



Wharton
UNIVERSITY of PENNSYLVANIA

William *and* Phyllis
MACK INSTITUTE
for INNOVATION MANAGEMENT

Leveraging Ecosystems, Investments, and Acquisitions to Keep an Innovative Edge

Mack Institute Spring Conference 2017

Wharton | San Francisco

Who We Are

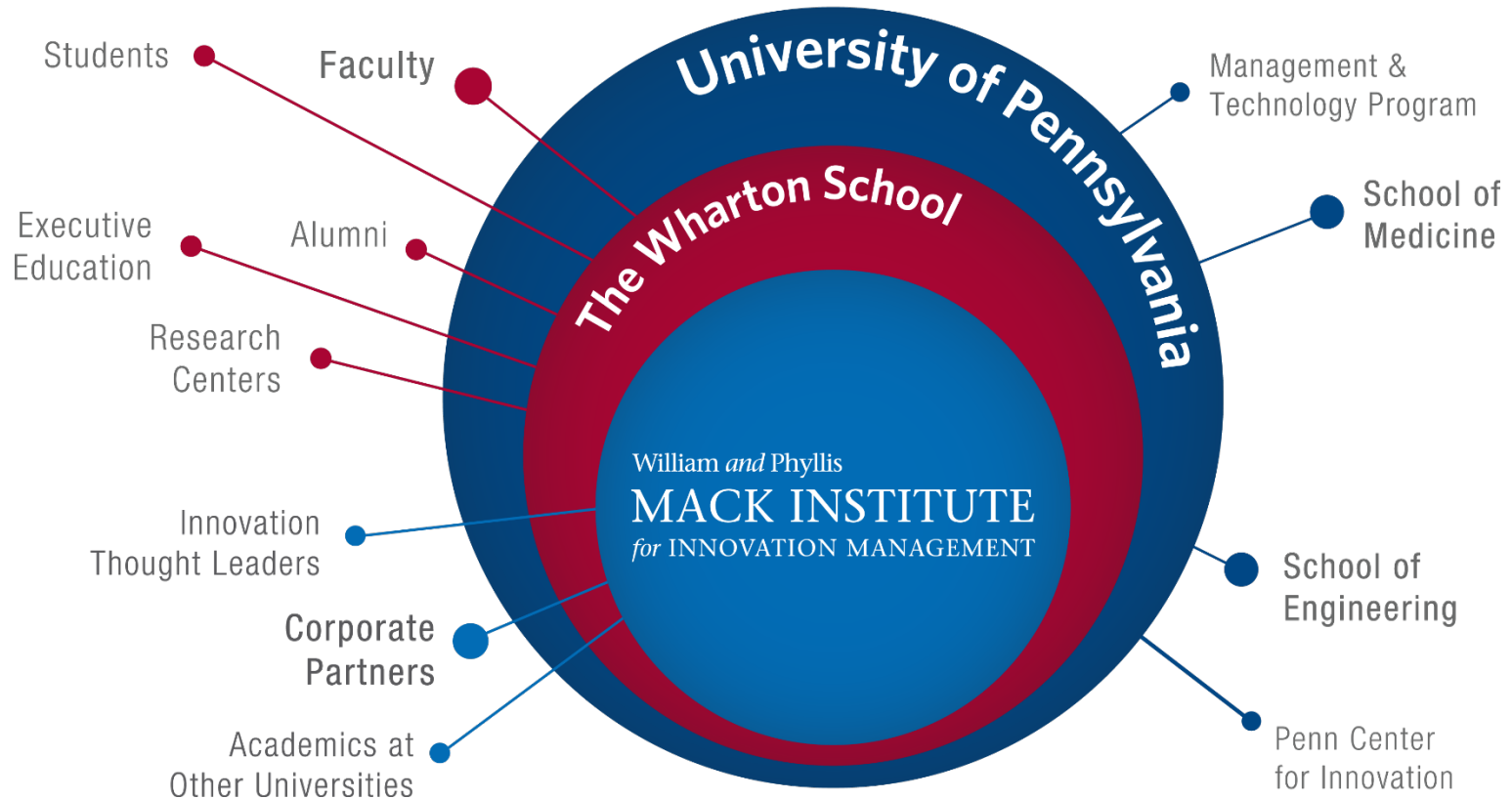
Our Mission, Major Roles, and Faculty Leadership

Our Mission

The Mack Institute fosters industry and academic communities to transform our innovation research into real-world impact.



A Central Node in a Knowledge Network



We act as the hub of a global network linking scholars, industry leaders, and students.

Our Roles



Provide a research-based, cross-industry, interdisciplinary approach to innovation challenges



Cultivate thought leadership through scholarly research in innovation management



Connect academic theory to managerial practice, focusing on established and growing organizations



Expand student and alumni opportunities to enable innovation across the university

Our Impact

Mack Institute activities focus on research, managerial practice, and students.

\$3.4M

Research funding since 2001

9

Countries represented in corporate partner network

431

Research projects funded since 2001

2050

Approximate total of unique conference attendees since 2001

537

Working papers, scholarly articles, and books/book chapters

143k

Annual MOOC enrollment

30k

Academic citations as of 2017

5000+

Students engaged in programs, faculty-led courses, and events annually

WHO WE ARE



HARBIR SINGH
Co-director, Mack Institute; Vice Dean for Global Initiatives and Mack Professor of Management



NICOLAJ SIGGELKOW
Co-director, Mack Institute; David M. Knott Professor and Professor of Management



CHRISTIAN TERWIESCH
Co-director, Mack Institute; Andrew M. Heller Professor; Senior Fellow, Leonard Davis Institute for Health Economics



SAIKAT CHAUDHURI
Executive Director, Mack Institute; Adjunct Associate Professor of Management



JOHN PAUL MACDUFFIE
Director, PVMI, Mack Institute; Professor of Management

Faculty Directors



GEORGE S. DAY
Geoffrey T. Boisi Professor Emeritus



JITENDRA V. SINGH
Dean, Michael Jebsen Professor of Business, Hong Kong Science and Technology University

Faculty Emeritus in Residence



TERRI BUTRYMOWICZ
Program Manager



MICHELLE ECKERT
Marketing and Communications Coordinator



KATE FITZ-HENRY
Admin. Coordinator



JOE NEBISTINSKY
Associate Director for Industry Engagement

Mack Institute Staff

Mack Institute Core Team



RAPHAEL (RAFFI) AMIT
Robert B. Goergen Professor of Entrepreneurship; Academic Director, Goergen Entrepreneurial Programs; Academic Director, Wharton Global Family Alliance



DAVID ASCH
Professor of Medicine, Medical Ethics and Health Policy, Anesthesiology and Critical Care Medicine, Health Care Management, and OPIIM; Exec. Director, Center for Health Care Innovation



WILLIAM HAMILTON
Ralph Landau Professor Emeritus of Management and Technology



DAVID HSU
Richard A. Sapp Professor; Professor of Management



LORI ROSENKOPF
Simon and Mildred Palley Professor of Management; Vice Dean and Director, Wharton Undergraduate Division



VIJAY KUMAR
Nemirovsky Family Dean, School of Engineering and Applied Science; UPS Foundation Professor



DANIEL LEVINTHAL
Reginald H. Jones Professor of Corporate Strategy; Chair, Management Department



BRIAN LITT
Professor of Neurology and Bioengineering; Director, Center for Neuroengineering and Therapeutics



KARL T. ULRICH
Vice Dean of Innovation; CIBC Professor; Professor of Operations and Information Management



SIDNEY G. WINTER
Deloitte and Touche Professor Emeritus

What We Study

Research Priorities and Publications

Research Priorities

The activities of the Mack Institute are guided by the research priorities we have jointly developed with our corporate partners, signaling issues for us to study and topics for our knowledge-building events.

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graph LR; A[Partners & Faculty] --> B[Mack Institute Research Priorities]; B --> C[Conferences Research funding Publications];
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Partners
& Faculty

Mack Institute
Research
Priorities

Conferences
Research funding
Publications

Research Priorities

INNOVATION OPPORTUNITIES

How do emerging technology-based industries differ from established industries? How do they emerge and evolve?

What explains patterns of competitive entry, shakeout, and survival in these industries?

STRATEGIES FOR INNOVATING

What distinguishes growth leaders from laggards?

How do winning firms bring their innovations to market ahead of their rivals?

What strategies can help contain risk from moves into adjacencies and white spaces?

LEADING AND ORGANIZING FOR INNOVATION

What new forms of organization and business models are enabled by advances in technology and enhanced globalization?

How do best practice firms act on opportunities and threats sooner than their rivals?

CAPTURING ECONOMIC VALUE FROM INNOVATION

How do firms make wise bets on long-term innovation projects when prospects are distant and uncertain?

What is the right balance of risk and return in innovation portfolios?

Research Programs

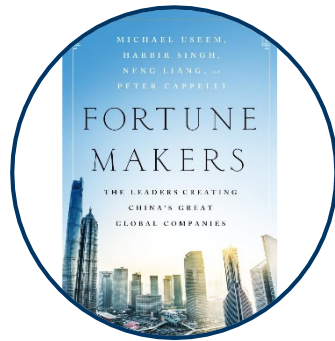
Each year, the Mack Institute funds research by Wharton faculty and PhD students on topics related to innovation management.

In 2016, the Mack Institute sponsored 27 faculty and PhD research fellowships with a total of \$209,000 in funding.

Explore all recent projects at mackinstitute.wharton.upenn.edu/research



Publications by Faculty



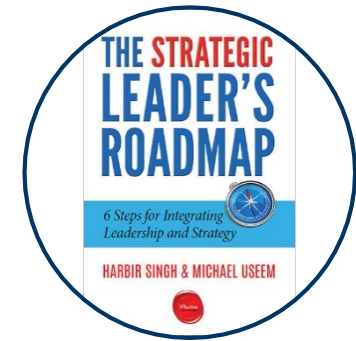
Fortune Makers

by Michael Useem, Harbir Singh, Neng Liang, and Peter Cappelli



Innovation Prowess

by George S. Day



The Strategic Leader's Roadmap

by Harbir Singh and Michael Useem

PUBLISHED ARTICLES

“Which Industries are Served by Online Markets for Technology?”

Science Direct, April 2017

“Building a More Intelligent Enterprise”

MIT Sloan Review, March 2017

“Idea Generation and the Role of Feedback: Evidence from Field Experiments with Innovation Tournaments” - *Production and Operations Management*, January 2017

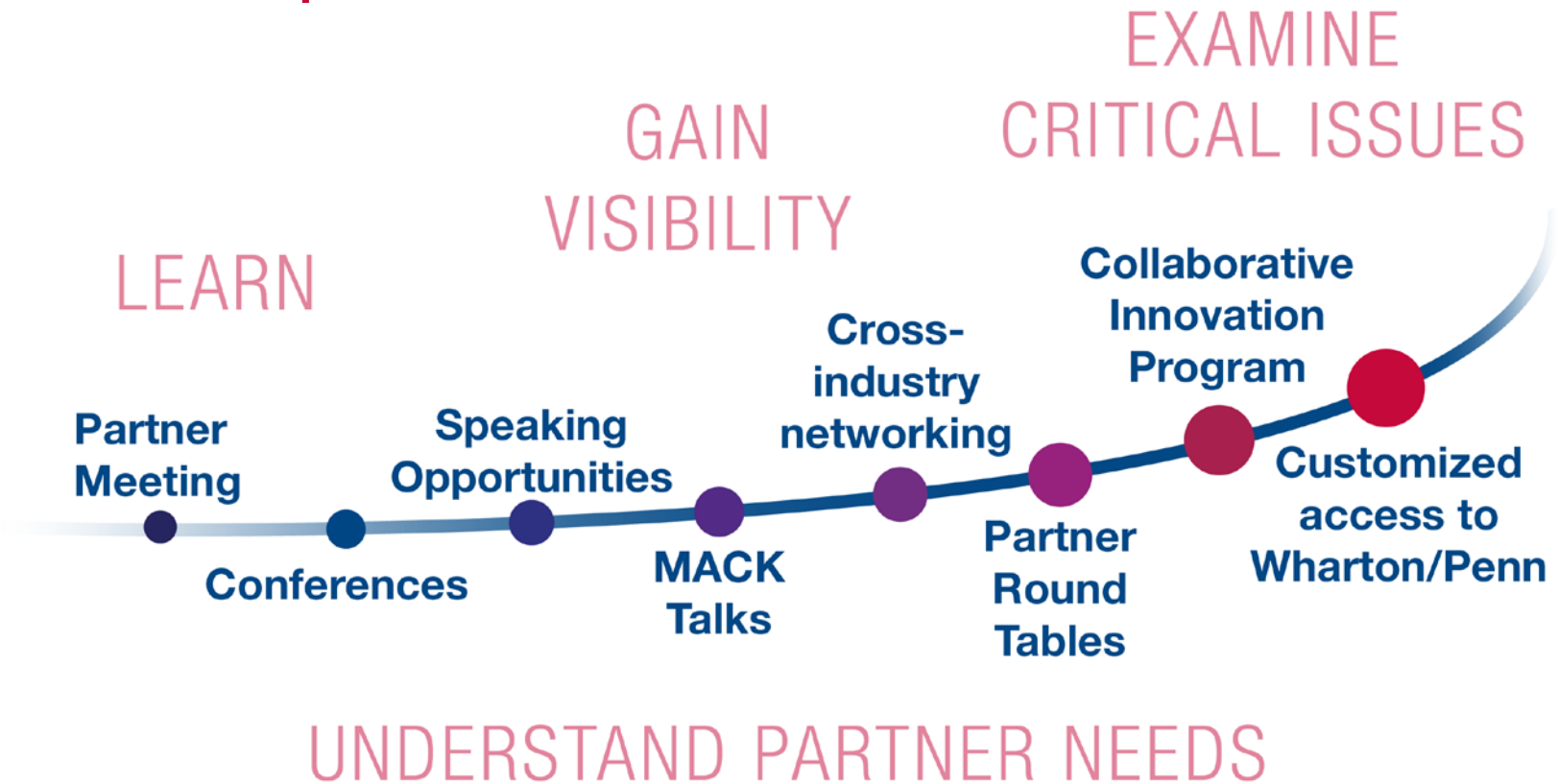
Ways to Engage

Partnership and Ongoing Programs

Current Corporate Partners



Partnership Benefits



As we get to know partners and better understand their needs, we can provide benefits that align with their interests.

New and Ongoing Programs

Corporate Partners

Researchers

Research funding
 Program on Vehicle & Mobility Innovation
 Wharton Technology & Innovation Conference
 Mack Innovation Doctoral Association
 PhD conference
 Working Paper Series
 White Paper Series

Mack Talks
 Shows on Sirius Radio 111

Collaborative Innovation Program
 Online research archive

Penn Wharton Commercialization Workshop
 Research assistance

Students

Student research fellowships
 Student initiative sponsorship
 Courses taught by faculty directors

Bi-annual industry conferences
 Focused theme workshops
 Partner roundtable events
 Emerging technology conferences

Case competitions
 Innovation management challenges

Alumni Affiliates
 Y-Prize Competition

Engage with Us Online

Visit our site for our latest news, publications, events, and research updates:

<http://mackinstitute.wharton.upenn.edu>

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FOSTERING INNOVATION

Sponsoring student clubs, events, and research projects. [Find opportunities for students →](#)

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The Power of Innovation

At the Mack Institute for Innovation Management, world-class Wharton faculty collaborate with business leaders to explore the strategies that allow firms to survive, compete, and thrive through innovation management.

Our multidisciplinary faculty and researchers develop practical approaches to managing innovation, conveyed through thought-provoking conferences, workshops, and publications.

THE STRATEGIC LEADER'S ROADMAP
6 Steps for Integrating Leadership and Strategy

The Strategic Leader's Roadmap: A New Book

Leveraging Alliances, Ecosystems, Corporate Venturing, and Acquisitions for Innovation

Introductory Thoughts

The Challenge: Established firms have many strengths, but often struggle to sustain their innovative edge over time

Some have succumbed...

BORDERS.



BlackBerry



Some have reinvented themselves...



IBM



amazon.com

3M

Many face the challenge now...



Microsoft



facebook.

Google



CISCO



ExxonMobil

YAHOO!

Managing Innovation

Established firms have many strengths, but often struggle to sustain their innovative edge over time

Innovation requires strategy, technology, and organization to be aligned while adapting dynamically to evolving markets

New technologies, novel capabilities, and innovative organizations can be developed internally or sourced externally

- Ambidextrous organizations, global R&D networks
- Alliances, JVs, ecosystems, outsourcing, corporate venturing, M&A

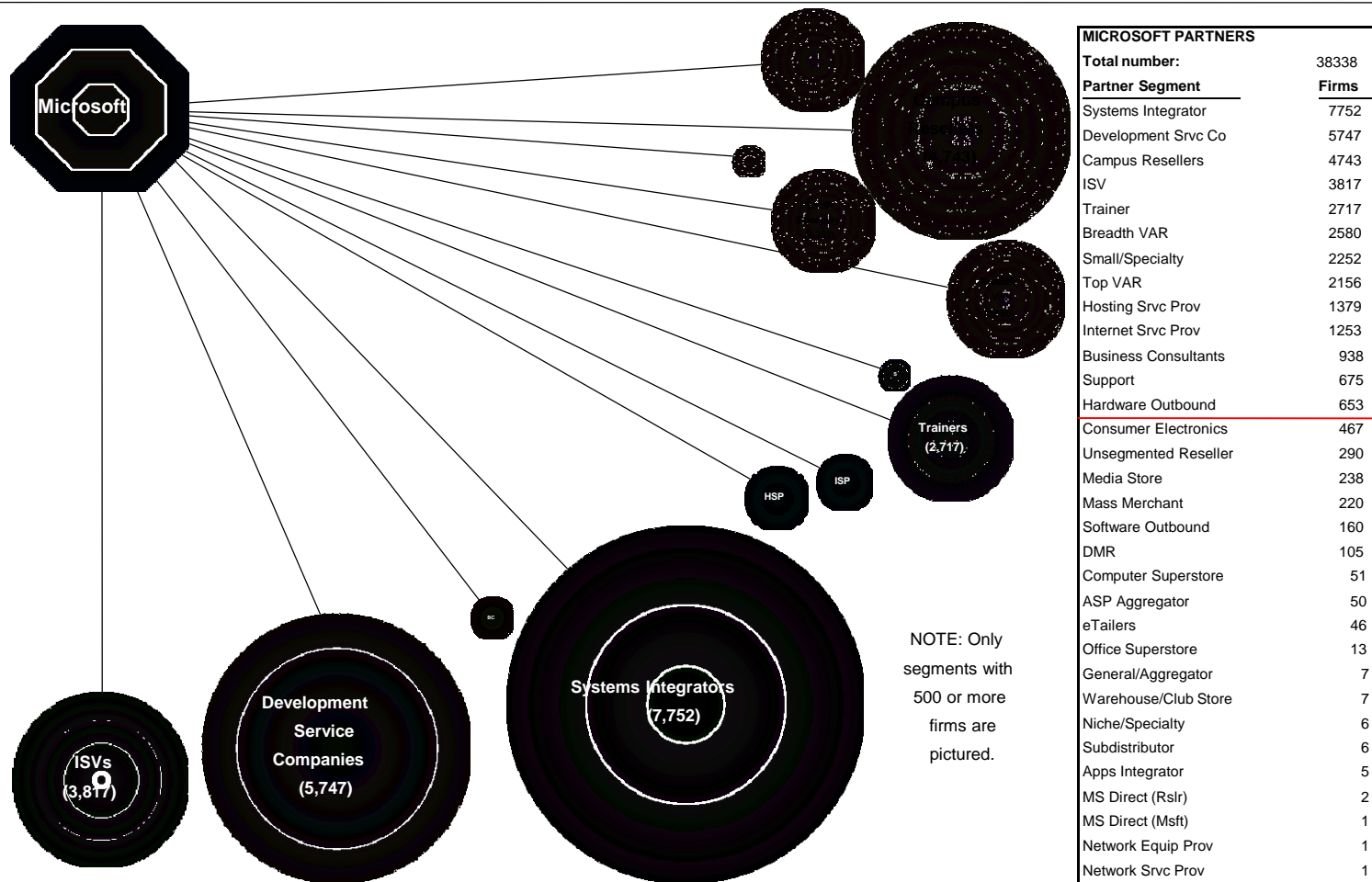
ECOSYSTEMS

Ecosystems Ideas

Why did Blackberry lose its position?

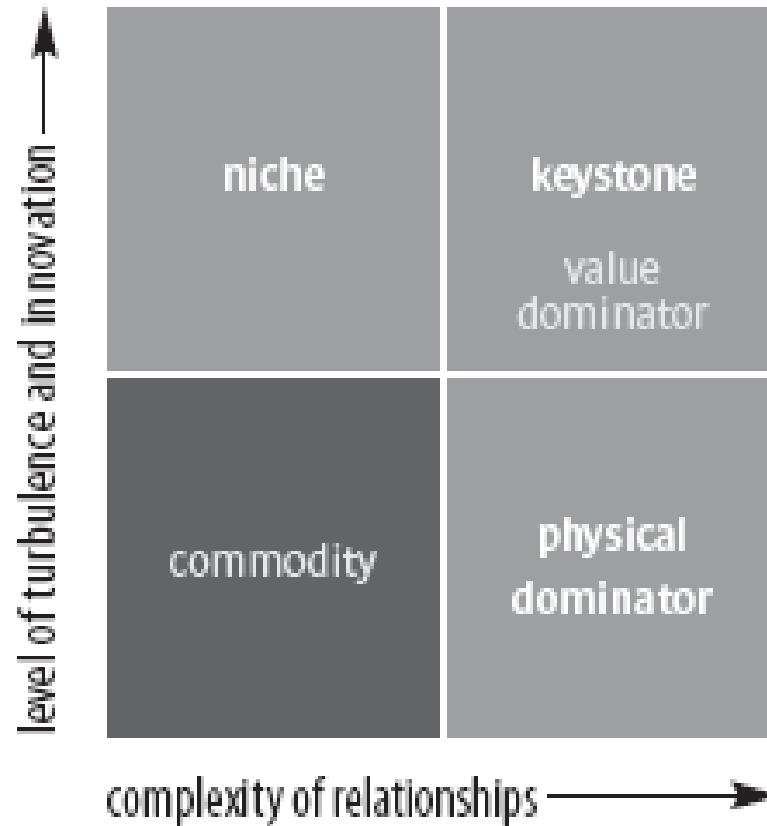
Why did Apple gain?

Business ecosystems based on alliance networks are very common today



Source: Iansiti 2003

Managing distributed resources as a keystone player is critical in complex, innovative environments



Source: Iansiti and Levien 2004

Aligning interests of members is key to managing alliance networks

CONSIDERATIONS

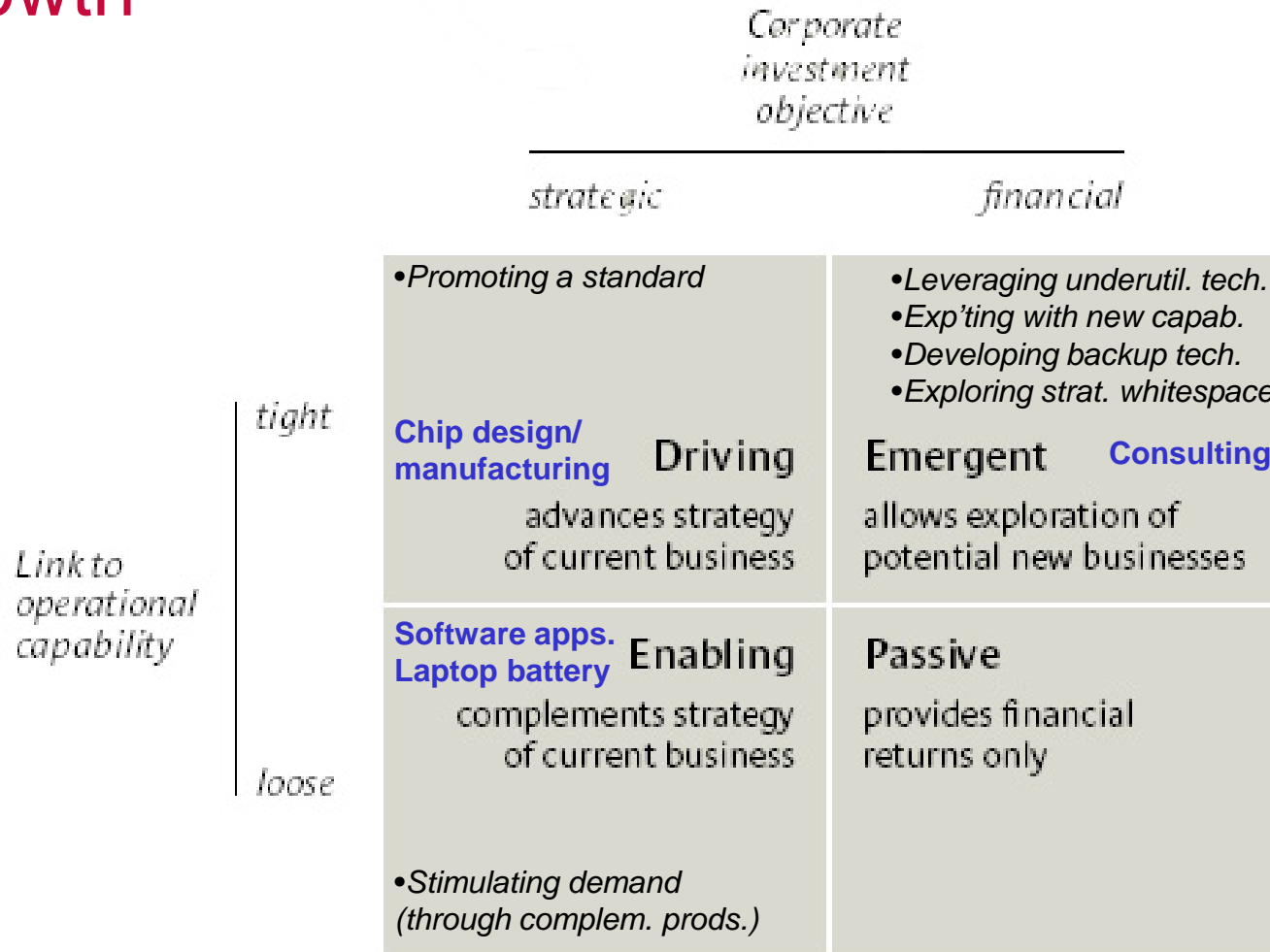
- Group size
 - Access to assets and capabilities vs. management of separate interests
 - Phased enlargement
- Membership mix
 - Appropriate combination of assets and capabilities
- Internal rivalry
 - Innovation and flexibility vs. tension, slow decision-making

SUCCESS FACTORS

- Complementary partners
- Knowledge sharing processes
- Co-specialized assets
- Governance systems
- Leadership by one or few firms

INTERNAL AND EXTERNAL CORPORATE VENTURING

Four types of corporate ventures to propel growth



Source: Chesbrough 2002

Corporate venturing offers strategic gains but weaker incentives than VC

CORPORATE VENTURE VS. VENTURE CAPITAL STRUCTURES

Attribute	CV	VC
Incentive Intensity	weaker	strong
Financial Discipline on Downside	weaker	strong
Monitoring	Internal	External, including outside Board
Discovering Alternative Business Models	constrained	unconstrained
Time Horizon	indefinite	tied to fund length
Scale of Capital Invested	potentially large	smaller
Coordination of Complementarities	extensive	limited
Retention of Group Learning	strong	weak

Source: Chesbrough 2000

Opportunities in Corporate Venturing

Facilitate the venture definition process

- Middle manager as coach

- Middle manager as strategist

- Venture manager as organization builder

Create the Strategic Context

- Need for corporate development strategy

- Substantive assessment of venture strategies

Structural Context

- New Venture division

- Reward systems to encourage experimentation and then scale up or exit

Success factors in CVs are hybrid of alliance and M&A processes

1. Systematic evaluation of opportunities
 - Strategic and financial interests
 - Technical, organizational, and market due diligence
2. Clearly defined objectives and investments in deal
 - Strategic benefits, financial returns
 - Financial expenditures, services to be provided
3. Organization and processes for managing investment
 - Intra-firm
 - Inter-firm
4. Active and regular monitoring of performance
 - Metrics
 - Decision on continuing relationship

ALLIANCES

Building the Dreamliner: Concept

Building the Dreamliner



1 The idea

2 The parts

3 Shipping parts between partners

4 Major assembly sites

◀ Previous

Next ▶

The Dreamliner is the first Boeing plane that relies on global partners to build most of the major airframe structures. Partners at four intermediate locations in Asia, Europe and elsewhere in the US complete major sections that are flown to Everett for snap-together final assembly. The Boeing-built vertical tailfin is trucked up from Frederickson.

Credits

Relational Capabilities

Building Partner-Specific Assets

Customize assets to those of the partner to create idiosyncratic value chain; requires understanding of opportunism and building of trust

Accessing Complementary Capabilities

Early identification of complementary partners

Accurately gauge relative fit and costs of misfit

Relational Capabilities – Cont'd

Develop effective knowledge sharing routines

- Partner-specific absorptive capacity

- Routines for knowledge acquisition

- Clear points of contact across firms

Appropriate governance structures

- Formal contracts developed to account for opportunism

- Clear exit clauses

- Informal governance mechanisms – trust, reliability, reputation

Choice Between Acquisition and Alliances

Synergy type:

Modular – pooling (code sharing in airlines)

Sequential (pharma tech sourcing)

Reciprocal (Exxon Mobil)

Nature of Resources

soft vs hard assets

Extent of redundancy

Degree of Market Uncertainty

Level of competition for the resources

Capabilities/experience of the firm with the given transaction (perhaps even biases)

CORPORATE ACQUISITIONS

Acquisition Examples

Microsoft-LinkedIn

Facebook-WhatsApp

GM-Cruise Automation

Pfizer-Medivation

BlackRock-FutureAdvisor

Uber-Geometric Intelligence

Walmart-Jet.com

MANAGING CORPORATE ACQUISITIONS

Strategic considerations

- Assess sources of competitive advantage

- Fit

- Timing

Market considerations

- Bidding

- Negotiation

Post-acquisition issues

- Degree and scope of integration

- Cross-cultural issues

- Reaching stable outcomes

Summary

First identify drivers of value.

- Use Vision-Positioning-Capabilities-Competition framework
- Within positioning, use differentiation and cost
- Three ways to create value: efficiency (lower cost), market power (differentiation) or changing the game (shifting the frontier)

Use value drivers for discounted cash flow

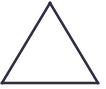
- Impact on cash flows year one to five, and then terminal value. Use comparables and scenario analysis
- Translate value drivers into initiatives that can be implemented starting the first month

Due diligence

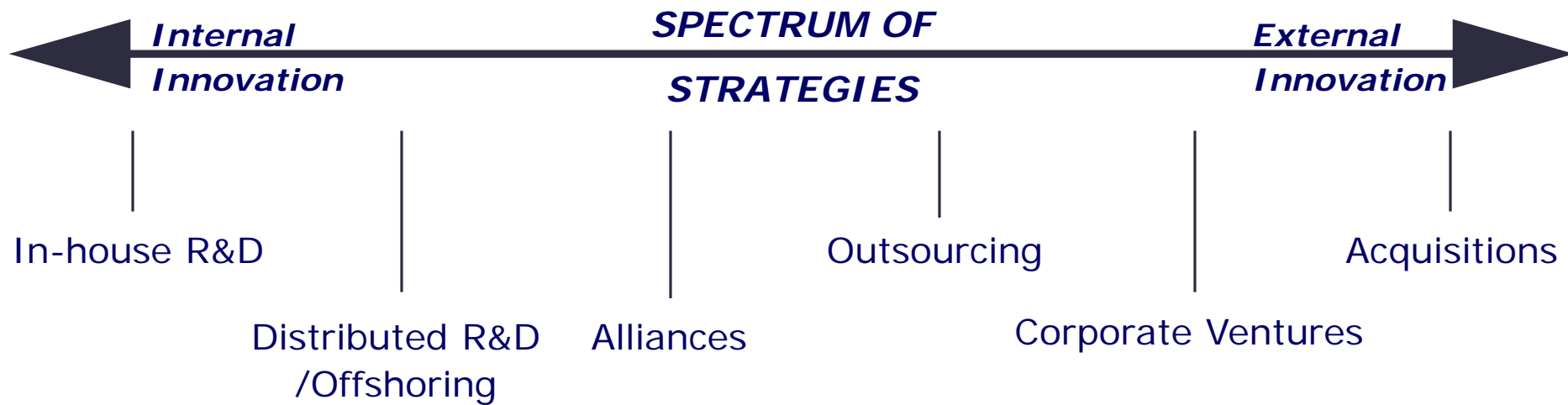
- Verify value drivers; be aware of **overconfidence** bias, **self justification** bias
- Strategic due diligence using virtual teams
- Discount revenue synergies more than cost synergies

Integration

- Use strategic initiatives as the organizing principle. Update based on new information, add detail. Announce a diagnostic that addresses key domains for implementation. Announce key leaders and managers of change
- Use **structure, systems, people** and **culture** as instruments of integration (see IBM Lotus, Renault Nissan). Multiple task forces to add detail to initiatives, also for flexibility
- Continuity, persistence



A range of innovation strategies exists beyond in-house R&D



Today's Agenda

Topics and Schedule

Conference Agenda

9:45 a.m.–10:45 a.m.	Smart Emerging Technology Strategy
10:45 a.m.–11:00 a.m.	Break
11:00 a.m.–12:00 p.m.	Building Ecosystems: Innovation Networks, Partnerships, and Investments
12:00 p.m.–1:00 p.m.	Lunch and Networking
1:00 p.m.–2:00 p.m.	Organic and Inorganic Strategies for Innovation
2:00 p.m.–3:30 p.m.	Workshop: Creative Qualities, Measuring Innovation
3:30 p.m.–4:00 p.m.	Closing Remarks



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Appendix

Additional Slides

INTERNAL AND EXTERNAL CORPORATE VENTURING

Dealing with Disruptive Innovation

Firms not ready to cope with disruptive change because of process inertia, complacency, immobile resources

Use of “heavyweight teams” to assume physical responsibility for the new venture. Can be collocated and dedicated to the project for success.

Particularly important in quadrant where we have poor fit of the disruptive innovation with the organization and poor fit with organization’s values.

Need for spinout in the event of radical change.

Managing the Internal Corporate Venturing Process

Key challenges

Vicious circles: resources can be obtained if new ventures are defined, but that process requires resources

Not enough managerial impetus: needs champions at the new venture development level and then at the corporate level

Indeterminateness of strategic context: strategic drivers of growth not articulated clearly enough to be a guide to action

Perverse selection processes: reward structure not geared to experimentation – only to attaching to corporate initiatives, regardless of their merit

ALLIANCES

Objectives of Alliances

Risk/reward sharing

Ex: Aerospace joint ventures

Market entry or extension

Ex: Ots-Tianjin joint venture in China;
P&G - Papelera (CMPC) in disposable diapers

Sharing technological and innovative activities

Ex: Alliances for joint research and development in biotechnology

Respond to regulatory constraints

Ex: joint venture in Indonesia for local production of automobiles,
consumer electronics

CORPORATE ACQUISITIONS

Why Acquire?

External Factors

- Industry consolidation
- Chance to exploit acquired skills
- Take advantage of synergies
- Opportunistic

Factors associated with base business

- Extending capabilities into new markets
- Managing growth in a rapidly expanding market

Others

- Managerial preferences

The only legitimate motivation is the creation of long term economic value

Key Decisions

Strategic drivers of the acquisition

Does the target make sense?

How does it combine with our operations?

Target's view: should we sell? Why?

Market drivers

Pricing

Deal structure

Responding to developments in the market: revising price, timing, exit strategy

Post Acquisition

Integration process

Power struggles, culture wars