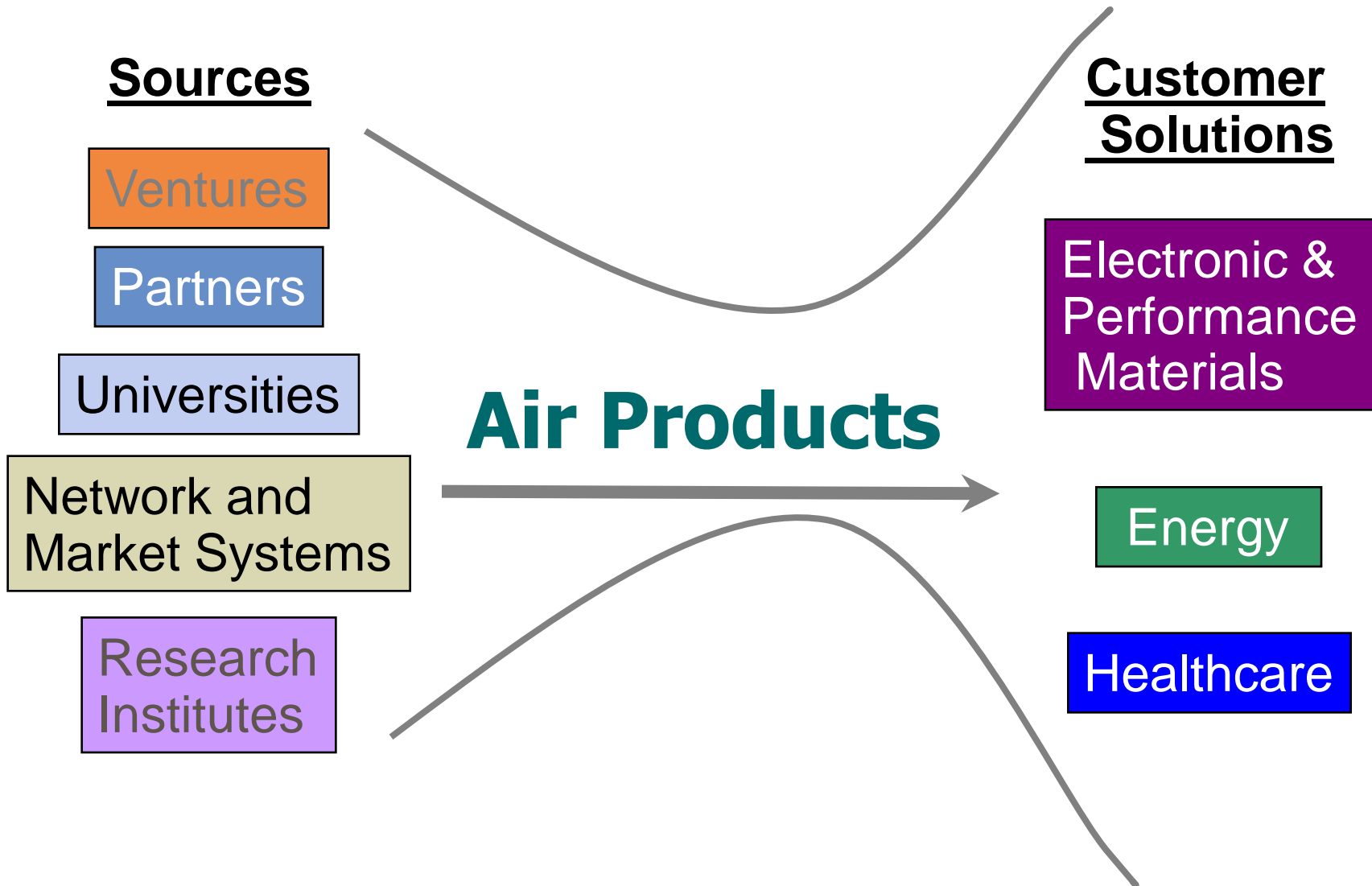**Innovation is considered technology's job!**

We need to expand the definition:

- **New products**
- **Breakthrough production**
- **Speed to market**
- **New business segments**
- **New business models**
- **New customers**

Escaping the Incremental Traps:
Developing New Knowledge

- **Developing Internal Knowledge**
  - **Must create external networks**
    - **Ventures**
    - **Alliances**
    - **Partnerships**
    - **Emerging Markets**
- **Must have the appropriate resources**
  - **Empowered Teams**
  - **Decision making**
  - **Skills and capabilities**
  - **Risk Tolerance**
- **Must understand capabilities and strategic assets**

Identify and Accelerate

Sources

Ventures

Partners

Universities

Network and Market Systems

Research Institutes

Air Products

Customer Solutions

Electronic & Performance Materials

Energy

Healthcare

An Approach to Stimulating Innovation

- **Create an organization that is responsible for the development of new opportunities**
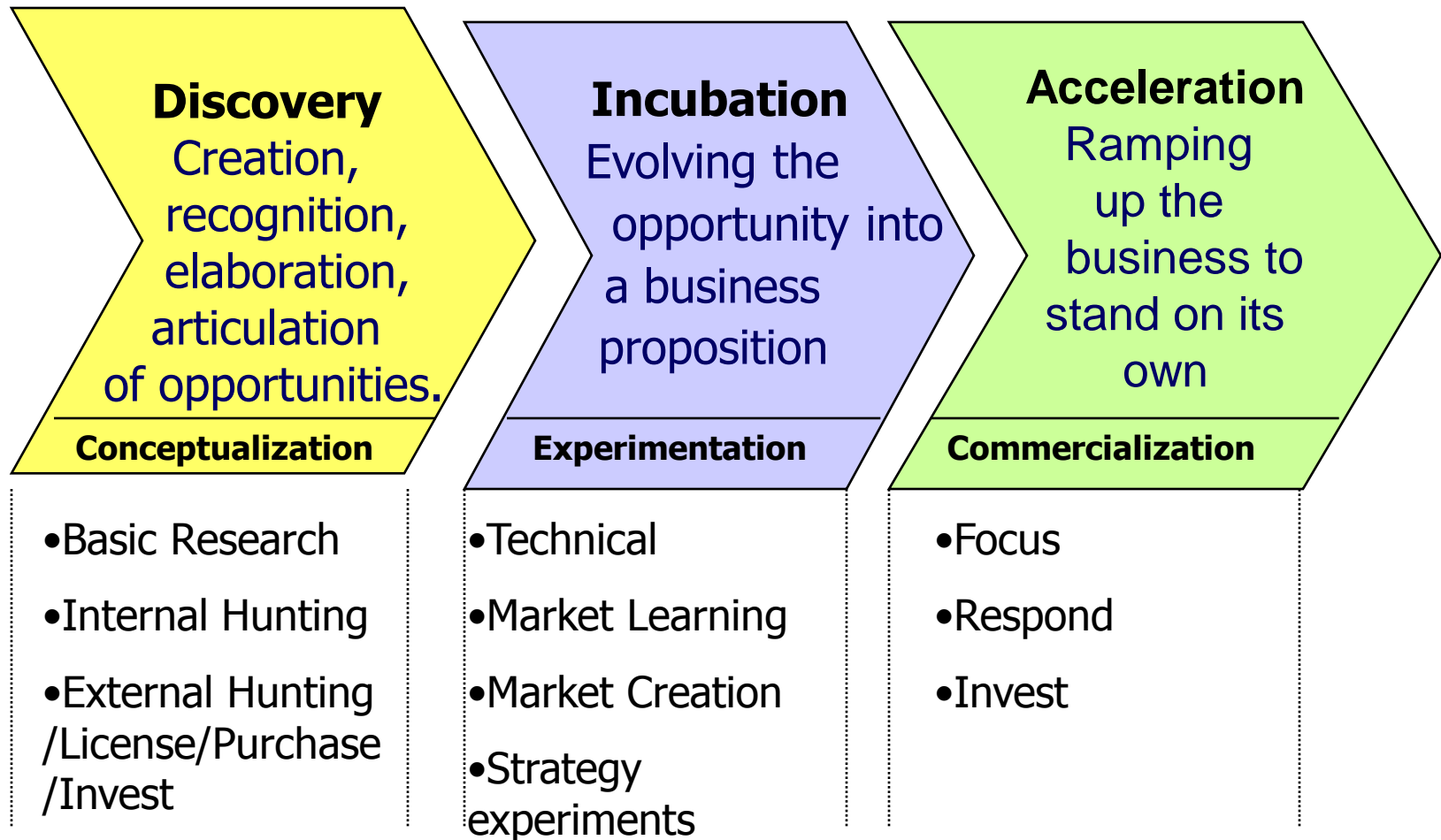
  Whitespace – between the domains of existing businesses

  Greyspace – overlapping multiple businesses but long term

Air Products Corporate Venturing

- **A mix of internal and external venturing activities**
  - **Ideas come from within or through a broad search mechanism**

- **Focus on developing platform level businesses**
  - **Keep it large enough to be material**

- **Take advantage of unique skills, capabilities, market channels or customer relationships**
  - **Start with something you know**

- **Focus on growth domains that are linked to corporate growth strategy**
  - **Have a defined strategy**

- **Organizational Model**
  - **Never Static**
  - **Always evolving to meet the strategic needs of the corporation**

Not just one competency...but 3!

Discovery	Incubation	Acceleration
Creation, recognition, elaboration, articulation of opportunities.	Evolving the opportunity into a business proposition	Ramping up the business to stand on its own
Conceptualization	**Experimentation**	**Commercialization**
• Basic Research	• Technical	• Focus
• Internal Hunting	• Market Learning	• Respond
• External Hunting /License/Purchase /Invest	• Market Creation	• Invest
	• Strategy experiments	

Source: Radical Innovation Group

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Organization

Role of the New Business Development Group

- **Develop the strategies for new business platforms**
  - **New technologies and new markets**

- **Incubate the early stages of new businesses**

- **Develop the tools for new business creation**

- **Consult with SBU on disruptive approaches**

- **Manage the venture equity investment portfolio**

- **Individuals with diverse backgrounds**
  - **Technologists**
  - **Business**
  - **Commercial Development**
  - **Finance**

Framework for Corporate Growth

	Framework	Considerations	Organization	Process	Tools
Senior Management	Domains	Strategic Options	Growth Board Executive Committee	Trends Analysis Domain Mapping	Trends Portfolio
Middle Management	Platforms Businesses	Portfolios	Business Unit Business Development	Platform Development	Portfolio analysis Real Options
Corporate Entrepreneur	Project	Project Management	Venture	Assumption Based Planning	Learning Plan DDP

Engaging Senior Management

- **Senior leadership team established**
  - **Growth Board**
    - **COO, CTO, CFO, VP Corp. Dev.**
- **Monthly meetings**
- **Challenges**
  - **Getting to high enough level for discussion**
  - **Managing projects!**
  - **Understanding the different metrics**
- **Keep the group focused on providing advice and input not on decision making**

Organizing the Hub and Spoke System
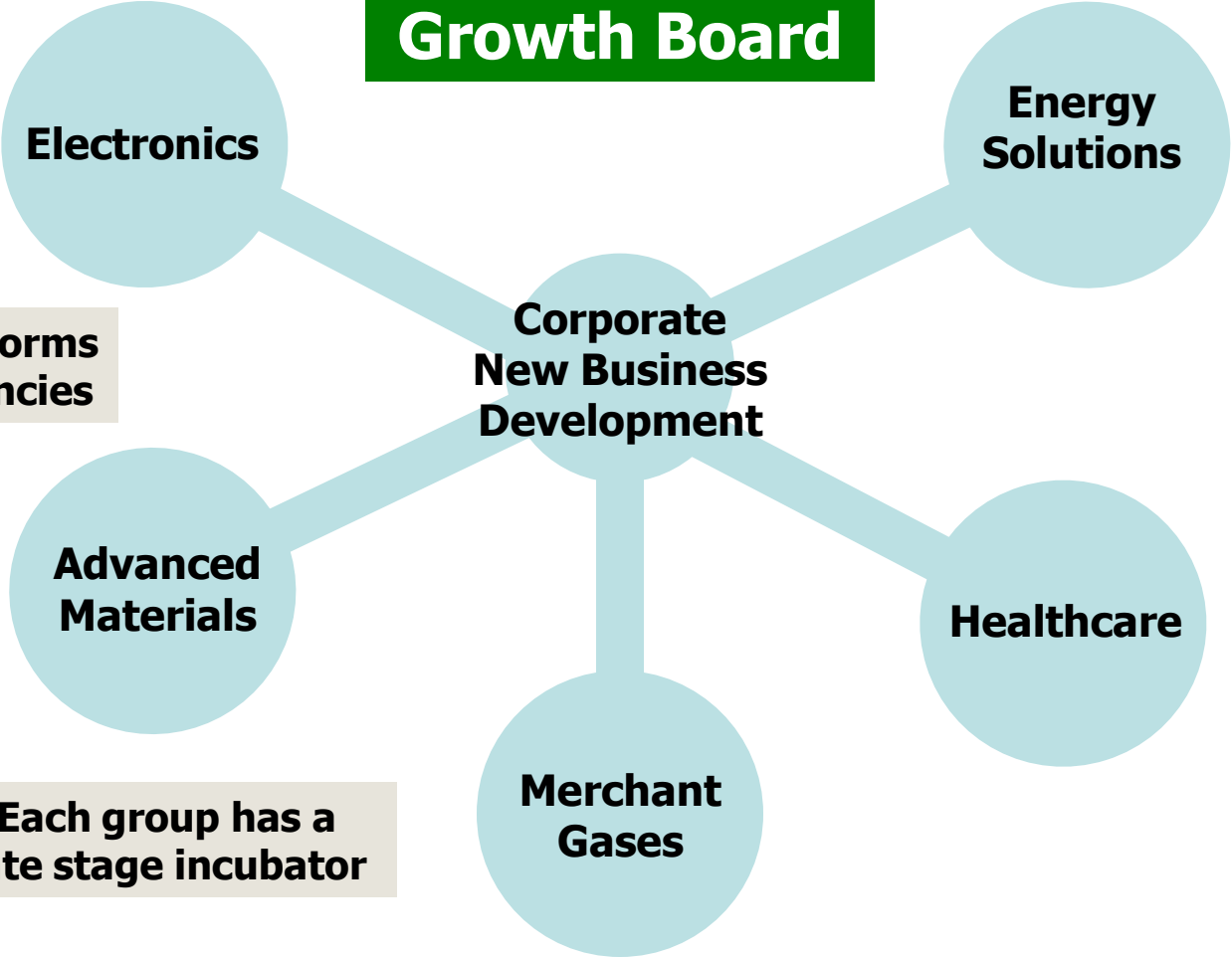
Attracting People to a New Ventures Group

- **Action oriented**

- **General dislike for formal planning**
  - **Difficulty dealing with work process**

- **Able to function in an uncertain environment**
  - **Goals aren't always clear**
  - **Must be self starters**

- **Lots of enthusiasm**
  - **Tend to be more outgoing**
  - **Capable of cold calling potential customers**

- **High Myers Briggs rainmaker index (NT's)**

Targeted Skills for "Corporate Entrepreneurs"

- **More junior than traditional commercial managers**
  - **More to gain than lose**
- **Must be able to see "big picture"**
  - **Not necessarily detail oriented**
- **Inquisitive**
- **Externally focused**
- **Able to Learn while Failing!**
- **No hierarchy issues**
- **Challenge status quo**
- **Can and should be outsider**
- **Functional background less important**
  - **More of a personality type!**
- **Training and education are a major part of building the capability**

Defining and Developing Corporate Ventures

What are New Ventures?

- **Those activities that should be subject to a different set of metrics than established SBUs**

- **Disruptive or radical technology opportunities**

- **Business models that are new to the corporation**

- **High growth potential but also high uncertainty**

- **New Business Platforms**
  - **Market positions**
  - **Technology Platforms**
  - **Offerings we don't have today, sold to customers (not necessarily markets) that we don't serve today**

"Content from D. L. Laurie, Y. L. Doz, C. P. Sheer, HBR, may 2006." Removed due to copyright restrictions.

Platform Management Levels

- **Enterprise** – **expectations, high level objectives, requirements, support, strategic technologies, alternative scanning, funding lifecycle, acquisitions**

- **Platform** – **Risk spreading, options, initiatives sequencing, partnering, identifying and maximizing synergies within the platform (>$500 MM)**

- **Business(venture)** – **milestones, stage gate Financial analysis, customer sequencing, and business design, targeting, partnering ($50 – 150 MM)**

Source: The Woodside Institute

What is a "business platform"?

- **A common high level value proposition**

- **A defined set of products/services and/or markets/customers that have;**
  - **Critical mass, size**
  - **Synergy (e.g. technology, supply chain, customer base etc.)**

- **Relatively long term market positioning**

- **A portfolio of business opportunities**

Source: The Woodside Institute

Issues in Creating New Business Platforms

- **Competition for resources**
  - **All metrics are aligned with the standard (incremental) portfolio process**
  - **Growth Board issue**

- **Boundary crossing**
  - **New opportunities require skills and capabilities across multiple functions and SBU's**
  - **May require new, external skills and capabilities**

- **Timetables tend to be uncertain**
  - **Market uncertainties, technology uncertainties are high**
  - **Tend to be longer – impatience**

Source: The Corporate Strategy Board

Issues in Creating New Business Platforms

- **Organizational issues**
  - Matrix organization that serves large established businesses well is not well suited to creating new platforms.
  - New platforms may be viewed as overlapping or even threats to existing businesses.
  - Need for external input and/or membership

- **Resource issues**
  - Lack of people, mgrs with experience developing new businesses, under uncertainty and often in markets that are unfamiliar.

- **Milestones**
  - Early stages should be viewed as high learning periods.
  - Progress will be made but changes in tactics, milestones, and even strategies will be needed.
  - Need to develop a standard approach to metrics that are appropriate for early stage and high risk activities.

Creating new Business Platforms

Start with close in adjacencies

- H_2 for Fuel Cells – built on our existing H_2 capability
- Small scale systems – build on gas separation capability

Expand opportunity to build new capability

- Small scale systems – new manufacturing capabilities developed
- Partner to create strategic alliances

Expand technology capability into emerging markets

- Hybrid battery materials
- Flexible electronic displays

Develop new market opportunities

- Remote monitoring

Building new platforms

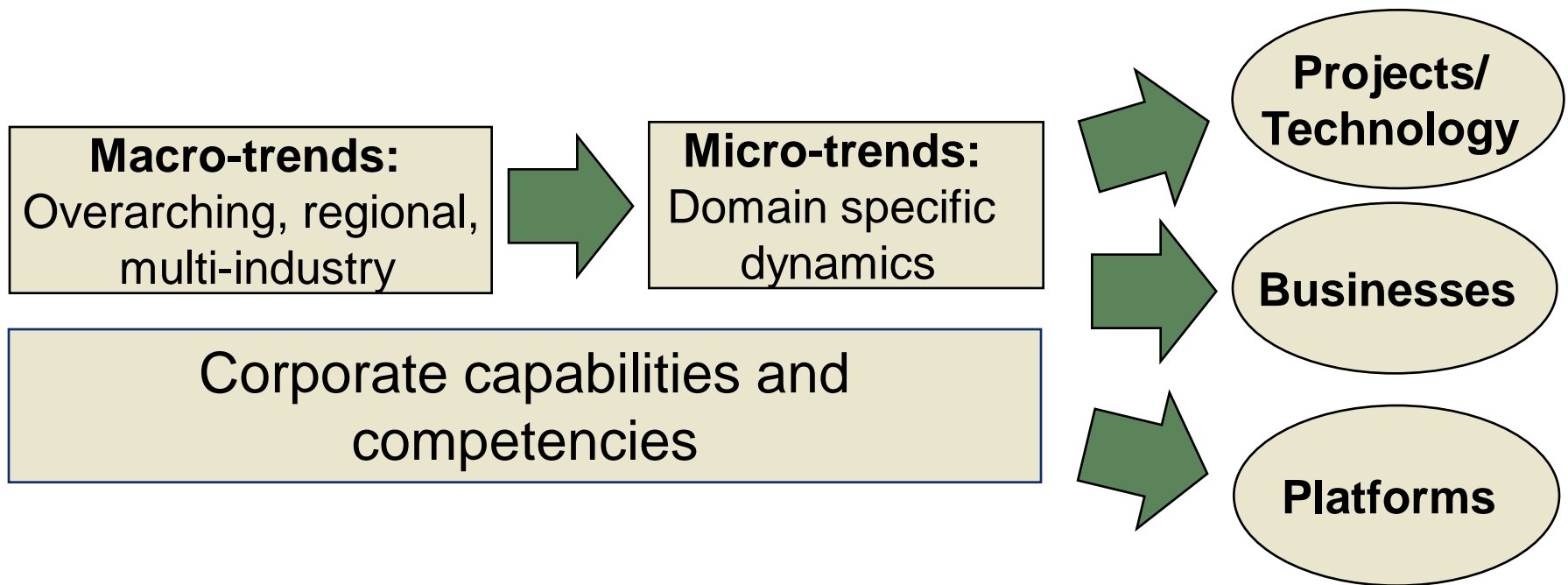| *Venture Opportunity*	Emerging Trend	Leveraging existing capabilities	Unmet market needs
Vendor Managed Inventory	Low cost remote monitoring technologies	1000 deliveries per day remotely managed	No full service solution provider
Future Energy Solutions	The H_2 economy	Our H_2 production Franchise	No safe effective solution for H_2 delivery to vehicles
Advanced Battery Materials	Hybrid autos/ portable power	Chemicals and materials know how. F_2 Chemistry	Li battery safety issues

Systematically search for new opportunities

- **Broad idea generation has not been successful**
  - **Ideas are generally small extensions of existing projects**
- **Necessitated a more systematic search approach**
- **Allowed us to get management involved in the search rather than in just the review**
  - **Met with Growth Board more often to review ideas**

Developing strategic insights
Where do you start?

- **Importance of multiple filters in decision making**
  - **External filters – trends***
  - **Internal filters – capabilities & competencies**

Macro-trends: Overarching, regional, multi-industry	→	**Micro-trends:** Domain specific dynamics	→	**Projects/ Technology**
Corporate capabilities and competencies			→	**Businesses**
			→	**Platforms**

*Trend: Lasting force of change – not an event, not a fad

Some Final Thoughts and Observations

- **This is a about discipline and execution**
    - **But it is a different discipline**
    - **Test assumptions early and often**

In most large companies:

- **Projects tend to be over-funded**
    - **Makes redirection difficult**

- **Need to force a venture mindset**

To gain commitment:

- **Fund projects according to a milestone schedule**

- **Target small quick market entry for survival**
    - **Allows you to deal with operational issues**
    - **Generate cash whenever possible but,**

- **Don't lose sight of strategic markets**

Issues and Challenges

- **Availability of seed money**
  - **Capacity of organization**

- **Short term focus in SBU's**
  - **Metrics for accelerators vs. conventional**
  - **Piloting real options**

- **Building credibility for NBD**
  - **Create opportunities within Growth Platforms**
  - **Allows more whitespace opportunity**

- **Developing the right skill set**
  - **Neither technology nor business but both**
  - **Career path for business development professionals**

The End