

# Corporate Epistemology

## And *The New Knowledge Management*

A Presentation By  
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# Ground I'll Cover Today

- New branch of KM theory and practice
- Blend of adaptive systems theory and Popperian epistemology
- Trace evolution, generally, of KM:
  - By operational focus, or intent
  - General epistemologies
- Our context: prevailing epistemologies in business and management (KM)
- “The New KM” as epistemologically distinct and unprecedented

# Acknowledgements

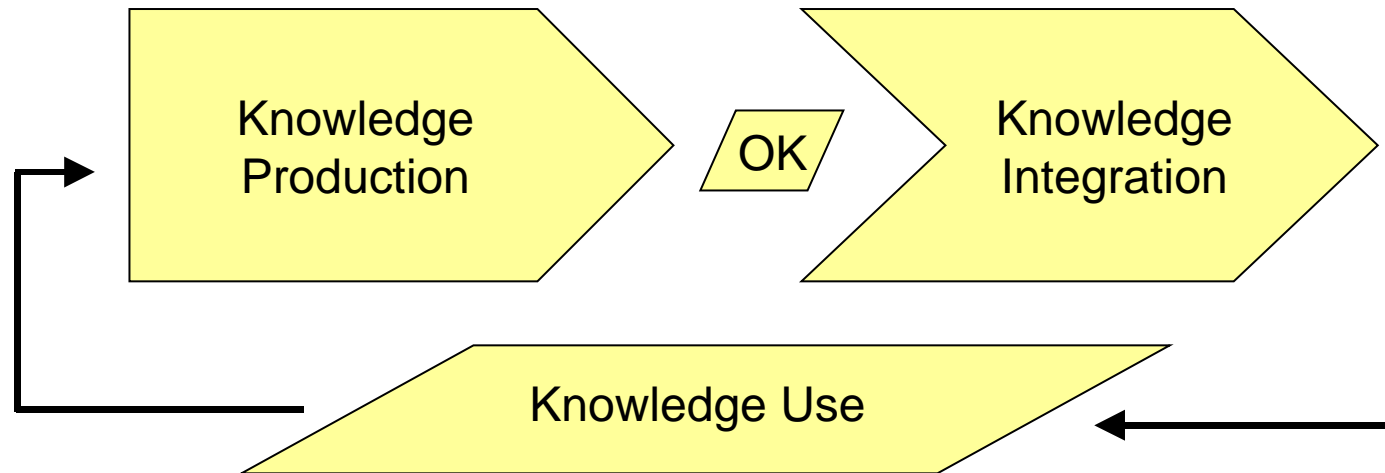
- Frameworks developed in the context of KMCI projects
- KMCI
  - Formed in late 1997
  - Systems-theory inspired brand of KM w/emphasis on CAS theory
  - A view of organizations as adaptive (living) systems
  - Learning as an adaptive strategy
  - Behavior and performance as knowledge in use
  - Most, not all, conceptual development carried out by Joseph M. Firestone, Ph.D. and myself

# KM Evolution and Related Epistemologies

# Generations of KM

- Early KMCI classification scheme for competing schools of KM thought - 1999
- Supply- versus Demand-side KM
- View of Knowledge Processing as a social system
  - Knowledge Production
  - Knowledge Integration
- Supply-side KM ==> Knowledge Integration
- Demand-side KM ==> Knowledge Production

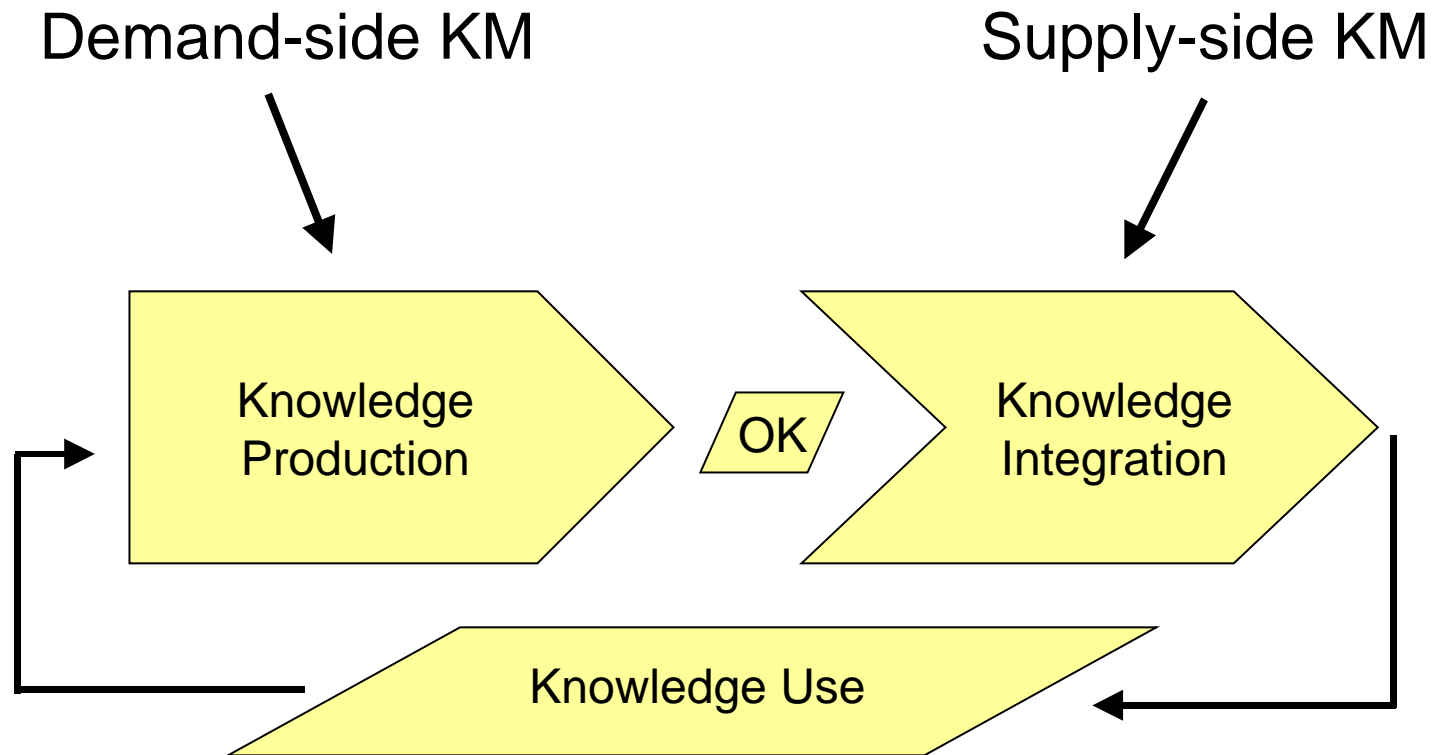
# Knowledge Processing



Source: KMCI, Mark W. McElroy and Joseph M. Firestone

A (Social) Life Cycle View of Knowledge Processing

# Supply- vs. Demand-side KM



Source: KMCI, Mark W. McElroy and Joseph M. Firestone

# Generations of KM (cont.)

- First-generation KM - supply-side only
- Second-generation KM - demand- and supply-side
- Examples of first-generation KM:
  - Most of what passes for KM today - IT based
  - Capture, codify, and share - IT based
  - “getting the right information to the right people at the right time”
  - Valuable knowledge already exists!
  - Purpose of KM is to find it and codify it

# Generations of KM (cont.)

- The “father” of first-generation KM:
  - Frederick Taylor
  - Scientific management
  - Thus, KM is at least 100 years old!
- Second-generation KM:
  - Initial development more fragmented and diffuse
  - Innovation management and R&D since Edison
  - HR and OD focus on training and development
  - Organizational learning, especially Peter Senge
  - Many others

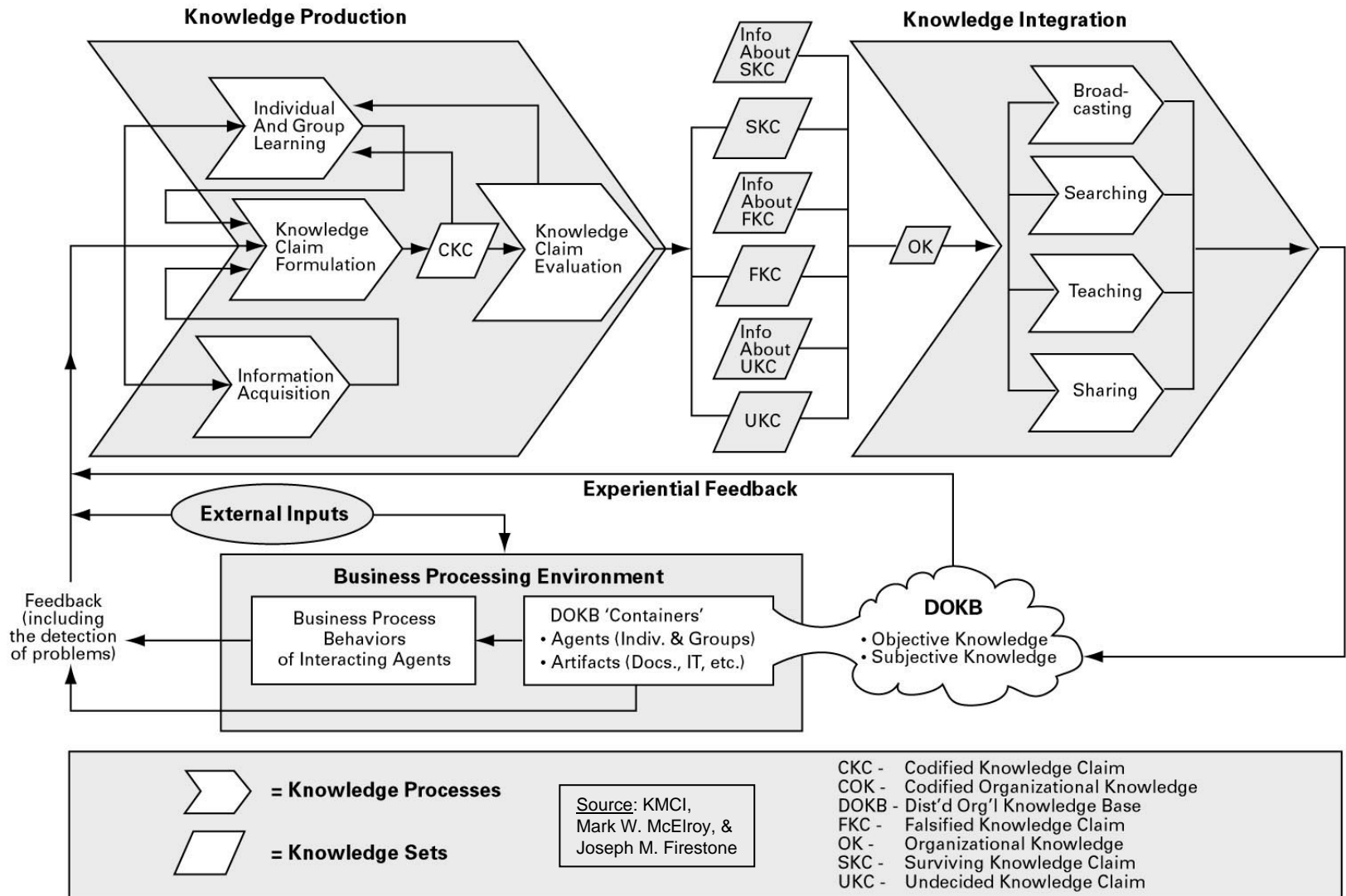
# Advent of Second-Generation KM

- First comprehensive supply- and demand-side model may have been Nonaka & Takeuchi (1995)
- First full life cycle view of Knowledge Processing (Knowledge Production and Integration)
- First distinction between Knowledge Processing and KM (more on this later)
- A “model” - commitment made to a specific epistemology and a prescriptive course of action

## Second-Generation KM (cont.)

- In late 1998, KMCI launched project to develop a “framework” for classifying alternative and competing KM “models”
- Took general social system view of Knowledge Processing, added an ontology to it, and called it the Knowledge Life Cycle framework, or “KLC”

# KMCI's Knowledge Life Cycle (KLC)



# An Even Broader Framework

- Nonaka and Takeuchi (N&T) described their own model from 3 different perspectives:
  - Epistemology: underlying theory of knowledge
  - Ontology: what exists in the domain or system of interest
  - Temporal: a time- or process-based view of how the system of interest to us works
- Very useful approach, so let's use it
- Can use the KLC framework as an analytical tool as we do

# First, Let's Unpack the N&T Model

- Epistemology
  - That knowledge is “justified true belief”
  - That knowledge is the outcome of “the mobilization and conversion of tacit to explicit knowledge (starts with knowledge in minds of individuals)
  - Based, in part, on Michael Polanyi’s epistemology

(Continued)

# Unpacking the N&T Model (cont.)

- Ontology (what exists in their system)
  - Individuals with capacity to learn and hold knowledge
  - Groups with capacity to learn and hold knowledge
  - Organizations with capacity to learn and hold knowledge
  - Networks of organizations with capacity to learn and hold knowledge
  - Tacit knowledge
  - Explicit knowledge

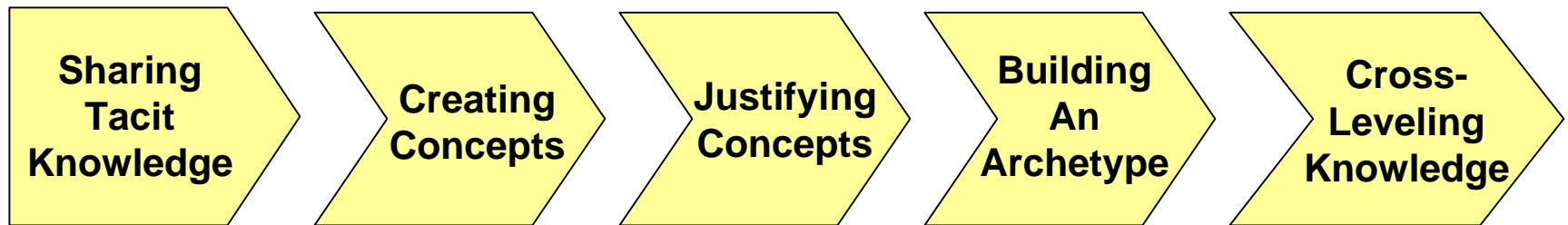
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# Unpacking the N&T Model (cont.)

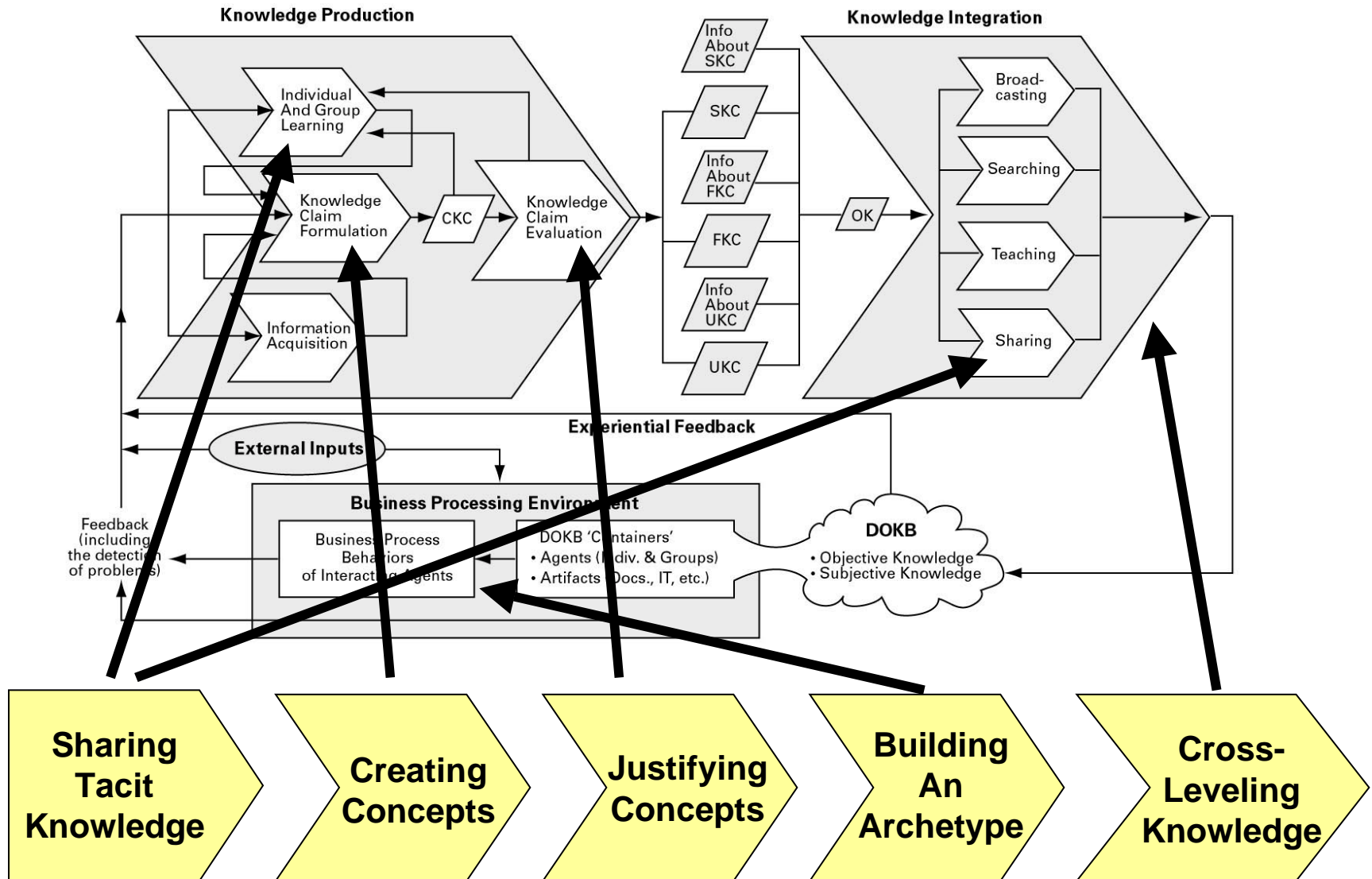
- Temporal
  - Organizational knowledge begins in minds of individuals as tacit knowledge
  - Through successive stages of conversion to explicit and then back to tacit, knowledge is amplified through groups to level of the organization
  - This all happens in a 5-phase process

(Continued)

# N&T's Knowledge Processing Model



# Mapping N&T to the KLC



Source: Mark W. McElroy

# Let's Look at KM, in General, Using N&T's 3 Descriptive Dimensions

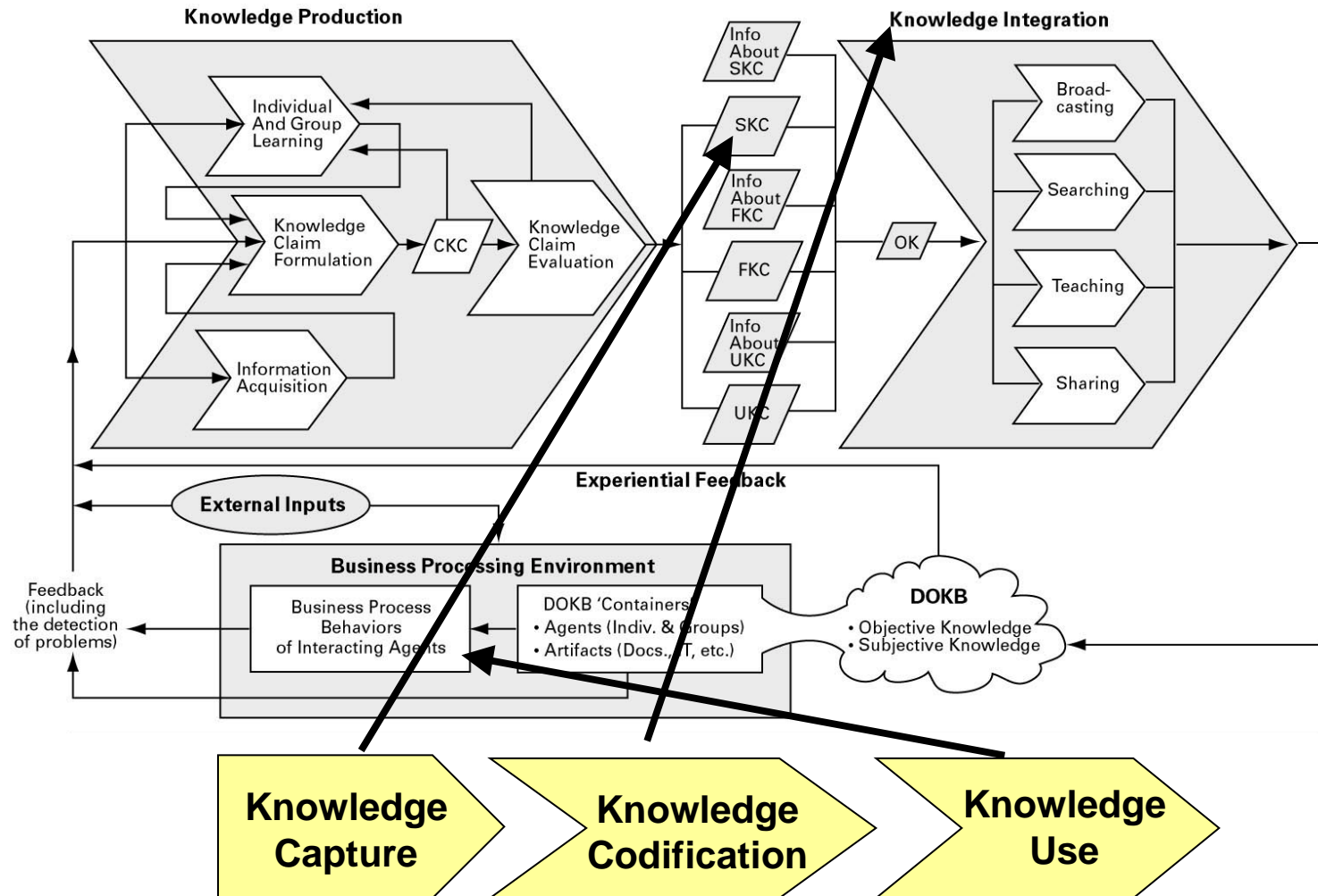
- First-generation KM
  - Epistemology
    - often don't have any - *epistemology free*
    - assumes knowledge already exists
    - focus is on knowledge sharing or 'integration,' not 'production'
    - grounded in service and support of existing business strategy - is what makes it 'valid' knowledge
    - implicitly commits fallacy of 'appeal to authority'
    - thus, all strategy-compliant or supporting information (knowledge?) is also deemed valid, or 'true'
    - fail to distinguish between knowledge and information, because they don't have to - 'valid knowledge exists'

# Analyzing KM, in General (cont.)

- First-generation KM (cont.)
  - Ontology
    - knowledge (or is it information? Or both?)
    - individuals who need it
  - Temporal
    - knowledge capture
    - knowledge codification
    - knowledge use

Let's map this to the KLC

# First-generation KM and the KLC



Source: Mark W. McElroy

# Taking Corporate Epistemologies to Task

# Two Dominant Epistemologies

- “Justified True Belief”
  - Explicitly embraced by N&T
  - Implicitly embraced by mainstream business
  - Mark Notturmo: “Floating Foundationalism” - truth rests on authority of successive installments of management

(continued)

# Two Epistemologies (cont.)

- “Knowledge is the capacity for effective action”
  - Very popular in OL circles
  - Overstated - effective action also requires desire, means, and power to take it
  - A contributing factor; not the *same as* knowledge
  - Arguably epistemology-free (ironically), since it seems to assume valuable knowledge already exists

# Justified True Belief

- Justificationist tradition - knowledge can and should be justified, or shown to be certain
- Foundationalist variant:
  - Can test against foundational truth of strategy
  - Strategy as the authoritative voice of management
- Sees management's strategy knowledge as infallible
- Low tolerance for dissent
- Even less tolerance for open criticism by 'subordinates'

# Justificationism Dominates Business

- Basis of most contemporary management schemes
- Knowledge can be certain
- Top management as unassailable source of such knowledge
- Accounts for first-generation, supply-side KM
- Even N&T's 'second-generation' scheme predicated on 'justifying' knowledge using management's 'intent' as authoritarian basis for doing so

# Another Business Epistemology

- Kuhnian communitarianism, or knowledge by consensus (regardless of its truth or falsity)
- Sometimes called communalism, tribalism, or social constructivism
- A coherence theory of truth - proximity to other claims regarded as true by a community
- Also justificationist, this time based on appeals to solidarity or consensus
- Often invoked using the “team player” ethic - insidiously coercive

# Enter Anti-Justificationism\*

- Formulated by Karl Popper in the mid-twentieth century
- “Fallibilism” - all of our knowledge is irreparably fallible
- A non-authoritarian theory of knowledge that Popper called Critical Rationalism
- “Our scientific knowledge, according to Popper, cannot and need not be justified.” (Notturmo, 2000)

\* Source: Mark A. Notturmo, 2000

# Popper's Fallibilism (cont.)\*

- Offers middle way between two opposing (legacy) authoritarian approaches to science (and knowledge):
  - Rationalism (dogmatism)
  - Empiricism (psychologism)
- By showing how knowledge can be rational and objective, without being certain
- And without appealing to induction, or grounding itself upon expert opinion, consensus, solidarity, or sensory perceptions

\* Source: Mark A. Notturmo, 2000

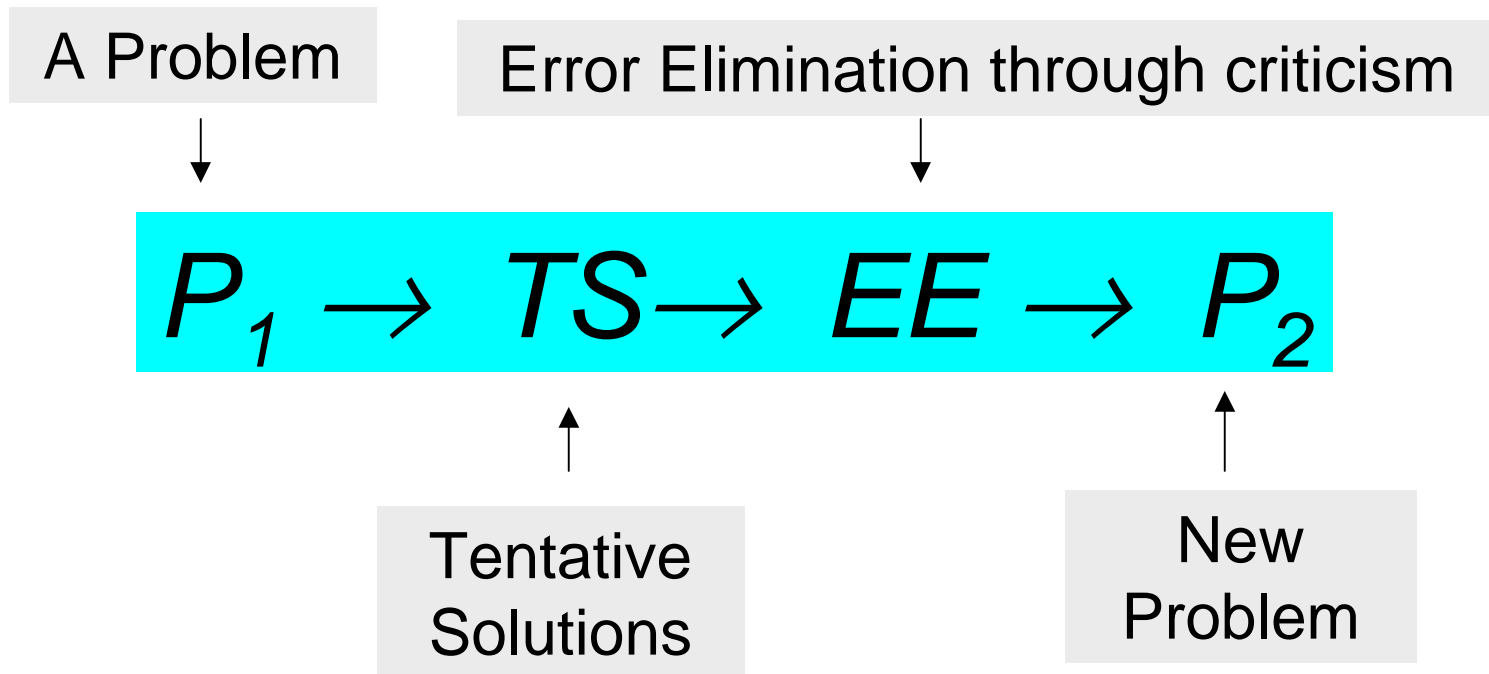
# Popper's Fallibilism (cont.)\*

- Rather than seek to justify knowledge (since we can't), we should seek to falsify it, and hang on to that which we can't
- “But a theory's ability to successfully answer criticism never means that it is justified or confirmed -- though it may, of course, mean that we are, for the moment, justified in preferring it over its competitors.” (Notturmo, 2000)

\* Source: Mark A. Notturmo, 2000

# Fallibilism in Practice

- Often called “Falsificationism” - opposite of Justificationism
- Summed up in Popper’s ‘tetradic schema’



# Falsificationism in Business?

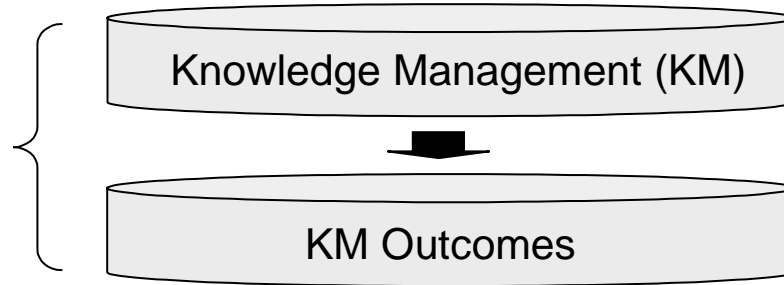
- Raises some immediate problems:
  - Not clear how to operationalize tetradic schema, or how it would work
  - Seems to challenge or undermine management authority in the firm
  - Should decision making be democratic in form?
  - Does falsificationism imply a threat to stockholders' rights, or a decrease in management's control?
  - Should employees have a democratic say in management decision making?

# A Breakthrough in Thinking

- Answer: Change nothing at all re: stockholder system of ownership and control
- Or management authority to make decisions and direct resources of firm
- Rather, learn to make the distinction between Knowledge Processing and Business Processing
- Divest management of the monopoly it has had had over the former without disturbing its monopoly over the latter

## Knowledge Management

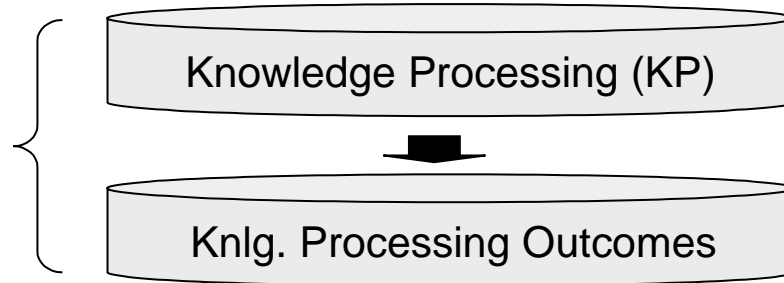
(Meta-Epistemic Behaviors)



- For example:**
- Knowledge Processing (KP) Strategies
  - KP Policies and Rules
  - KP Infrastructures
  - Learning Programs

## Knowledge Processing

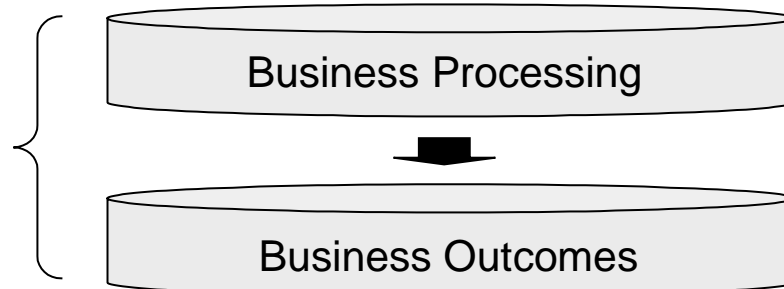
(Epistemic Behaviors)



- For example:**
- Business Strategies
  - Organizational Models
  - Business Processes
  - Product Strategies

## Business Processing

(Operational Behaviors)



- For example:**
- Profitability
  - Market Share
  - Growth
  - Ethics
  - Sustainability

Three Levels of Behavior in a Firm

# Breakthrough - Discussion

- And why not do this?
- Why not engage employees in organizational problem solving?
- Why not encourage enterprise-wide inclusivity in Knowledge Processing (i.e., make it 'open') even as we leave Business Processing decision making by management closed?
- Example: U.S. Forest Service 'free employee press'

# Breakthrough - Discussion (cont.)

- Entails leaving Business Processing rules and behaviors intact, while discarding the old 'Justificationist' epistemology behind, in favor of the new 'Falsificationist' one
- Noticeable change would be:
  - More active dialogue within firms re: policies, strategies, business processes, and other knowledge in use
  - Greater transparency in management's thinking and decision making

(continued)

# Breakthrough - Discussion (cont.)

- Noticeable changes (cont.):
  - Better informed stockholders and other stakeholders re: management's thinking and reactions of insiders
  - Less corporate malfeasance - guard against it
  - Higher rates and qualities of innovation due to enterprise-wide engagement in Knlg. Processing
  - We call this kind of enterprise the *Open Enterprise*, so names after Popper's *Open Society*
  - *An enterprise predicated on the fallibility of knowledge, as opposed to the certainty of it*

# Thus, “The New KM”

- KM implications:
  - Focus shifts from supply-side priorities to demand-side concerns
  - Enabling openness in Knowledge Claim Evaluation, in particular, rises to the fore
  - An error elimination ethic, freedom of thought, and the re-enfranchisement of employees in the organizational process of detecting problems and formulating solutions to them via testing, evaluation and open discourse, regardless of rank, take hold

# “The New KM” (cont.)

- A new kind of KM practice:
  - Social interventions aimed at activating and institutionalizing open dialogue re: problem detection, formulating tentative solutions, and eliminating errors
  - Technology interventions aimed at tracking knowledge claims and their histories of testing, evaluation, and performance
  - This kind of IT application does not yet exist - what Joe Firestone calls true “Enterprise *Knowledge Portals*”

# “The New KM” (cont.)

- The fundamental units of interest in The New KM become:
  - Knowledge Claims
  - Meta-claims about them

# Conclusion - Profiling The New KM Using N&T's Three Descriptive Dimensions

# The New KM

- Epistemology
  - Fallibilism - no 'justified true belief' or certain knowledge, only contradictions and choices we can make between them
  - Knowledge as claims that have survived our tests and evaluations (our criticism)
- Ontology
  - Individuals, groups, and organizations
  - KLCs operate at all three levels and interact
  - Beliefs and knowledge claims (worlds 2 and 3)
  - Meta-claims

# The New KM (cont.)

- Temporal
  - 3-tiered operating model that we call the Open Enterprise
  - Knowledge Processing is emergent, self-organizing, but has regularity to it
  - It has an attractor pattern that emerges under its own steam under the influence of the logic expressed in Popper's 'tetradic schema'
- KM implications
  - Manage the conditions, not the process
  - Defer to 'the pattern' (the attractor)
  - Subject of a business method patent by my firm

# Closing

Why falsificationism? Because as Popper once said (in so many words):

**We must learn to kill our worst ideas before they kill us!**

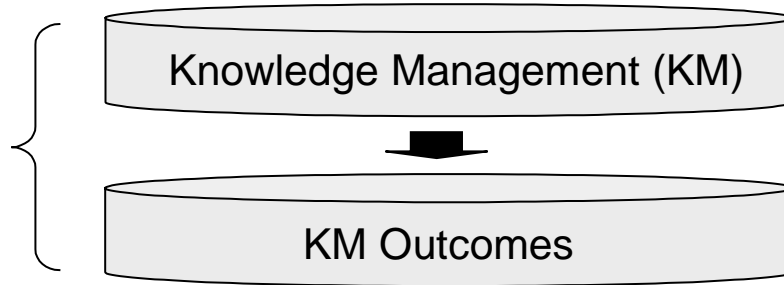
Besides, justificationism is false!

# Appendix A

## Understanding *The New KM's* 3-Tier Reference Model

## Knowledge Management

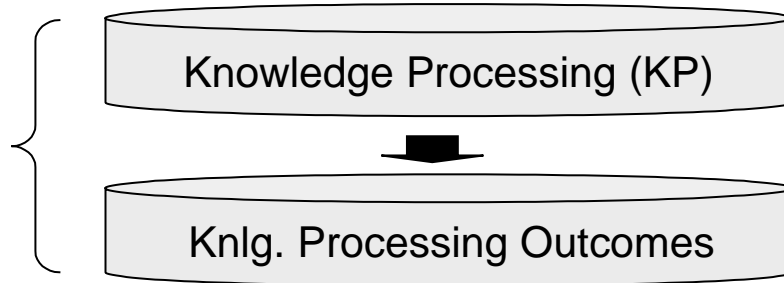
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- For example:**
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## Knowledge Processing

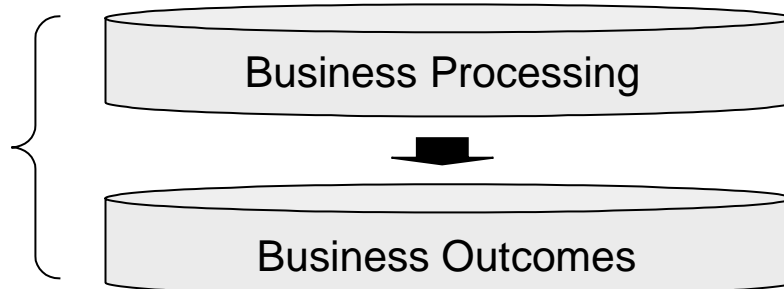
(Epistemic Behaviors)



- For example:**
- Business Strategies
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## Business Processing

(Operational Behaviors)



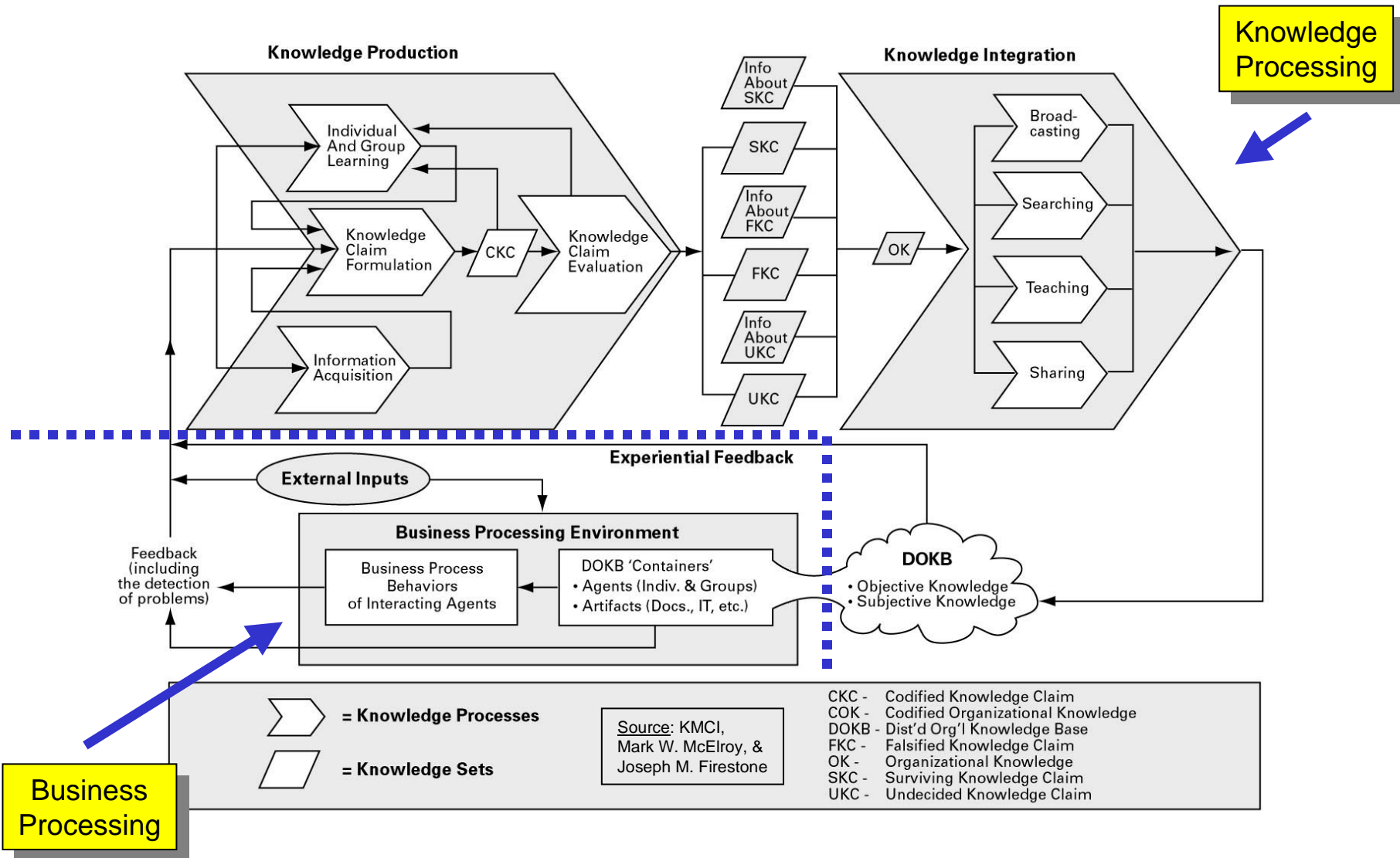
- For example:**
- Profitability
  - Market Share
  - Growth
  - Ethics
  - Sustainability

Three Levels of Behavior in a Firm

# A Brief Narrative

- Read model from the bottom up, as follows:
  - People at work conducting their ordinary business can be seen as engaging in ‘Business Processing’
  - When necessary, people at work temporarily suspend or depart from their Business Processing behaviors in order to engage in learning, or ‘Knowledge Processing’
  - To enhance the quality of Knowledge Processing, ‘knowledge management’ interventions are made; these either enhance Knowledge Production, Knowledge Integration, or both

# Another View - BP vs. KP



# The Model in Story Form

- People at work doing business as usual engage in knowledge use, or the practice of knowledge
- All such knowledge is ‘produced’ by them or others and is ‘integrated’ into practice via a variety of integration modes (teaching, sharing, etc.)
- People at work can be seen as engaging in the closing of business, or operational, gaps on a continuous basis. In other words, work consists of a steady stream of transactions in which workers close gaps between current states and target states – for themselves, for customers, for their bosses, etc.

- Continued -

# The Model in Story Form (cont.)

- Closing gaps in business or operating states is achieved by making reference to existing knowledge about how to do so
- From time to time, however, people encounter a different kind of gap -- a gap between what they know about how to conduct business and what they need to know in order to close operational gaps (i.e., of a new kind)
- These are epistemic gaps, and they force workers to suspend or depart from ordinary Business Processing in order to engage in Knowledge Processing, or learning

- Continued -

# The Model in Story Form (cont.)

- Indeed, all Business Processing is nothing more than the practice of knowledge that has previously been produced and integrated as a consequence of previous Knowledge Processing efforts
- Once knowledge has been produced and integrated, it becomes available for use in Business Processing, thereby allowing workers to 'return' to Business Processing mode
- BP and KP behaviors are deeply integrated and intermingled, with workers very often alternating between them unconsciously and instinctively

- Continued -

# The Model in Story Form (cont.)

- In other cases, episodes of Knowledge Processing are more formal and drawn out in time
- Knowledge Processing is learning and the adoption of new knowledge produced through learning
- It is the individual and social process that allows us to adapt and to close gaps in current and target states
- Business processing is about closing gaps in operating states of affairs
- Knowledge Processing is about closing gaps in epistemic states of affairs, which in turn allows us to adapt in life by closing operating states of affairs better and more effectively

Knowledge Management (KM)



KM Outcomes

Knowledge Processing (KP)



Knlg. Processing Outcomes

Business Processing



Business Outcomes



## Business Processing Behaviors

- Operational re: primary purpose of the business
- Roughly equivalent to business processes in conventional sense
- Often transactional – aimed at closing gaps in business states
- Includes all value chain functions and their management
- Outcomes include profitability, growth, market share, cycle times, customer retention, employee retention, etc.
- Business processing behaviors account for business outcomes, but not exclusively so

Source: Mark W. McElroy and Joseph M. Firestone

# Examples

- Business Processing
  - Performing work in an ordinary fashion
  - Conducting the business of the firm
  - Processing business transactions
  - Following established business processes
  - Doing work in accordance with one's job description
  - Working with customers in an ordinary manner
  - Working with co-workers in an ordinary manner
  - Executing the business strategy of the firm

Knowledge Management (KM)



KM Outcomes

Knowledge Processing (KP)



Knlg. Processing Outcomes



Business Processing



Business Outcomes

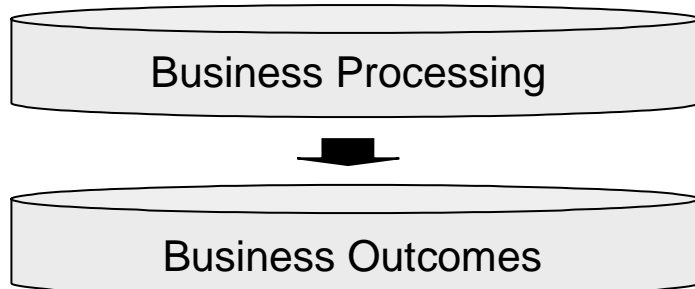
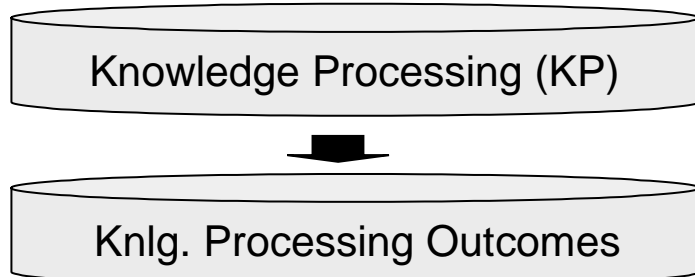
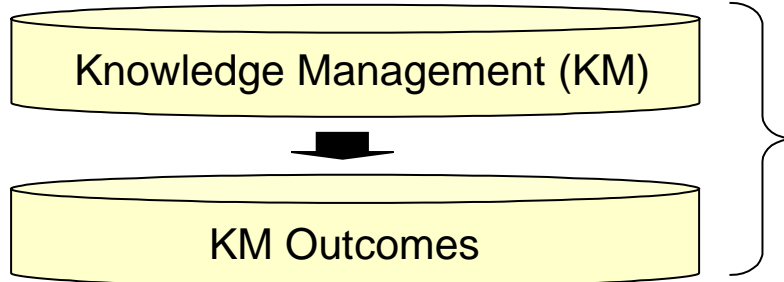
## Knowledge Processing Behaviors

- Separate and different behaviors that produce & integrate knowledge
- Includes learning and innovation – knowledge sharing, too
- Is epistemic, not operational or Business Processing oriented
- Is aimed closing knowledge gaps, not gaps in business states
- Accounts for the knowledge we *use* in Business Processing
- Roughly equivalent to what Chris Argyris calls ‘double-loop learning’
- Outcomes include new knowledge, e.g., strategies, business processes, HR programs, mktg. strategies, etc.
- Can also characterize KP performance (e.g., rate of innovation, org’l capacity to learn and adapt, etc.)

Source: Mark W. McElroy and Joseph M. Firestone

# Examples (cont.)

- Knowledge Processing
  - Attending training programs
  - Turning to colleagues for advice and counsel
  - Conducting research
  - Developing new operating guidelines or procedures
  - Participating in a community of practice in order to create and/or share knowledge
  - Turning to a 'best practices' system for guidance
  - Working on a task force to develop strategy
  - R&D
  - KAIZEN events in manufacturing



## Knowledge Management Behaviors

- Behaviors aimed at enhancing Knowledge Processing
- Goal is to enhance knowledge production and integration
- To enhance organizational learning
- To enhance innovation
- Roughly equivalent to innovation management
- Focuses on enhancing knowledge *making*, not just knowledge *sharing*
- Outcomes include strategies for enhancing Knowledge Processing, learning, innovation, etc.
- Also creates and enhances social and technological infrastructures
- Interventions are usually social and technological in form

Source: Mark W. McElroy and Joseph M. Firestone

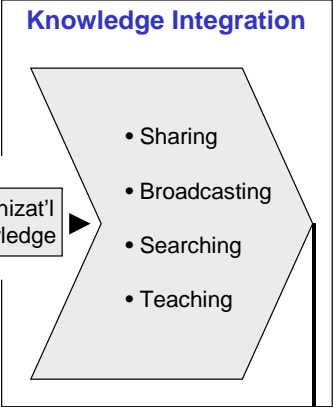
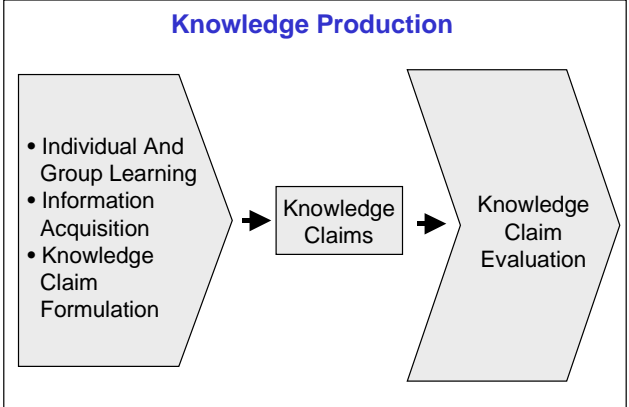
# Examples (cont.)

- Knowledge Management
  - Creating training and/or e-learning programs
  - Designing and implementing policies and programs for individual and group learning
  - Designing and implementing policies and programs for communities of practice
  - Designing and implementing IT applications and infrastructures that support Knowledge Production and/or integration (i.e, that support Knowledge Processing)
  - Creating innovation incentive and reward plans

Some KM strategies focus on knowledge making (demand-side) while others focus on knowledge sharing (supply-side)

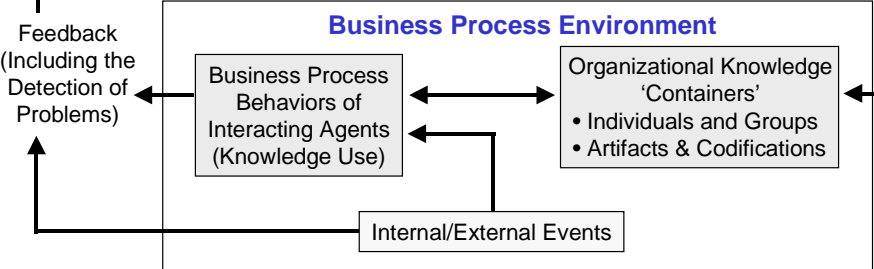
Demand-Side KP

Demand-Side KM



IT Applications of KM Can Support Multiple Facets of Knowledge Processing

Supply-Side KM



Solutions

Supply-Side KP

Focusing on knowledge processes and related social conventions, e.g. individual learning and communities of practice policies and programs, is also important

Source: Mark W. McElroy and Joseph M. Firestone

# A Framework for KM Strategy

<b>Knowledge Processing Interventions</b>	<b>Demand-Side KP</b>	<b>Supply-Side KP</b>	<b>Supply/ Demand-Side KP</b>
<b>Social Interventions</b>	Demand-Side Social Interventions	Supply-Side Social Interventions	S/DS Social Interventions
<b>Technological Interventions</b>	Demand-Side Technological Interventions	Supply-Side Technological Interventions	S/DS Technological Interventions
<b>Socio/Techno Interventions</b>	Demand-Side Integrated Interventions	Supply-Side Integrated Interventions	S/DS Socio/Techno Interventions

Source: Mark W. McElroy and Joseph M. Firestone

# More KM Intervention Types

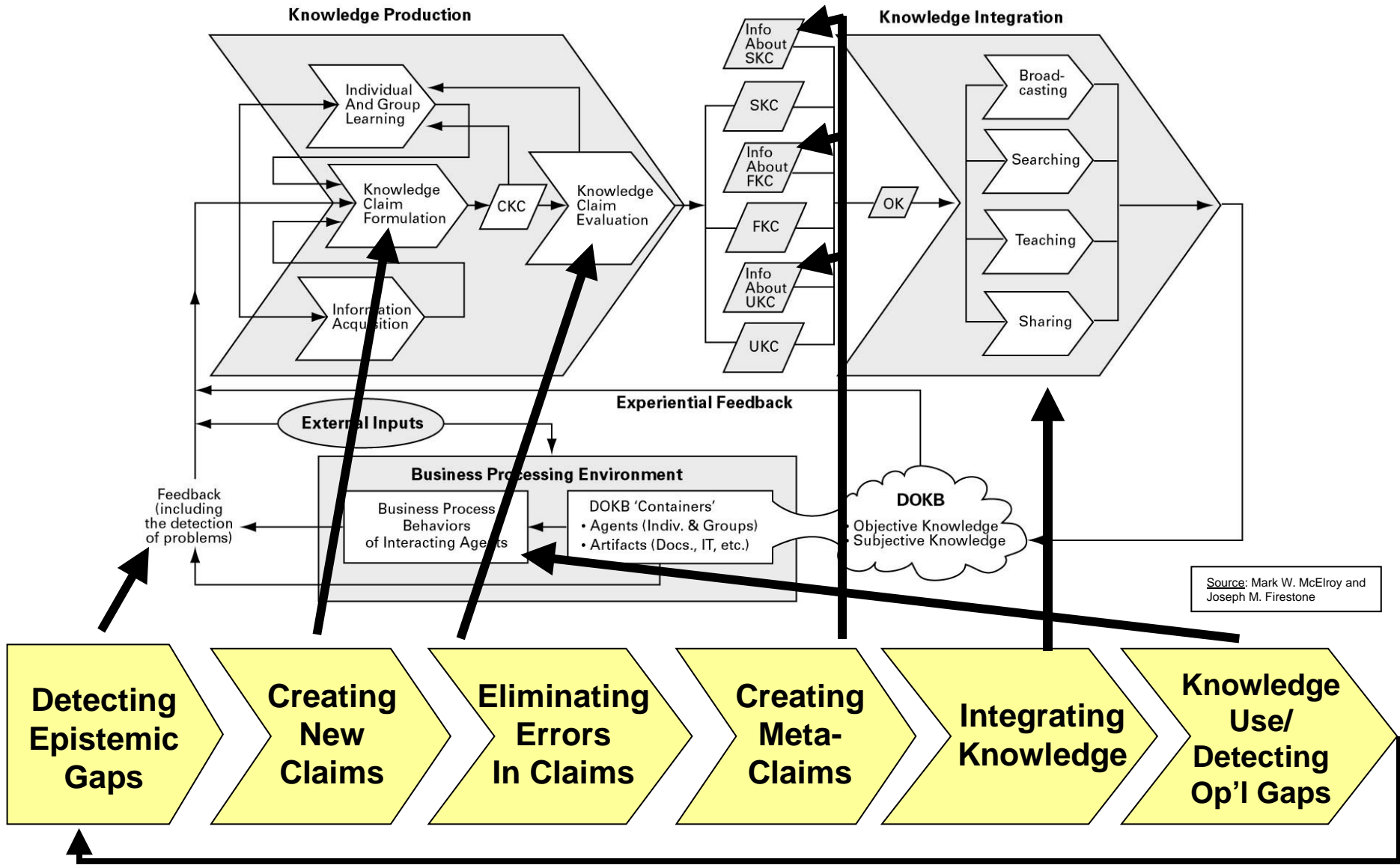
	Social Interventions	Technological Interventions	Socio-techno Interventions
Information Acquisition			
Individual And Group Learning			
Knowledge Claim Formulation			
Knowledge Claim Evaluation			
Broadcasting			
Searching			
Teaching			
Sharing			

Source: Mark W. McElroy and Joseph M. Firestone

# What Makes *The New KM* 'New'

- The particular combination of:
  - Its basis in complex adaptive systems theory
  - Its distinction between 'Business Processing' vs. 'Knowledge Processing' behaviors (3-tier model)
  - Its view of KM as a management discipline aimed at enhancing Knowledge Processing behaviors
  - Its rejection of justificationist and foundationalist epistemologies
  - Its adoption of fallibilism and falsificationism
  - Its specification of a new normative model for business ('The Open Enterprise') and related KM

# Mapping *The New KM* to the KLC



Source: Mark W. McElroy and Joseph M. Firestone

# Appendix B

## Management Implications of *The New KM*

# Management Implications of TNKM

- That mainstream epistemologies in business are seriously misguided
- That organizations systematically deprive themselves of their populations' capacity to innovate and to produce knowledge
- That rather than have KM align with business strategies, business strategies should align with KM
- That leadership in the modern corporation should shift its priorities to ensuring the quality and integrity of knowledge processing first, business processing second
- That KM is sorely needed, but mostly misunderstood, in business

# Appendix C

Operationalizing *The New KM, e.g.*

# Operationalizing the New KM, e.g.

## Mainstream KM and the Conventional Enterprise

- Senior management governs knowledge processing
- Management knowledge is true, not open to criticism
- Primary KM focus is on managing knowledge claims, not meta-claims\*
- KM builds 'best practices' databases
- KM prioritizes knowledge sharing and integration
- Employees learn by attending company-prescribed training programs
- Employer holds exclusive title to intellectual property
- Management has binding decision-making authority to direct personnel and other corporate resources as it sees fit

## The New KM and the Open Enterprise

- Knowledge processing is an unmanaged social process
- Management knowledge is fallible, open to criticism
- Primary KM focus is on managing knowledge meta-claims\* (and claims)
- KM builds 'worst practices' databases\*\*
- KM prioritizes knowledge making and production
- Employees learn through self-directed, company-funded learning programs
- Company shares title to intellectual property with employees
- Management has binding decision-making authority to direct personnel and other corporate resources as it sees fit

\* Meta-claims are records of testing, evaluation, and performance of competing knowledge claims.

\*\* Idea developed by Mark A. Notturmo, Ph.D.

Source: Mark W. McElroy and Joseph M. Firestone

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