

Knowledge Management



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Definition of Knowledge

Western epistemology defines Knowledge as

“ Justified True Belief ”

Nonaka* extension of the definition

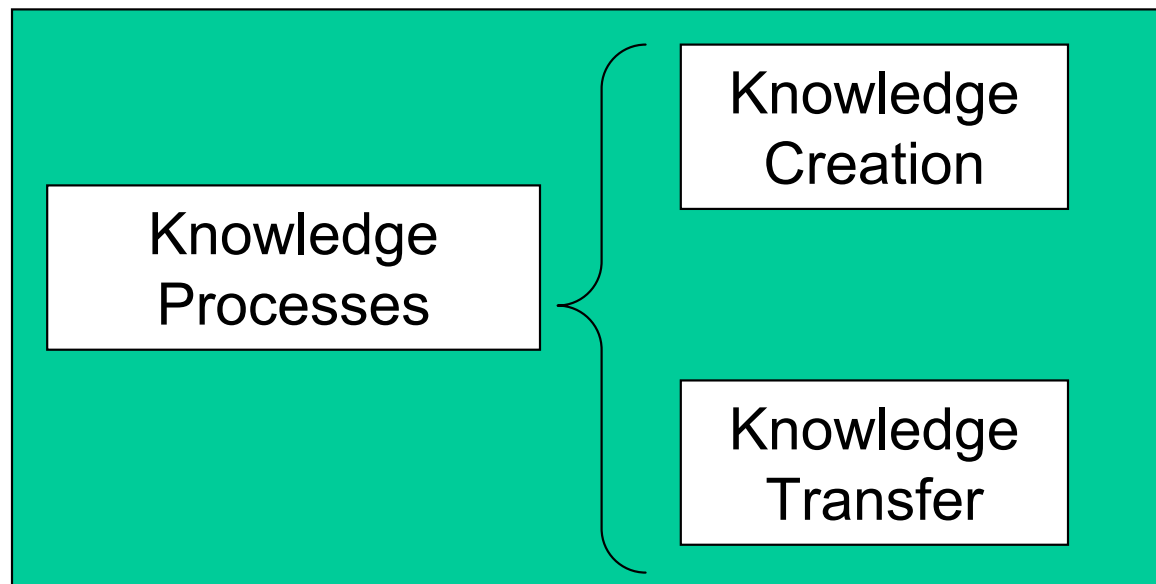
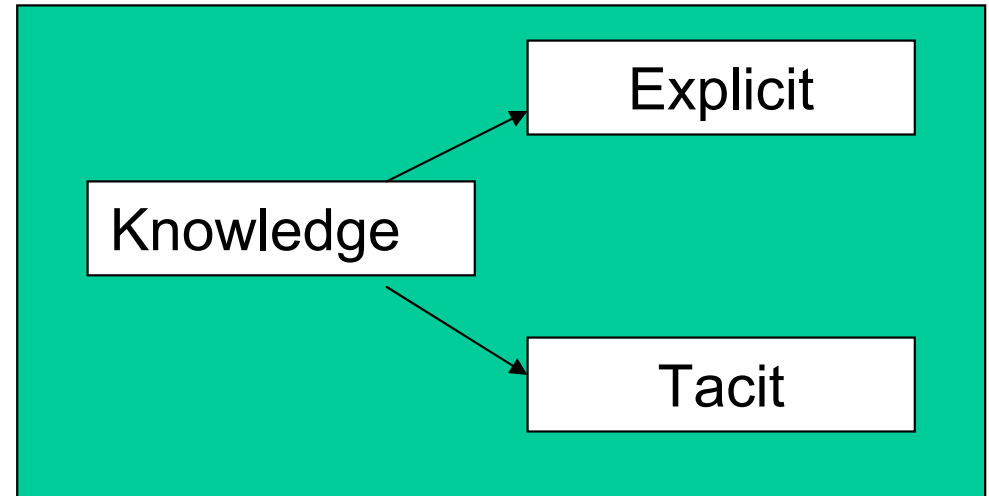
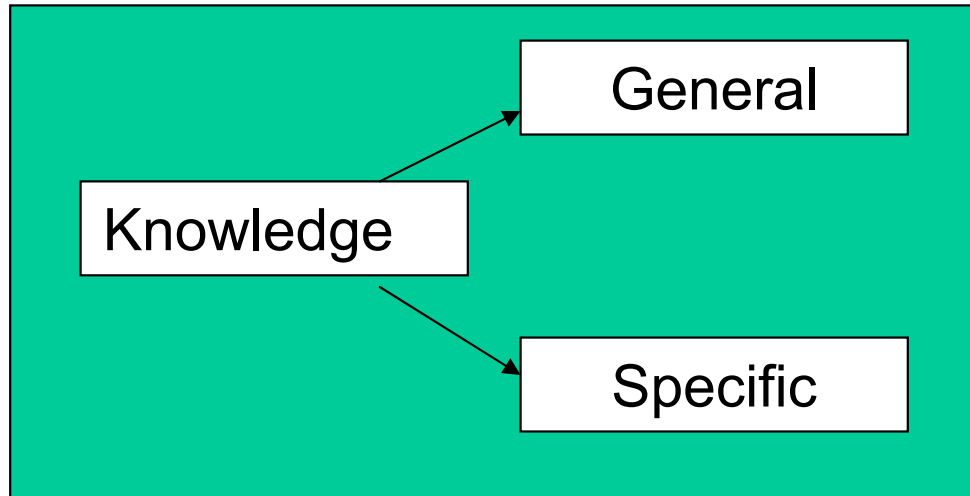
“ A meaningful set of information that constitutes justified true belief and/or embodied technical skill”

Knowledge creation:

“dynamic human process of justifying personal belief towards the truth and/or embodied technical skill”

*Nonaka et.al, From Information Processing to Knowledge Creation: A Paradigm Shift in Business Management, Technology in Society, 18(2) pp 203-218, 1996.

Dimensions of Knowledge

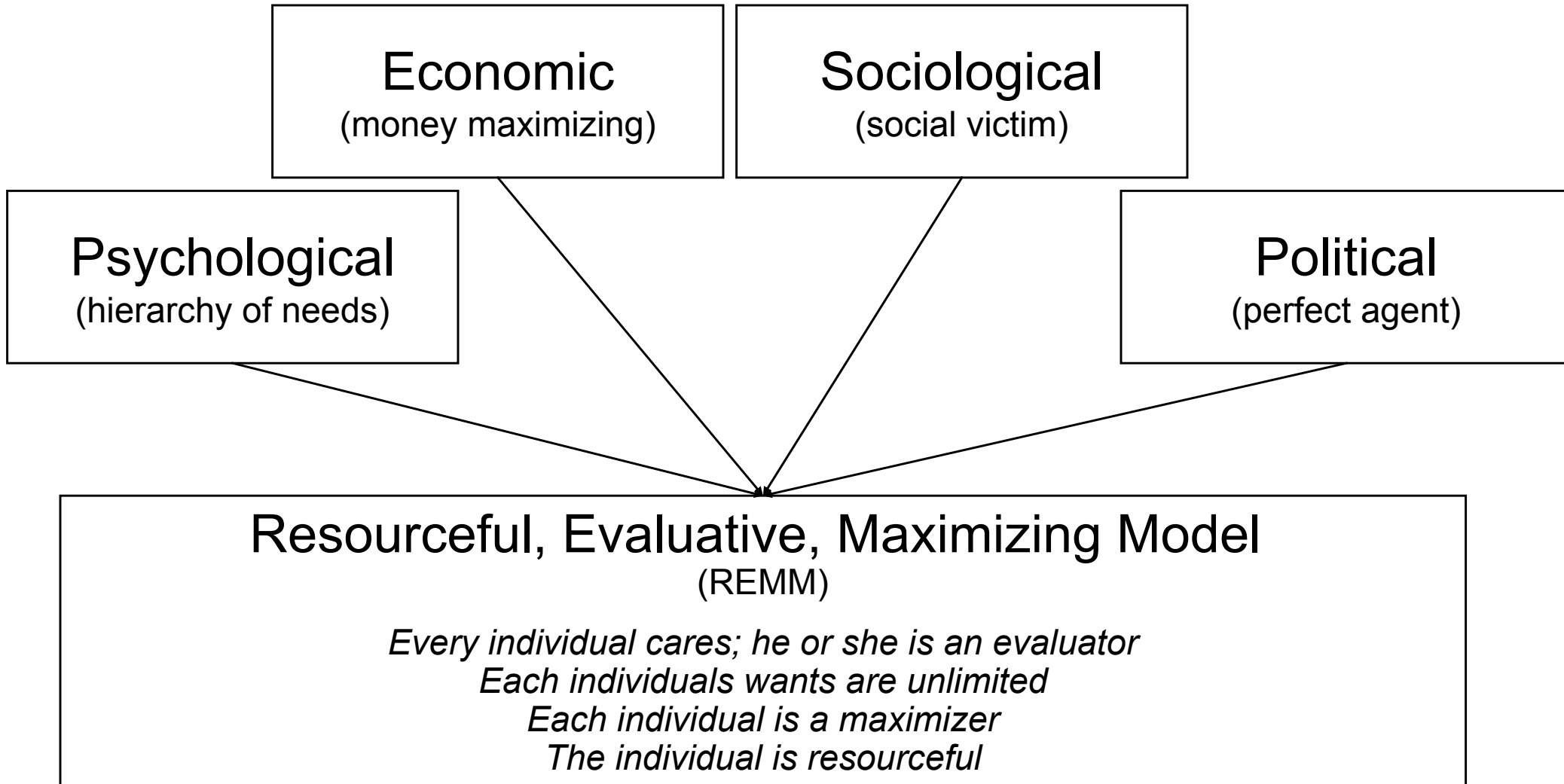




Assumptions Underlying KM

- **Knowledge is worth managing**
- **Organizations benefit from managing knowledge**
- **Knowledge can be managed**
- **Minimal risk associated with managing knowledge**

The Nature of Man*



*Jensen, Michael C. and Meckling, William H., "The Nature of Man" . Michael C. Jensen, FOUNDATIONS OF ORGANIZATIONAL STRATEGY, Harvard University Press, 1998, and Journal Of Applied Corporate Finance, 1994 <http://ssrn.com/abstract=5471>



Why do Firms Exist?

- **Firms exist to minimize transaction costs**
 - **Contract Costs**
 - **Knowledge Costs (Transfer, Production)**
 - **Principle Agent Problem (Monitoring, Bonding, Residual Costs)**
- **Resource Based Theory**
 - **Deconstruct the “production function” black box**
- **Knowledge Based Theory**



Managers Role

- **Accumulate and Protect Valuable Knowledge**

- Organize and Exploit
- Hierarchy

VS

- **Generate new Knowledge**

- Hyperarchy

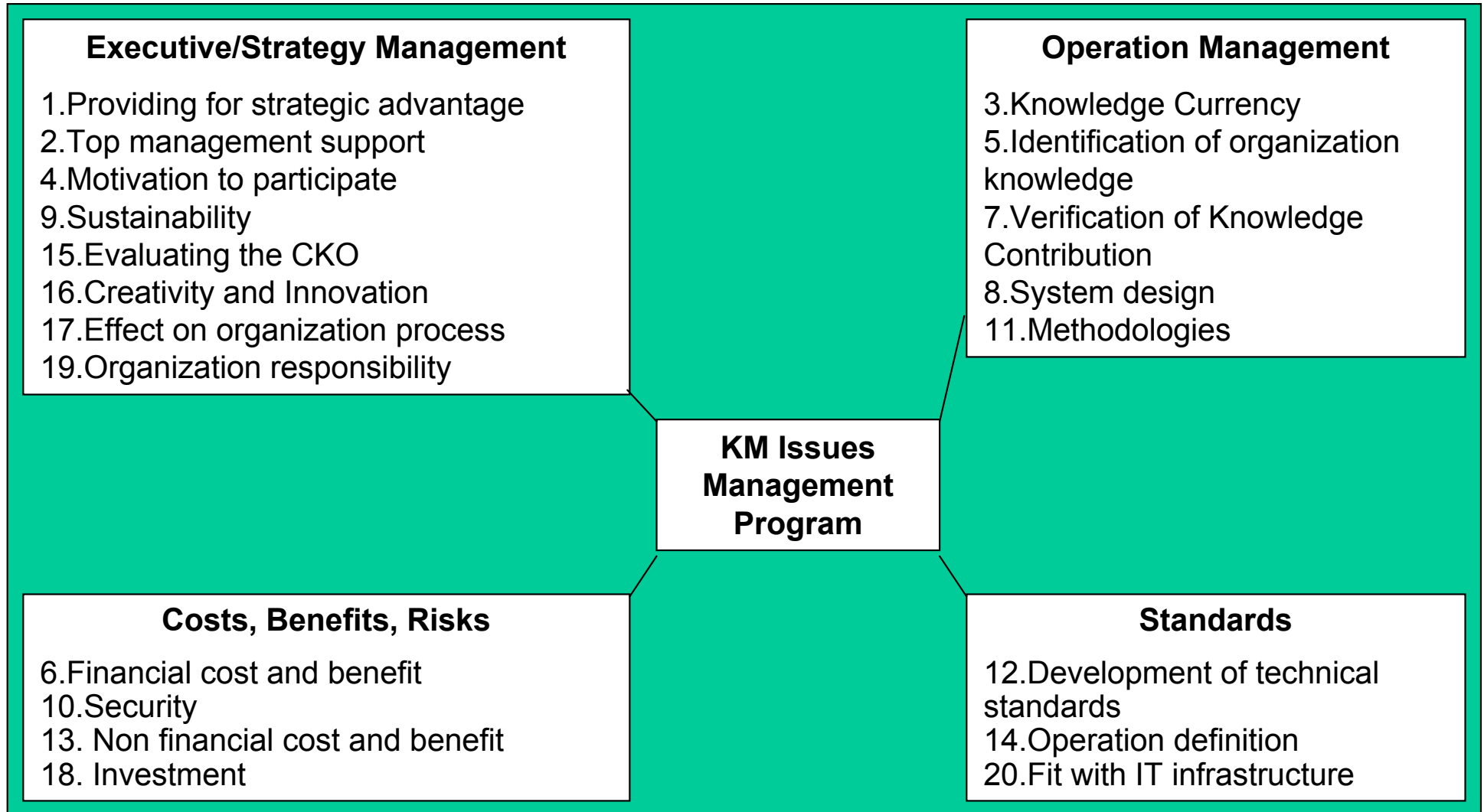


Problems and Solutions

- **Simple** → • **Decomposable**
- **Complicated**
- **Complex** → • **Nearly decomposable**
- **Wicked** → • **Non decomposable**



Issues in Knowledge Management*



*King et.al, *The Most Important Issues in Knowledge Management*, Communications of the ACM, September, 2002



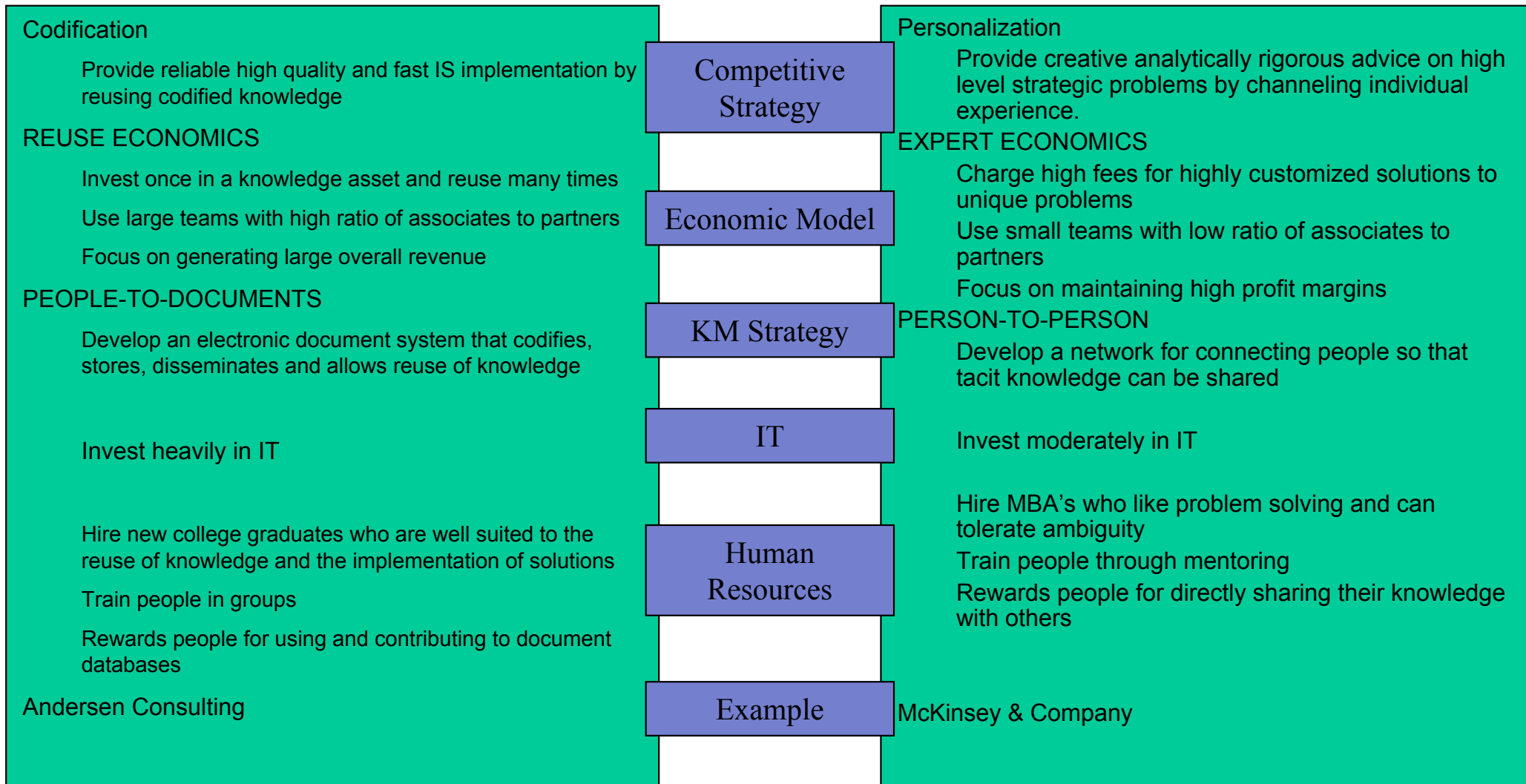
Critiquing Knowledge Management

“Technologists never evangelize without a disclaimer: “Technology is just an enabler.” True enough -- and the disclaimer discloses part of the problem: Enabling what? One flaw in knowledge management is that it often neglects to ask what knowledge to manage and toward what end. Knowledge management activities are all over the map: Building databases, measuring intellectual capital, establishing corporate libraries, building intranets, sharing best practices, installing groupware, leading training programs, leading cultural change, fostering collaboration, creating virtual organizations -- all of these are knowledge management, and every functional and staff leader can lay claim to it. But no one claims the big question: Why?”

Tom Stewart in *The Case Against Knowledge Management*,
Business 2.0, February 2002



Codification Versus Personalization



*Hansen et. al, *What is your Strategy for Managing Knowledge*, Harvard Business Review, Mar-April, pp 106-116, 1999



Health Care

- **Reuse Model – Access Health**
 - Clinical decision architecture (algorithms of the symptoms of 500 illnesses)
 - First 300 used an average of 8000 times a year
- **Personalization Strategy – Sloan Kettering**
 - 17 disease specific teams
 - Team members located in the same area
 - HR policy aligned with KM strategy
 - Junior staff hired from top residency programs and use an “up or out” pyramid system
 - Nationally recognized clinicians

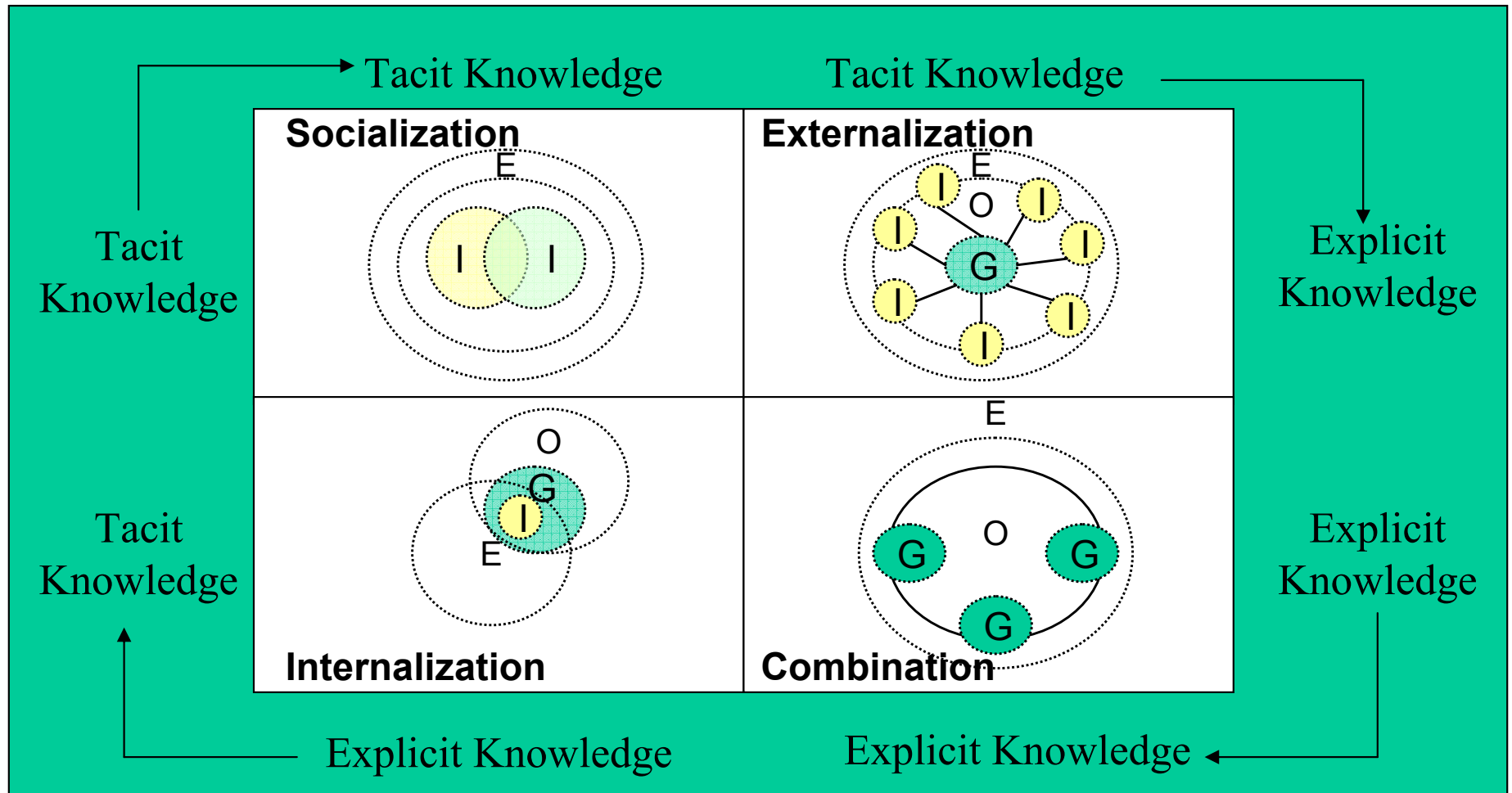


Knowledge Creation

“The goal of Knowledge Creation is to enhance the pace of innovation and reduce timespan to commercial success in market” – Ikujiro Nonaka

- **5 Step Process**
 - **Create Collective Tacit Knowledge**
 - **Make Collective Knowledge Explicit (develop concepts)**
 - **Scrutinize concepts**
 - **Prototype product/service**
 - **Integrate newly created knowledge into the organization**

SECI Framework*



I: Individual

G: Group

O: Organization

E: Environment

*Nonaka and Takeuchi, *The Knowledge Creating Company*, p.62, 1995.



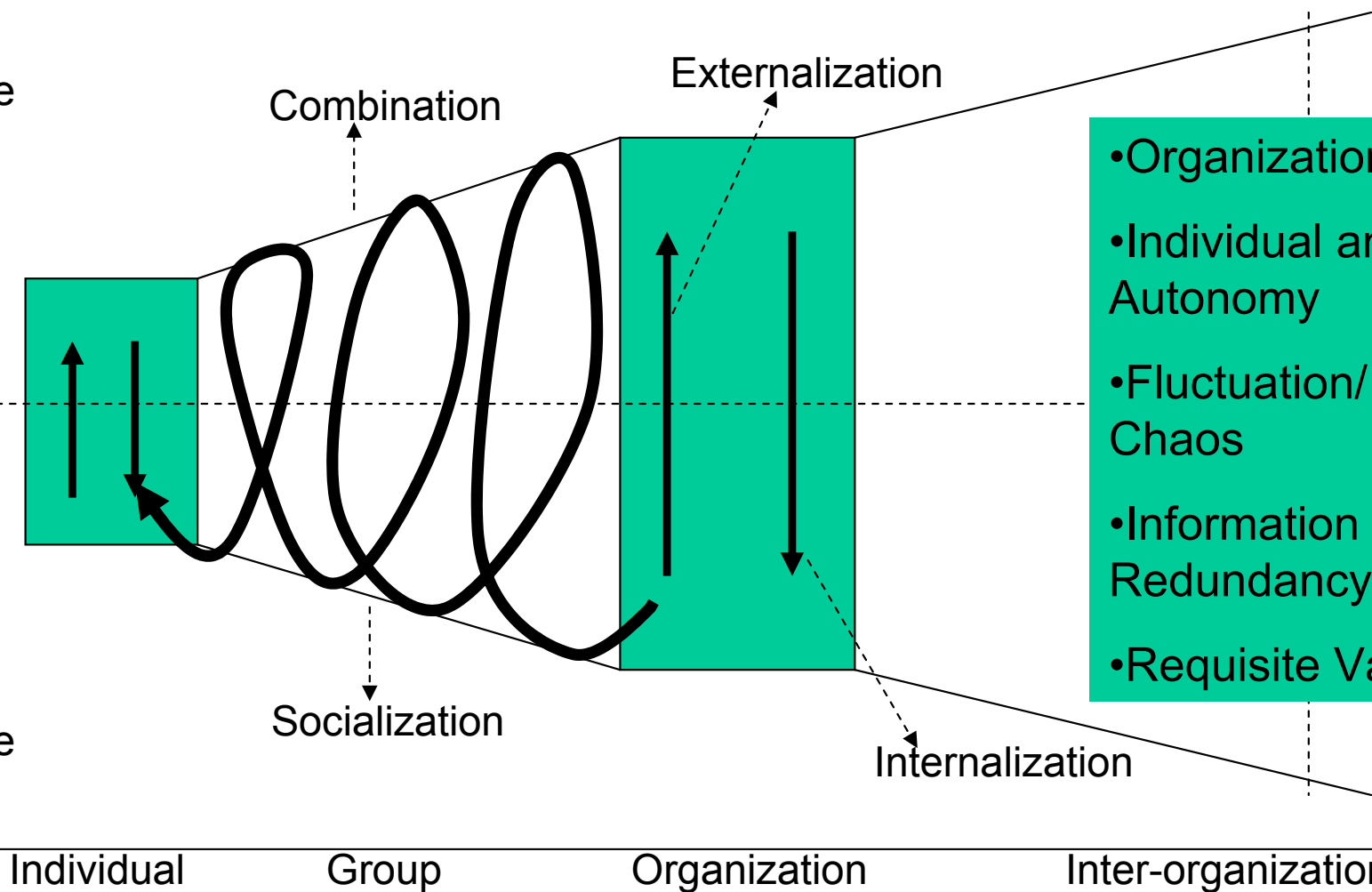
Organization Learning*

*Adapted from: Nonaka and Takeuchi, *The Knowledge Creating Company*, p.73, 1995.

Epistemological Dimension

Explicit Knowledge

Tacit Knowledge



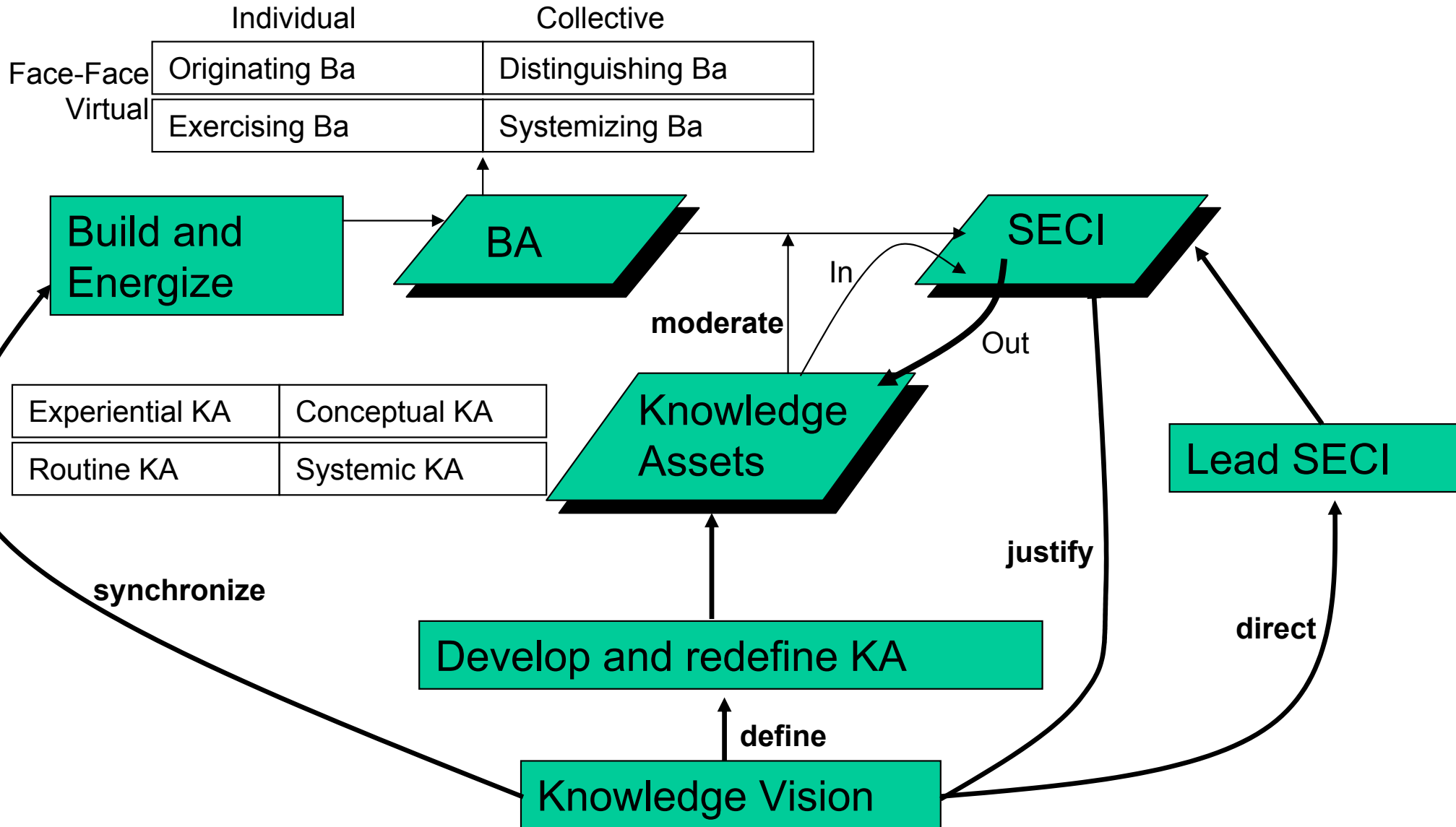
- Organization Intent
- Individual and Group Autonomy
- Fluctuation/ Creative Chaos
- Information Redundancy
- Requisite Variety

Ontological Level of Knowledge

Ontological Dimension



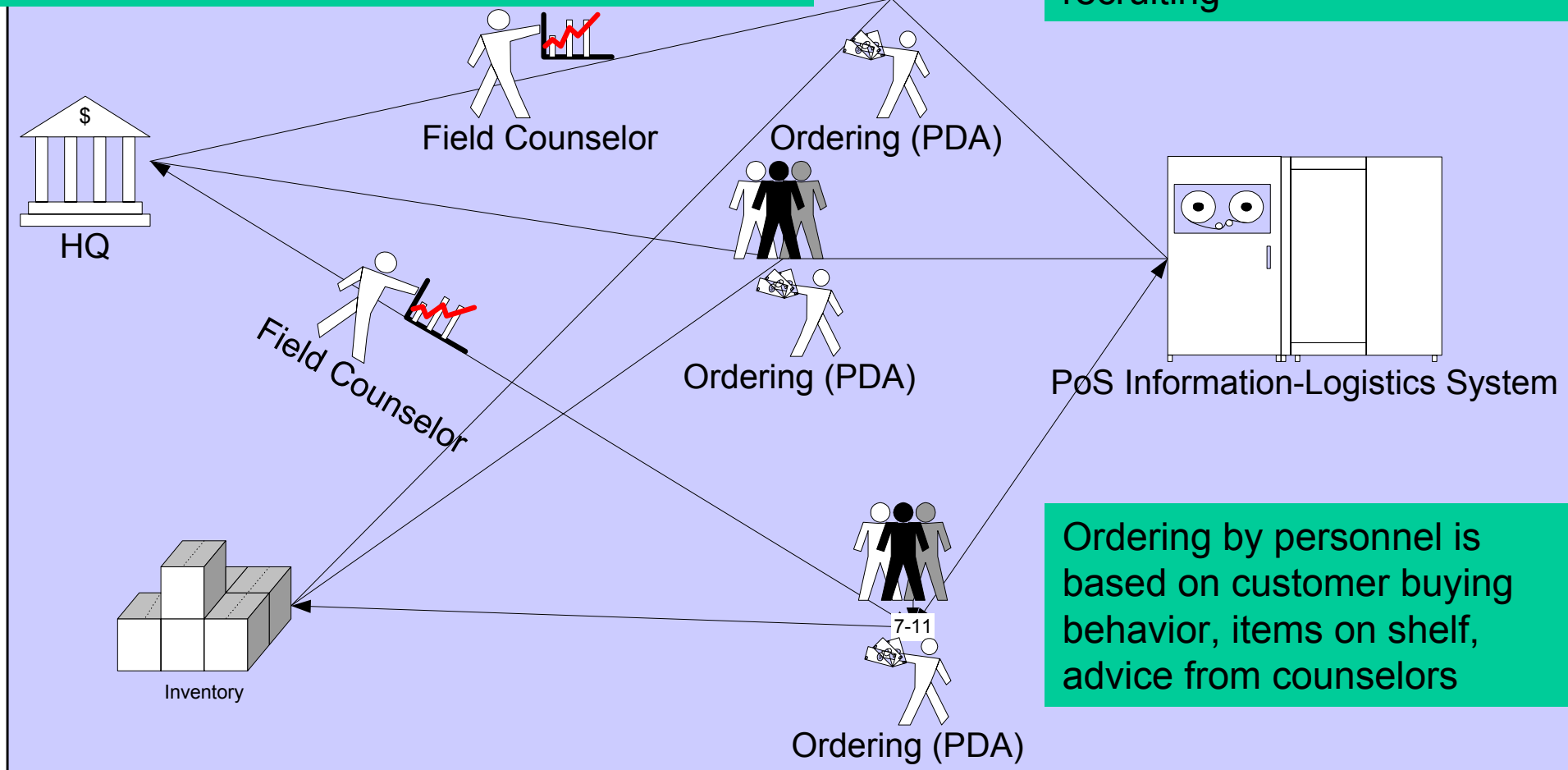
Knowledge Creation



Seven-Eleven Japan

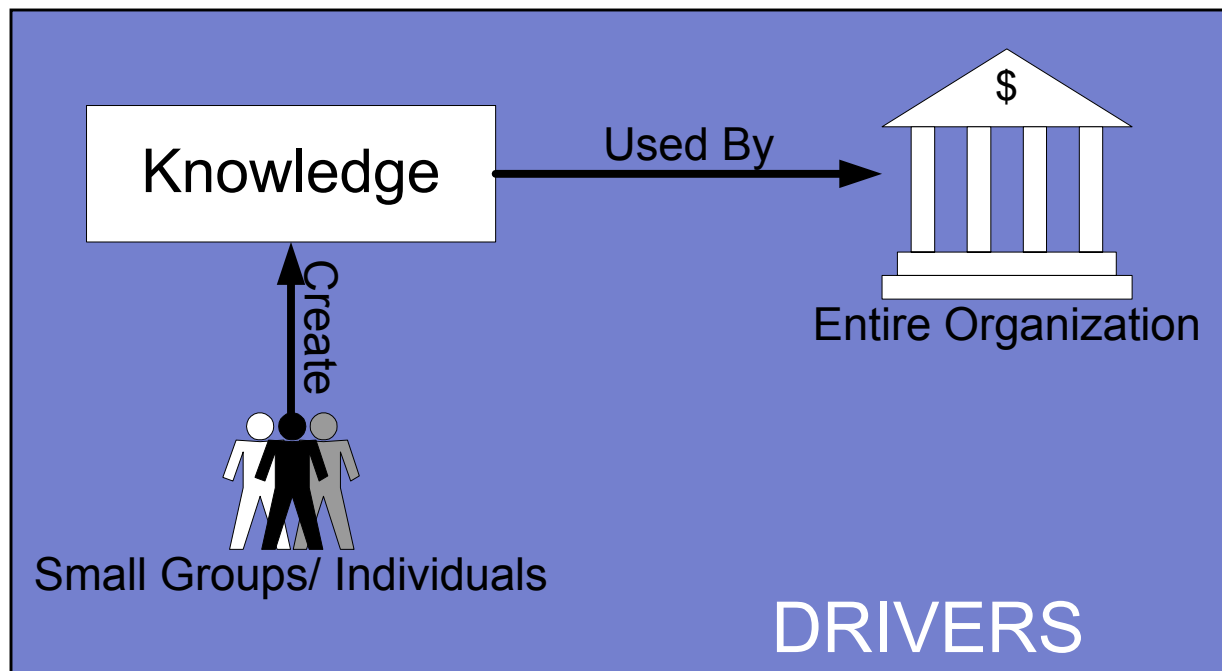
Weekly meeting for *all* field counselors
 Review buying + feedback to create hypotheses
 Test Nationally

Manuals for store operations,
 employee training, Franchise
 recruiting

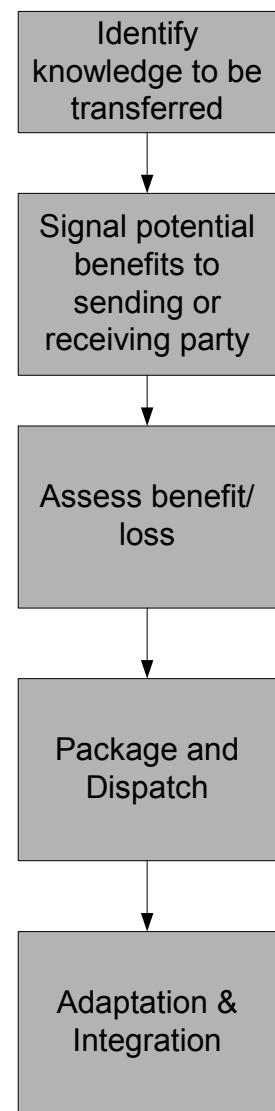


Ordering by personnel is
 based on customer buying
 behavior, items on shelf,
 advice from counselors

Knowledge Transfer



1. People have to be aware of the opportunity to exchange knowledge
2. Parties involved, expect the knowledge transfer to be worthwhile to both parties
3. Parties must be motivated to pursue knowledge transfer



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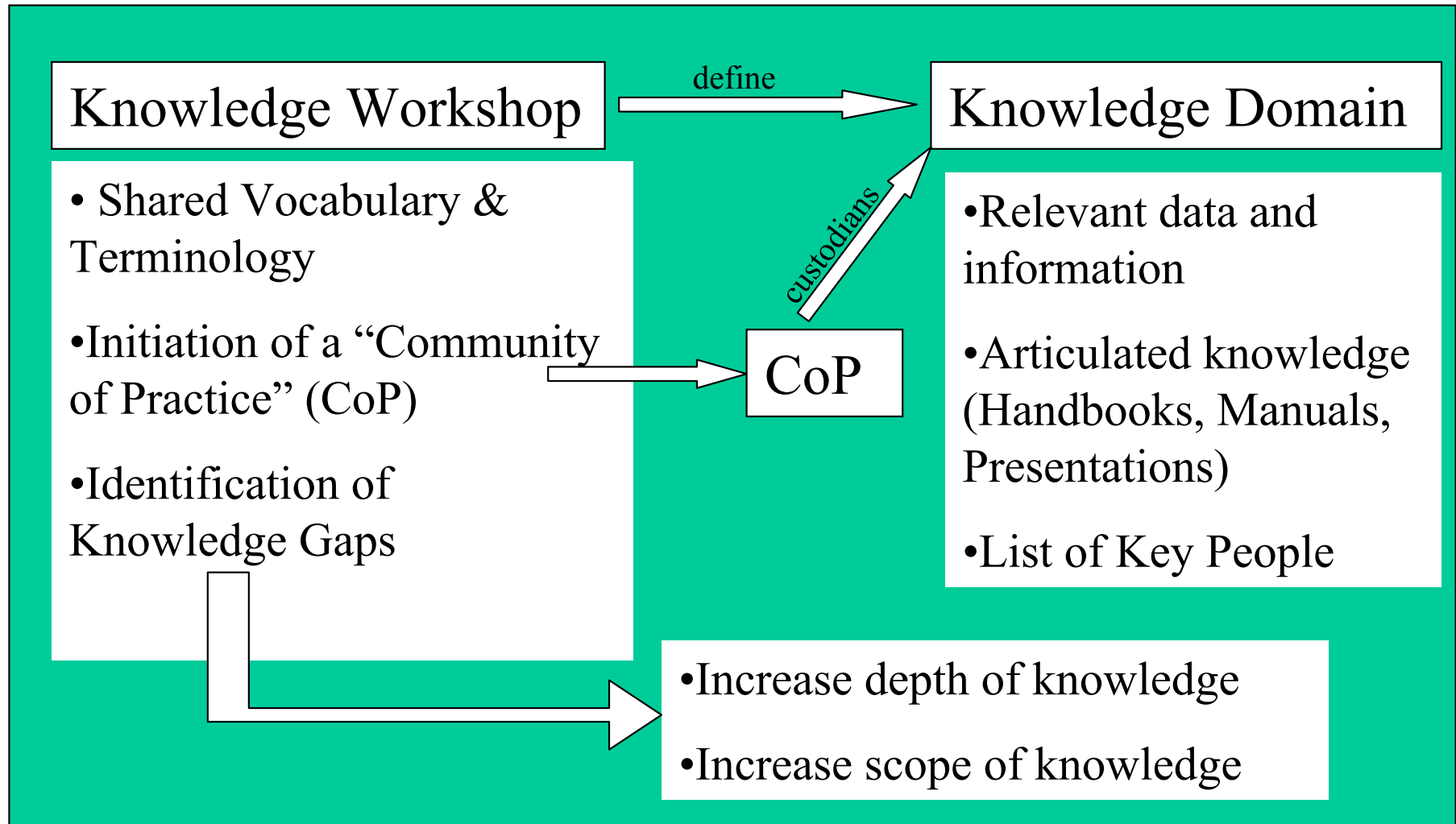


Providing Strategic Advantage

“In a knowledge economy, a key source of competitive advantage and superior profitability within an industry is how a company creates and shares knowledge”

***- The New Economy: A Primer,
Cambridge Technology partners, 1999.***

Knowledge Domain (KD)





Communities of Practice

- **Core group of participants of the workshop (10-12)**
- **Custodians of the knowledge domain**
 - sharing and creation of knowledge and practices to achieve organization and personal objectives
- **A senior business stakeholder → champions the CoP**
 - Delivery to business targets
 - Visibility of CoP's impact and effort
- **Portfolio of CoP's and KD's is determined by**
 - Importance to effectiveness of business operations
 - Tacitness of knowledge

Knowledge Strategy*

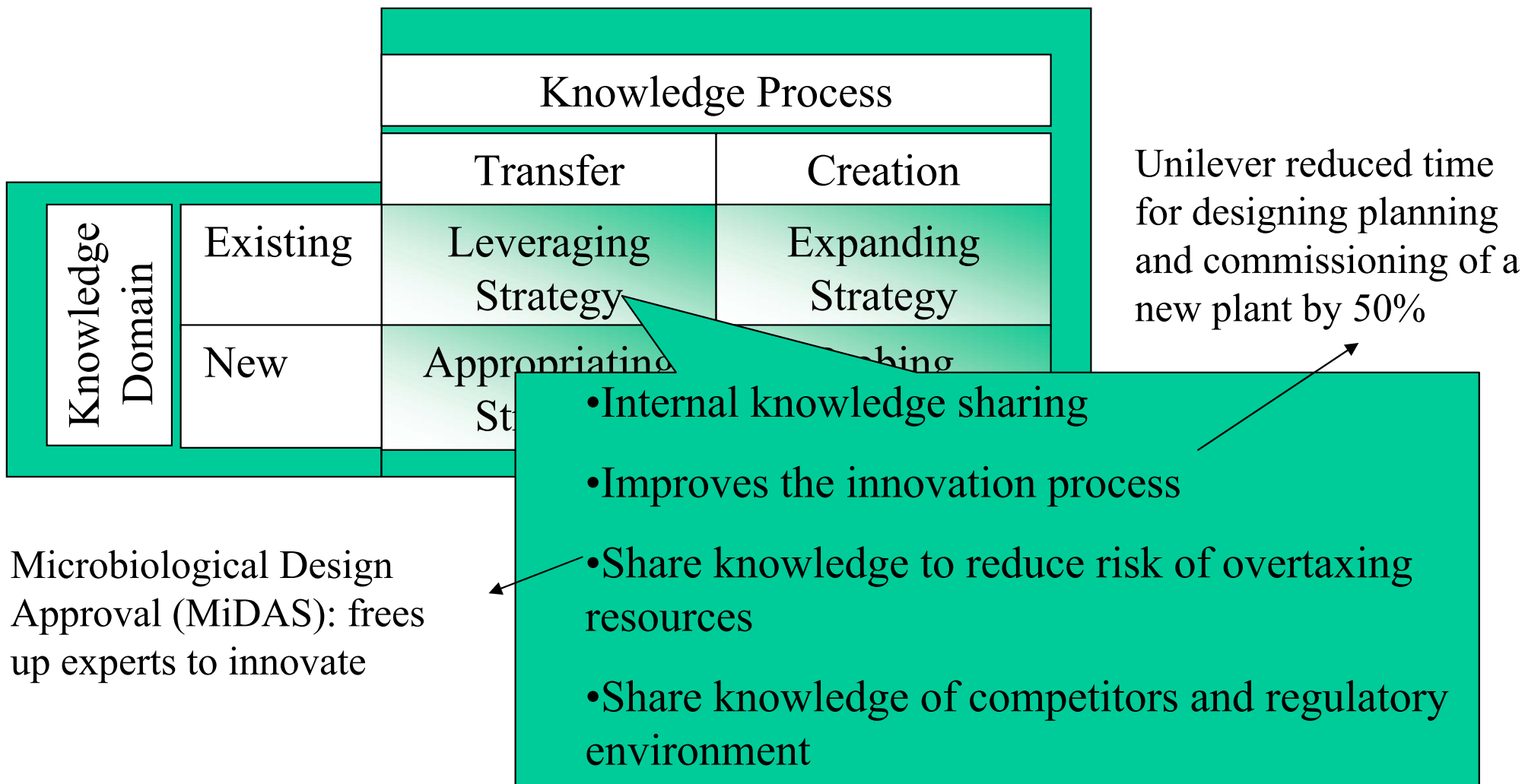
“Employment of Knowledge processes to an existing or a new knowledge domain in order to achieve strategic goals”

		Knowledge Process	
		Transfer	Creation
Knowledge Domain	Existing	Leveraging Strategy	Expanding Strategy
	New	Appropriating Strategy	Probing Strategy

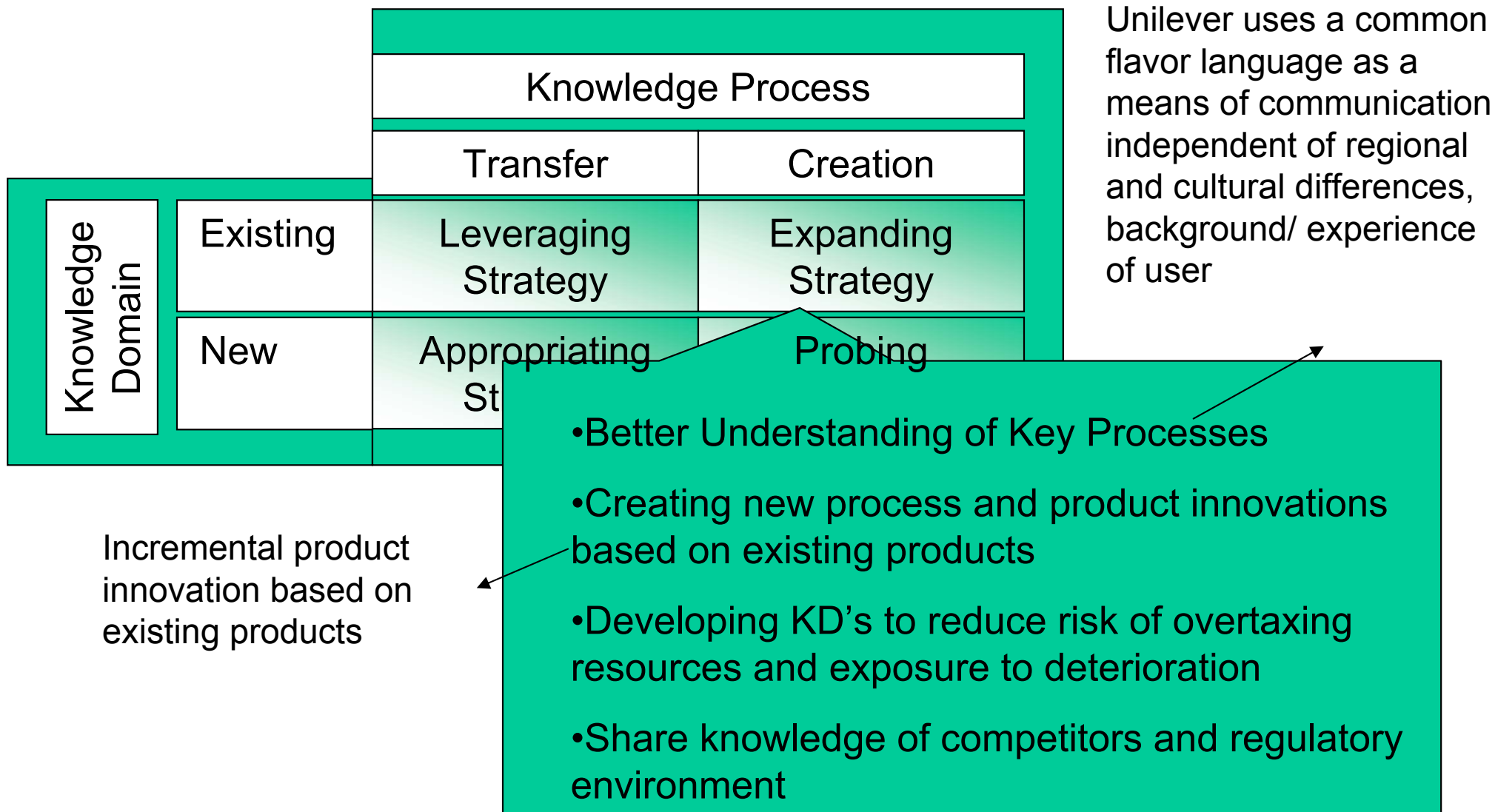
*von Krogh et. al, *Making the Most of Your Company's Knowledge: A Strategic Framework*, Long Range Planning, 34, pp 421-439, 2001..



Leveraging Strategy



Expanding Strategy



Appropriating Strategy

- Transfer new knowledge from partners
- Transfer knowledge from partners for innovation
- Transfer knowledge from partners to reduce risk of overtaxing resources and exposure to deterioration
- Transfer new knowledge of competitors and regulatory environment

Unilever in partnership with WWF established the Marine Stewardship Council to ensure sustainable fishery.

Unilever set up alliances with AOL, Microsoft, NetGrocer to ensure development and exploit an understanding of how to interact with consumers through online channels

Knowledge Domain	Existing	Defending Strategy	Expanding Strategy
	New	Appropriating Strategy	Probing Strategy

Probing Strategy

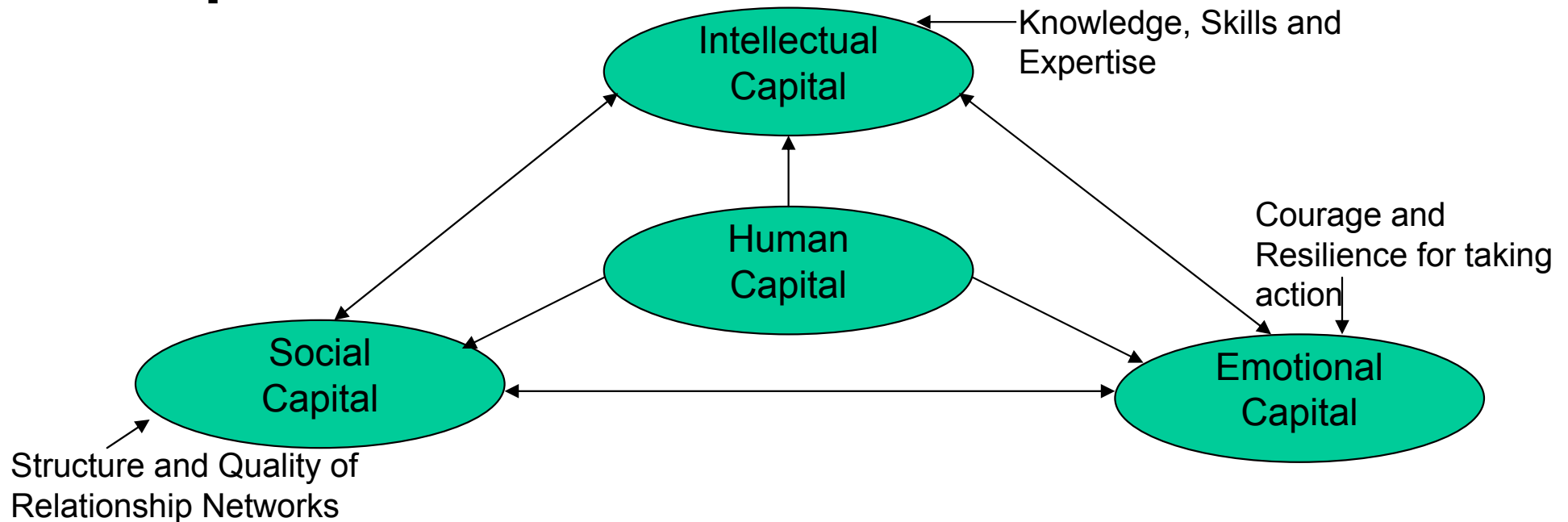
- Create new knowledge that can improve business process
- Create new knowledge for radical process and product innovation and better adaptation
- Reducing exposure of risk of existing knowledge domain deterioration

Unilever market researchers and marketers are immersed in the lifestyle, habits and attitudes of the consumer

		Transition	Creation
Knowledge Domain	Existing	Leveraging Strategy	Expanding Strategy
	New	Appropriating Strategy	Probing Strategy

Knowledge Measurement is Hard!

- **Lack of standardized system for measuring and valuing training metrics**
- **Accounting practices don't include human capital**





Impact of Culture*

Japanese Organization	Western Organization
<ul style="list-style-type: none"> •Group-based •Tacit Knowledge Oriented •Strong on Socialization and Internalization •Emphasis on Experience •Dangers of “Group-Think” and “over-adaptation to past success” •Ambiguous organization intent •Group Autonomy •Creative Chaos through overlapping tasks •Frequent Fluctuation from top management •Redundancy of Information •Requisite Variety through cross-functional teams 	<ul style="list-style-type: none"> •Individual-based •Explicit Knowledge Oriented •Strong on Externalization and Combination •Emphasis on Analysis •Dangers of “Paralysis by Analysis” •Clear organization intent •Individual Autonomy •Creative Chaos through individual differences •Less Fluctuation from top management •Less Redundancy of Information •Requisite Variety through individual differences

*Nonaka and Takeuchi, *The Knowledge Creating Company*, p.199, 1995.

Impact of Culture*

Japanese Organization	Western Organization
<ul style="list-style-type: none"> •Group-based •Tacit Knowledge Oriented 	<ul style="list-style-type: none"> •Individual-based •Explicit Knowledge Oriented
<p>Explicit Knowledge</p> <p>Tacit Knowledge</p>	<p>Explicit Knowledge</p> <p>Tacit Knowledge</p>
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*Nonaka and Takeuchi, *The Knowledge Creating Company*, p.199, 1995.



Knowledge Measurement Frameworks

- **Skandia Navigator**
- **Intangible Assets Monitor**
- **IC Index Model / HVA Model** (Holistic Value Approach)
- **Technology Broker Model**



Measuring Knowledge

- **Domain knowledge**
 - **Formal education, post-secondary education and formal training**
- $$K = (c/r)((1+r)^n - 1)$$

Where:

K = Value of knowledge

c = standard cost of acquiring knowledge in each time period

r = a long-run rate of return on investment

n = number of years of education

For a formal education, using c = \$9,230, r = 5.34%, n = 12, K = \$149,840

- **Handle obsolescence by using depreciation**

**Turner and Jackson-Cox, If Management Requires Measurement How May We Cope with Knowledge, Singapore Management Review, 24(3), pp 101-111, 2001*



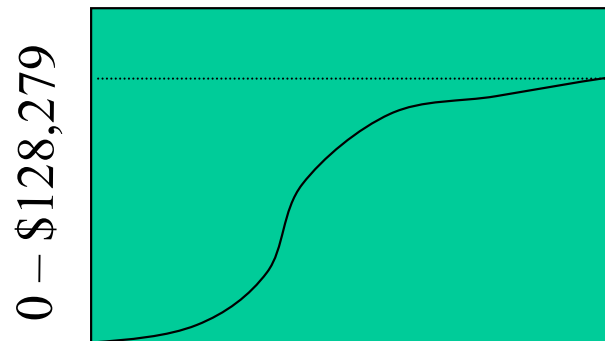
Measuring Knowledge

- **Tacit Knowledge**

- **How much time is spent sharing knowledge?**
- **12.5% (assumed in the absence of records)**

\$60,000 per employee \Rightarrow \$7,500 cost of tacit knowledge per employee

Given that the average period of employment is 47 years, using the same rate as that for Domain knowledge, present value of a working lifetimes's tacit knowledge is estimated at 128,270.





Overview

- **Evolving definition of knowledge**
- **Critical Issues in knowledge management**
- **Knowledge Management Frameworks**
- **Measuring Knowledge**
- **Human side of knowledge management**
- **Generic Approach to KM**



Organization

- **Perform a knowledge-based SWOT analysis**
- **Create a vision for KM initiative and provide a leader**
- **Align KM with the business strategy**
- **Plan and design the KM project**
- **Manage the organization culture and manage change**
- **Include stakeholders, competitors, environment**
- **Create and manage organization learning**



People

- **Manage people as individuals**
- **Encourage sharing and use of knowledge**
- **Encourage individual learning and innovating thinking**
- **Implement reward plans and promote**



Infrastructure and Process

- **Manage technology**
- **Manage process**