

Fall 2012

Dynamics Capabilities

Caroline Mudavadi
Portland State University


Farshad Madani
Portland State University

Garrett Gilliland
Portland State University

Corey White
Portland State University

Let us know how access to this document benefits you.

Follow this and additional works at: http://pdxscholar.library.pdx.edu/etm_studentprojects

 Part of the [Operations Research, Systems Engineering and Industrial Engineering Commons](#),
[Strategic Management Policy Commons](#), and the [Technology and Innovation Commons](#)

Citation Details

Mudavadi, Caroline; Madani, Farshad; Gilliland, Garrett; and White, Corey, "Dynamics Capabilities" (2012). *Engineering and Technology Management Student Projects*. 3.

http://pdxscholar.library.pdx.edu/etm_studentprojects/3

This Project is brought to you for free and open access. It has been accepted for inclusion in Engineering and Technology Management Student Projects by an authorized administrator of PDXScholar. For more information, please contact pdxscholar@pdx.edu.



Dynamics Capabilities

ETM 526/626

Caroline Mudavadi

Farshad Madani

Garrett Gilliland

Corey White

Presentation based on Teece, D. J. (January 01, 2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28, 13, 1319.

Objective

To “specify the nature and microfoundations of the capabilities necessary to sustain superior enterprise performance in an *open economy* with *rapid innovation* and *globally dispersed sources of invention, innovation, and manufacturing capability.*” Teece



Dynamic Capabilities

Enables business enterprises to *create, deploy, and protect* the intangible assets that support superior long-run business performance.

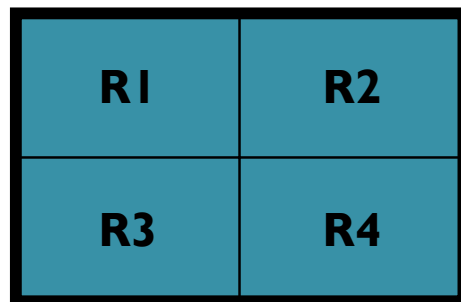
Resource selection vs. Resource deployment

- Resource based view is more about resource selection (Makadok, 2001)
- Resources are the foundation of a firm and the basis for firm capabilities (Wang & Ahmed, 2007)
- Dynamic capability builds on the resource based view by addressing how a firm utilizes its resources to
 - Sense and shape seize opportunities and threats
 - Seize opportunities and address threats
 - Maintain competitiveness
- Dynamic Capabilities go beyond resource selection and more into strategic resource deployment. (Makadok, 2001).

Embeddedness of DC

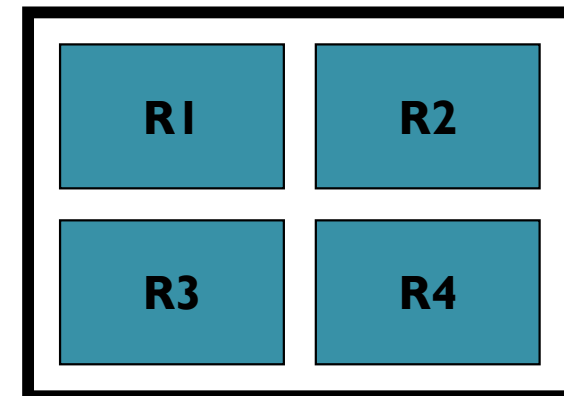
- Building a Portfolio of resources versus embedded capability that enables strategic resource deployment
- Non-transferable except by acquisition of the firm
- Primary purpose of a capability is to enhance the productivity of the other resources the firm has - systemic vs. discrete resources (Makadok, 2001)

Resource Based View



vs.

Dynamic Capability





In which environment?

1. Open to international commerce

- fully exposed to the opportunities and threats
- Associated with rapid technological changes

2. Systematic technical change

- Multiple inventions must be combined to create product and/or services that address customer needs

In which environment?

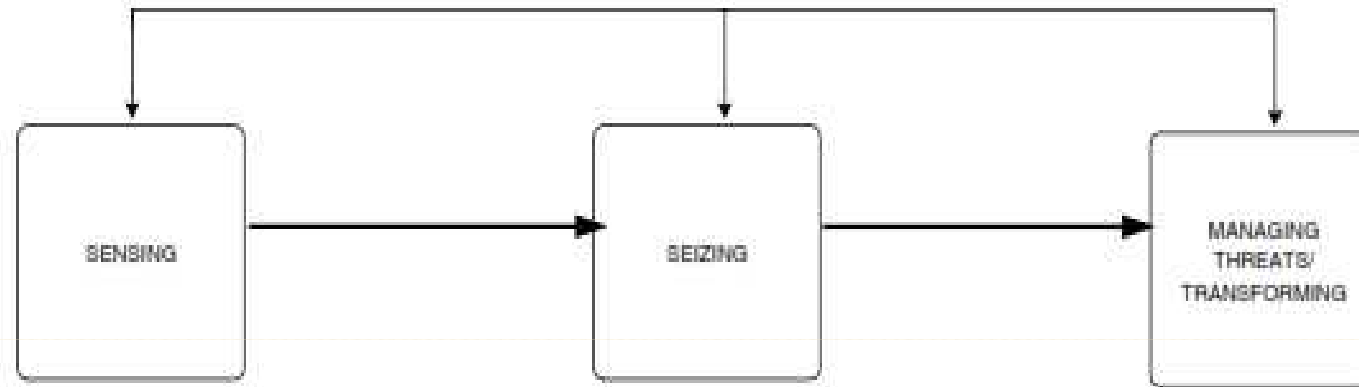
3. Well-developed global markets
 - For the exchange of (component) goods and services

4. Business environment characterized by poorly developed markets

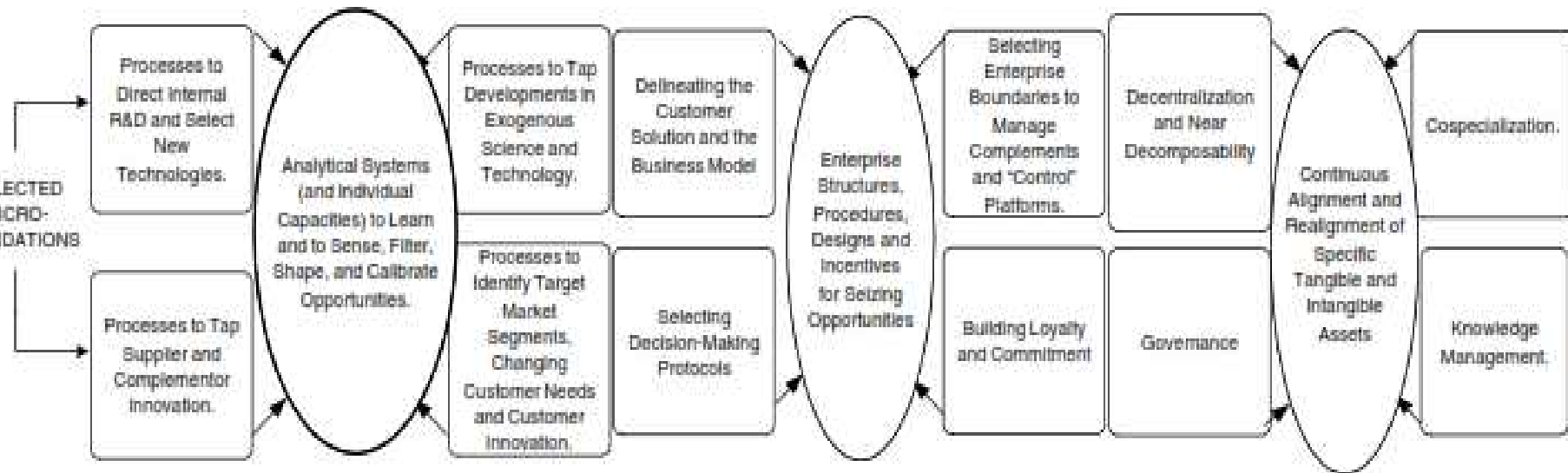
These characteristics can be found in large sectors of global economy and especially in high-technology sectors.

Foundations of dynamic capabilities

DYNAMIC CAPABILITIES



SELECTED MICRO-FOUNDATIONS



**1- Sense and shape opportunities
and Threats**

2- Seize opportunities

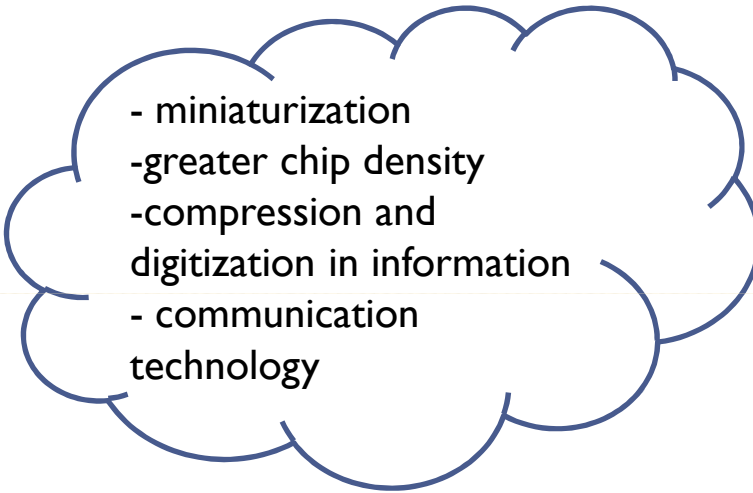
**3- Maintain competitiveness
(Managing threats and reconfiguration)**



Nature of the capability

- Some emerging marketplace trajectories are easily recognized.

- microelectronics



- miniaturization
- greater chip density
- compression and digitization in information
- communication technology

- However, most emerging trajectories are hard to discern.

Microfoundations

- Cognitive and creative skills are need to:

- Accumulate and filter information

- Interpreting available information

- Chart
- Picture
- Conversation at a trade show
- News of scientific and technological breakthroughs
- Angst expressed by a frustrated customer

- Create a conjecture or a hypothesis about the likely *evolution of technologies, customer needs, and marketplace responses*

Scanning

Interpreting

Creative



Microfoundations

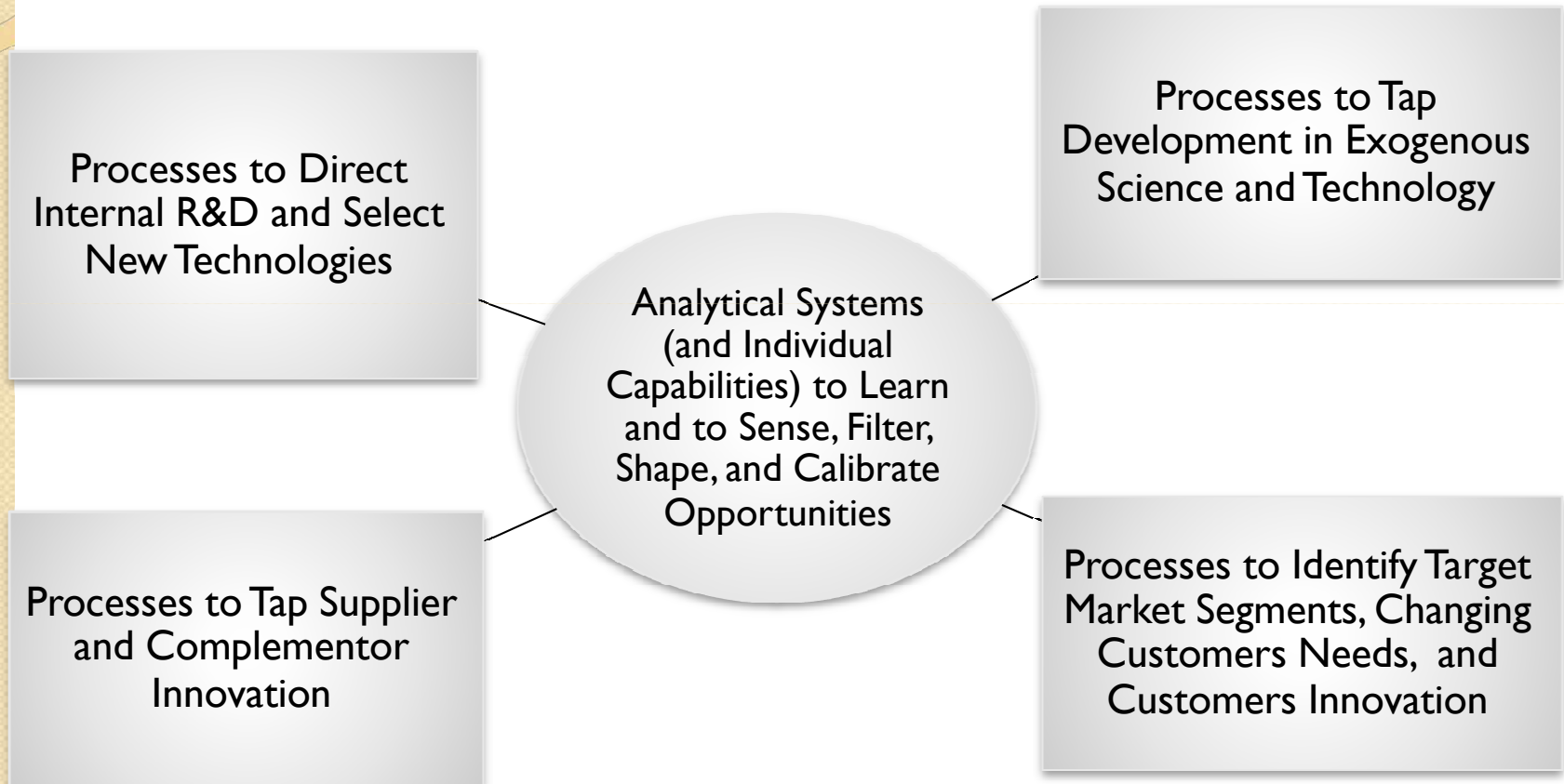
- Organizational processes can be established within enterprise to:
 1. Garner new technical information
 2. Tap developments in exogenous science
 3. Monitor customer needs
 4. Monitor competitor activities
 5. Shape new product and processes



Microfoundations

- Hypothesis development, hypothesis “testing”, and synthesis about the meaning of information must be performed by the top management team.
- Recurrent synthesis and updating in businesses designed by middle management and/or planning unit.

Elements for “Sensing”



1- Sense and shape opportunities and Threats

2- Seize opportunities

**3- Maintain competitiveness
(Managing threats and reconfiguration)**



Nature of the Capability

- New opportunity → new product, processes, or service

Maintaining and improving competencies and complimentary assets



Investment and commercialization



Selecting or creating a particular business model





Decision making **under uncertainty and risk**

Traditional decision making

Microfoundations

- Selecting product architecture and business models
 1. Which technologies and features are to be embedded in the product and service
 2. How the revenue and cost structure of a business is to be “designed” or “redesigned” to meet customer needs
 3. The way in which technologies are to be assembled
 4. The identity of market segments to be targeted
 5. The mechanisms and manner by which value is to be captured

- **Business model**
Success Factors in Business Modeling:
 - 1- Analyze multiple alternatives
 - 2- Deep understanding of user needs 
 - 3- Analyzing value chain
 - 4- Outsourcing decisions
 - Value proposition
 - Appropriate technologies and features
 - Target market segments
 - Structure of value chain
 - Estimate cost and revenue



Microfoundations

- Selecting enterprise boundaries
 - An element of business modeling
 - To make sure that innovation is more likely to benefit the sponsor of the innovation rather than imitators and emulators
 - Key elements:
 - The appropriability regime (natural and legal protection)
 - The nature of complementary assets
 - The relative positioning of innovator and potential imitator with respect to complementary assets
 - The phase of industry development (pre or post the emergence of dominate design)
 - Critical strategic element: able to identify and control “the bottlenecks” in the value chain from invention through the market.

Microfoundations

- Managing Complements and Platforms

- High tech products are often systems containing independent components resting on “**platforms**”
- End user demand is for the system, not for the platform.
- The platform owner needs **complementary products** to be provided by others.

- What kind of decisions?

- Platform needs to be open or proprietary?
- Tools and other incentives should be provided to stimulate investment by the complementors?
- Distribution (development) capabilities between the platform and the complementors

Microfoundations

- Proclivities toward decision errors are not uncommon in managerial decision making particularly in large organizations.
 - Investment decision errors:
 - Excessive optimism
 - Loss aversion
 - Isolation errors
 - Strategic deception
 - Program persistence
- These errors can be especially damaging in fast-paced environments.
- Biases can be recognized ahead of time by applying a cognitively sophisticated and disciplined approach to decision making.

Strategic decision skills/execution

Delineating the customer Solution and the Business Model

Selecting Decision Making Protocols

Enterprise structures, procedures, designs, and incentives for seizing opportunities

Selecting Enterprise Boundaries to Manage Complements and “Control” Platforms

Building Loyalty and Commitment

1- Sense and shape opportunities and Threats

2- Seize opportunities &

3- Managing Threats and Reconfiguration



Nature

- A key to sustained growth is the ability to recombine and to reconfigure assets and organizational structures as
 - the enterprise grows
 - Markets and technologies change
- Over time successful enterprises will develop hierarchy and rules and procedures(routines) that constrain certain interactions and behaviors unnecessarily. Such rules and procedures are likely to require constant revamping.



Nature

- To sustain dynamic capabilities, **decentralization** must be favored because it brings top managers closer to new technologies, the customer, and the market.
- In order to minimize internal conflict and to maximize complementarities and productive exchange inside the enterprise, top management leadership skill are required to achieve asset **alignment, coalignment, realignment, and redeployment**



Microfoundations

- **Decentralization** must be pursued as the enterprise expands, otherwise flexibility and responsiveness will erode.
 - Modern HRM involves more delayering, decentralization of decision rights, teamwork, flexible task responsibility and performance, performance-based rewards,...
 - Open innovation model endorses a distributed model of innovation



Microfoundations

- **Managing cospecialization**

- Cospecialization can be of one asset to another, or of strategy to structure, or of strategy to process.
- Cospecialized involves “lock-in” and is a particular form of complementary that exists when technologies and other assets need to be part of a tightly integrated system to achieve the performance.
- Management’s ability to identify, develop, and utilize in combination specialized and cospecialized assets built or bought is an important dynamic capability, but it’s not always present in enterprise settings.

Microfoundations

- **Learning, knowledge management, and corporate governance**
 - Integrating know-how from outside as well as within the enterprise is especially important to success when “systems” and “networks” are present.
 - The outsource of production and the proliferation of joint development activities create requirements that enterprises develop governance procedures to monitor the transfer of technology and intellectual property.
 - Incentives alignment
 - Controlling board performance
 - Preventing the dissipation of rents by interest groups



Knowledge Management

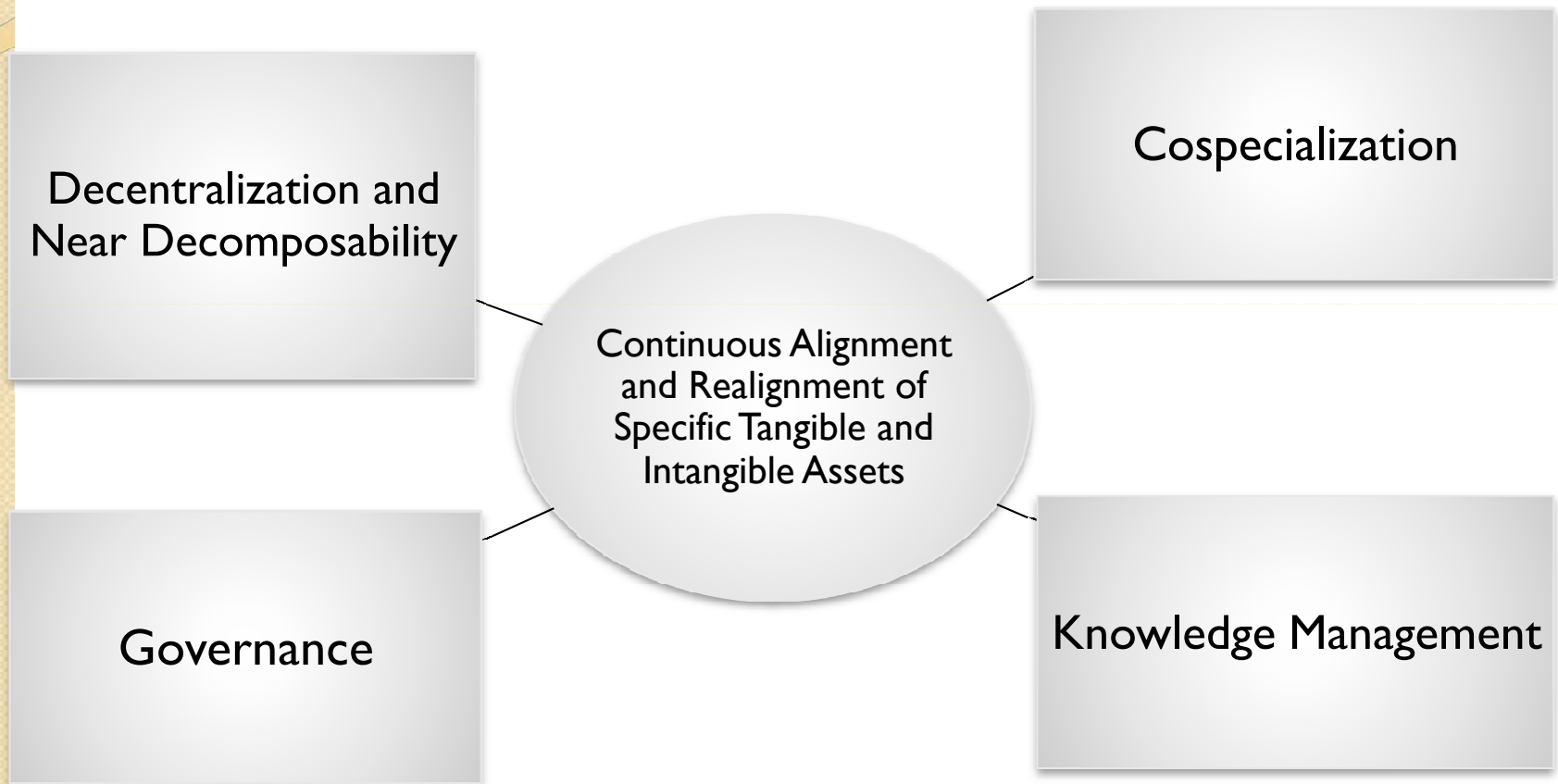
- Knowledge management can be broken down into eight activities (Nielsen 2006):
 - Creation
 - Acquisition
 - Capture
 - Assembly
 - Sharing
 - Integration
 - Leverage
 - Exploitation



Knowledge Management

- The eight knowledge management activities are then assembled into:
 - Knowledge development
 - Knowledge (re)combination
 - Knowledge use (Nielsen 2006)

Strategic decision skills/execution



Conceptual Debates of Dynamic Capabilities



<http://econintersect.com/wordpress/?p=17035>

Definition

- Dynamic capabilities are the ultimate organizational capabilities that are conducive to long-term performance, rather than a subset of the capabilities as Teece et al suggest
- Dynamic capabilities are not the processes but what is embedded in the processes; processes are more easily transferable across firms. (Wang & Ahmed, 2007).
 - Quality control is a process easily transferable whereas TQM is not just a process but also requires the firm's capability to develop an organization-wide vision, empowering employees and building a customer-orientation culture

More Debates

- Fuzzy Origins

- Knowledge accumulation, asset articulation, routine reshaping (Zollo & Winter, 1999)

- What avenues might DC be created within a firm?
- Is it simply an accumulation of know-how or does it involve reshaping what's already established?

- Evolution, Co-evolution or Revolution (Macpherson, et al. 2004)

- Would new firms more capable than established firms?
- Would older firms need drastic shifts to utilize DC? On what scale? How drastic?
- Is DC something inherent or can it be created?

More Debates

- Fuzzy Implementation
 - No agreed method or recipe for carrying out the DC model
 - Social Capital and participator Buy-In (Blyler & Coff, 2003)
 - Venture Capitalist Involvement (Arthurs & Busenitz, 2006)
 - Learning through experimentation (Pablo, et al. 2007)
 - Reinvention or Reconstruction?
 - Where, When and How to implement
 - What environments require it?
 - What environments benefit from it?
 - Even then Success is not guaranteed



Link Between Firm Performance and DC

- Measured by the firms key indicators; market and financial relative to its main competitors
- Path to building capability is not universal across firms and therefore the outcome of capability development is different across firms (Wang & Ahmed, 2007)
- Making market oriented decisions and the timing of those decisions are key in improving firm performance (Barreto, 2010).

Link Between Firm Performance and DC

- Linking Performance and DC
 - Doing the right things or doing things right (Jantunen, et al. 2005)
- Interrelations of DC and firm abilities
 - **Substantive Capabilities** (Zahra, et al. 2006)
 - Foundations of DC: Can the ability to dynamically problem solve in shifting environments be considered DC?
 - Changing the way a firm solves problems in dynamic environments to best suit each case.
 - **Reconfiguration or Entrepreneurship**
 - Ability to Reconfigure (Jantunen, et al. 2005)
 - Entrepreneurial ability – is entrepreneurship a reliable measure of a firm's DC? (Macpherson, et al. 2004)
 - Sustainable Entrepreneurship or reconfiguring assets

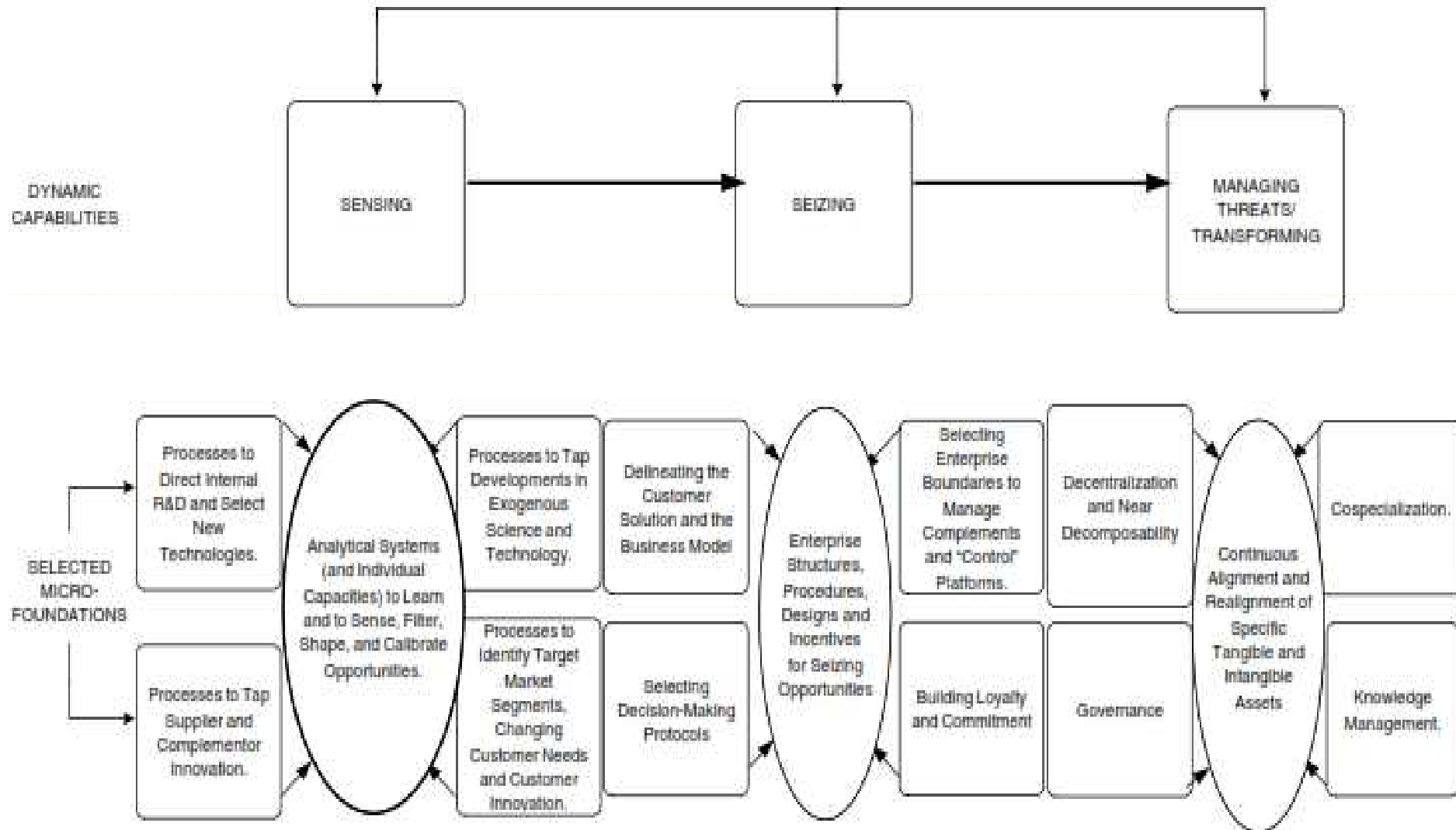


So which way is the best way?

It **DEPENDS!**

Dynamic capabilities are themselves as uncertain and dynamic as the environments practitioners seek to adapt to; one method does not necessarily apply to every case and one case is not necessarily handled best by one method alone.

Reexamining of Dynamic Capabilities



Summary

- Dynamic capabilities must be embedded
- It's the value added to resource selection through strategic resource deployment
- One size does not fit all
- Little commonality in definition and approach
- Knowledge management is critical
- Non-transferable except through total acquisition (Makadok, 2001)
- Not a mature concept

References

- Nielsen, A. P. (2006). Understanding dynamic capabilities through knowledge management. *Journal of knowledge management*, 10(4), 59-71.
- Makadok, R. (2001). Toward a Synthesis of the Resource-Based and Dynamic-Capability Views of Rent Creation. *Strategic Management Journal*, 22(5), 387-401
- Teece, D. J. (2009). *Dynamic capabilities and strategic management: Organizing for innovation and growth*. Oxford: Oxford University Press.
- Teece, D. J. (January 01, 2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28, 13, 1319.
- Wang, C. L., & Ahmed, P. K. (2007). Dynamic capabilities: A review and research agenda. *International Journal of Management Reviews*, 9(1), 31-51.
- Barreto, I. (2010). Dynamic capabilities: A review of past research and an agenda for the future. *Journal of Management*, 36(1), 256-280.

Resources

- King, A. A., & Tucci, C. L. (February 01, 2002). Incumbent Entry into New Market Niches: The Role of Experience and Managerial Choice in the Creation of Dynamic Capabilities. *Management Science*, 48, 2, 171-186.
- Sher, P. J., & Lee, V. C. (2004). Information technology as a facilitator for enhancing dynamic capabilities through knowledge management. *Information & Management*, 41(8), 933-945.
- Wheeler, B. C. (2002). NEBIC: A dynamic capabilities theory for assessing net-enablement. *Information Systems Research*, 13(2), 125-146.
- Augier, M., & Teece, D. J. (2008). Strategy as evolution with design: the foundations of dynamic capabilities and the role of managers in the economic system. *Organization Studies*, 29(8-9), 1187-1208.
- Reuter, C., Foerstl, K., Hartmann, E., & Blome, C. (2010). Sustainable global supplier management: the role of dynamic capabilities in achieving competitive advantage. *Journal of Supply Chain Management*, 46(2), 45-63.
- Petroni, A. (1998). The analysis of dynamic capabilities in a competence-oriented organization. *Technovation*, 18(3), 179-189.
- Helfat, C. E., & Peteraf, M. A. (2003). The dynamic resource-based view: capability lifecycles. *Strategic management journal*, 24(10), 997-1010.
- Zahra, S. A., & George, G. (2002). The net-enabled business innovation cycle and the evolution of dynamic capabilities. *Information Systems Research*, 13(2), 147-150.
- Helfat, C., & Peteraf, M. (2009). Understanding dynamic capabilities: progress along a developmental path. *Strategic organization*, 7(1), 91.
- Nielsen, A. P. (2006). Understanding dynamic capabilities through knowledge management. *Journal of knowledge management*, 10(4), 59-71.

Resources

- Augier, M., & Teece, D. J. (2009). Dynamic capabilities and the role of managers in business strategy and economic performance. *Organization Science*, 20(2), 410-421.
- Døving, E., & Gooderham, P. N. (2008). Dynamic capabilities as antecedents of the scope of related diversification: the case of small firm accountancy practices. *Strategic Management Journal*, 29(8), 841-857.
- Easterby-Smith, M., Lyles, M. A., & Peteraf, M. A. (2009). Dynamic capabilities: current debates and future directions. *British Journal of Management*, 20, S1-S8.
- Helfat, C. E., Finkelstein, S., Mitchell, W., Peteraf, M. A., Singh, H., Teece, D. J., & Winter, S. G. (2007). *Dynamic capabilities*. Blackwell Pub..
- Arthurs, J. D., & Busenitz, L. W. (2006). Dynamic capabilities and venture performance: The effects of venture capitalists. *Journal of Business Venturing*, 21(2), 195-215.
- Jantunen, A., Puumalainen, K., Saarenketo, S., & Kyläheiko, K. (2005). Entrepreneurial orientation, dynamic capabilities and international performance. *Journal of International Entrepreneurship*, 3(3), 223-243.
- Zahra, S. A., Sapienza, H. J., & Davidsson, P. (2006). Entrepreneurship and dynamic capabilities: a review, model and research agenda*. *Journal of Management studies*, 43(4), 917-955.
- Macpherson, A., Jones, O., & Zhang, M. (2004). Evolution or revolution? Dynamic capabilities in a knowledge-dependent firm. *R&D Management*, 34(2), 161-177.
- Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic management journal*, 28(13), 1319-1350.

Resources

- Zollo, M., & Winter, S. G. (1999). *From organizational routines to dynamic capabilities*. INSEAD.
- Pablo, A. L., Reay, T., Dewald, J. R., & Casebeer, A. L. (2007). Identifying, enabling and managing dynamic capabilities in the public sector*. *Journal of Management Studies*, 44(5), 687-708.
- Luo, Y. (2001). Dynamic capabilities in international expansion. *Journal of World Business*, 35(4), 355-378.
- Wang, C. L., & Ahmed, P. K. (2007). Dynamic capabilities: A review and research agenda. *International Journal of Management Reviews*, 9(1), 31-51.
- Ambrosini, V., Bowman, C., & Collier, N. (2009). Dynamic Capabilities: An Exploration of How Firms Renew their Resource Base. *British Journal of Management*, 20.
- Cepeda, G., & Vera, D. (2007). Dynamic capabilities and operational capabilities: A knowledge management perspective. *Journal of Business Research*, 60(5), 426.
- Easterby-Smith, M., & Prieto, I. M. (2008). Dynamic Capabilities and Knowledge Management: an Integrative Role for Learning?*. *British Journal of Management*, 19(3), 235-249.
- Augier, M., & Teece, D. J. (2007). Dynamic capabilities and multinational enterprise: Penrosean insights and omissions. *Management International Review*, 47(2), 175-192.
- Zott, C. (2002). Dynamic capabilities and the emergence of intraindustry differential firm performance: insights from a simulation study. *Strategic management journal*, 24(2), 97-125.
- Ambrosini, V., & Bowman, C. (2009). What are dynamic capabilities and are they a useful construct in strategic management?. *International Journal of Management Reviews*, 11(1), 29-49.
- Blyler, M., & Coff, R. W. (July 01, 2003). Dynamic Capabilities, Social Capital, and Rent Appropriation: Ties That Split Pies. *Strategic Management Journal*, 24, 7, 677-686.