

Knowledge Management and the Terrorism Crisis

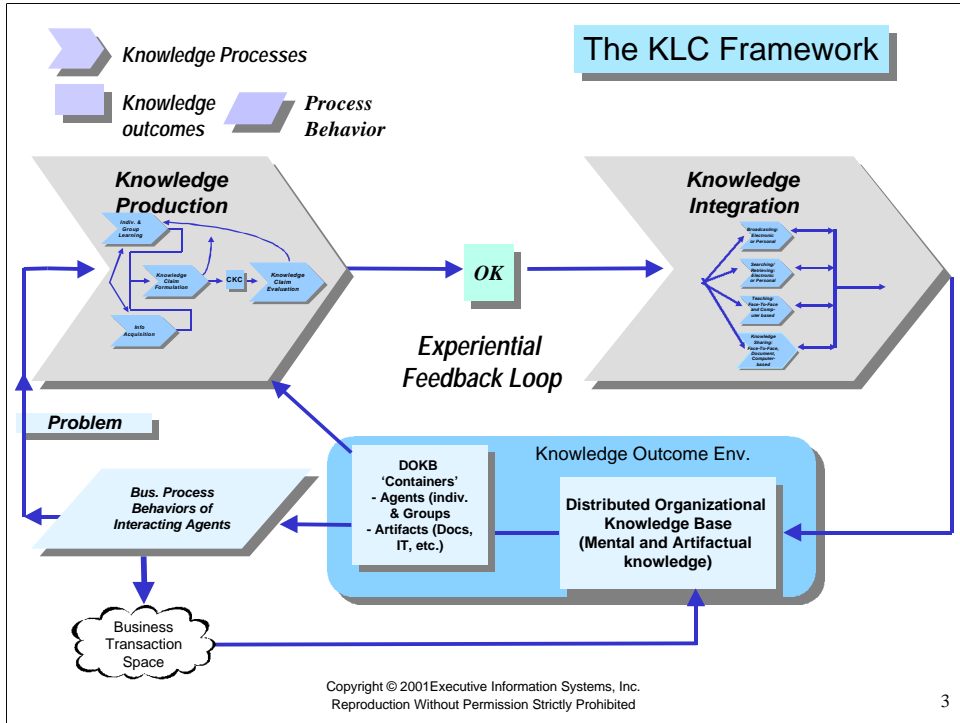
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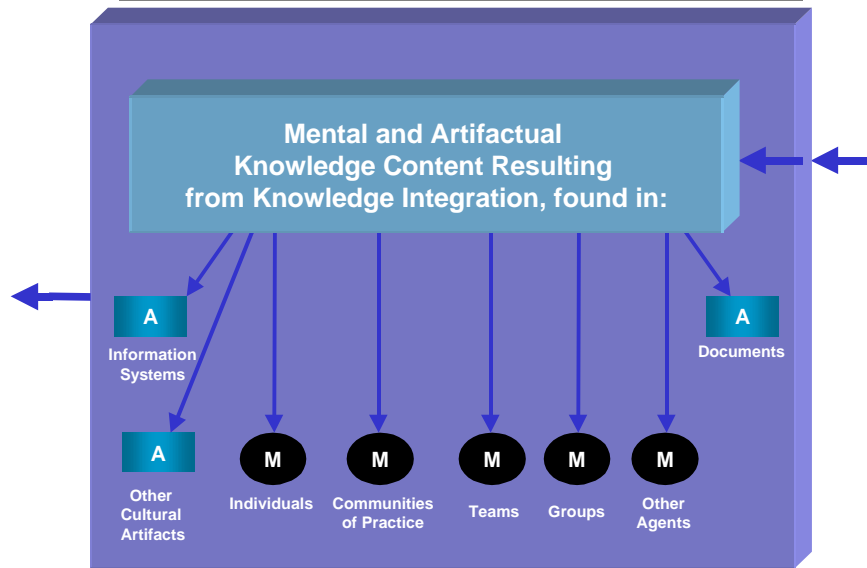
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What is Knowledge Management? The Process

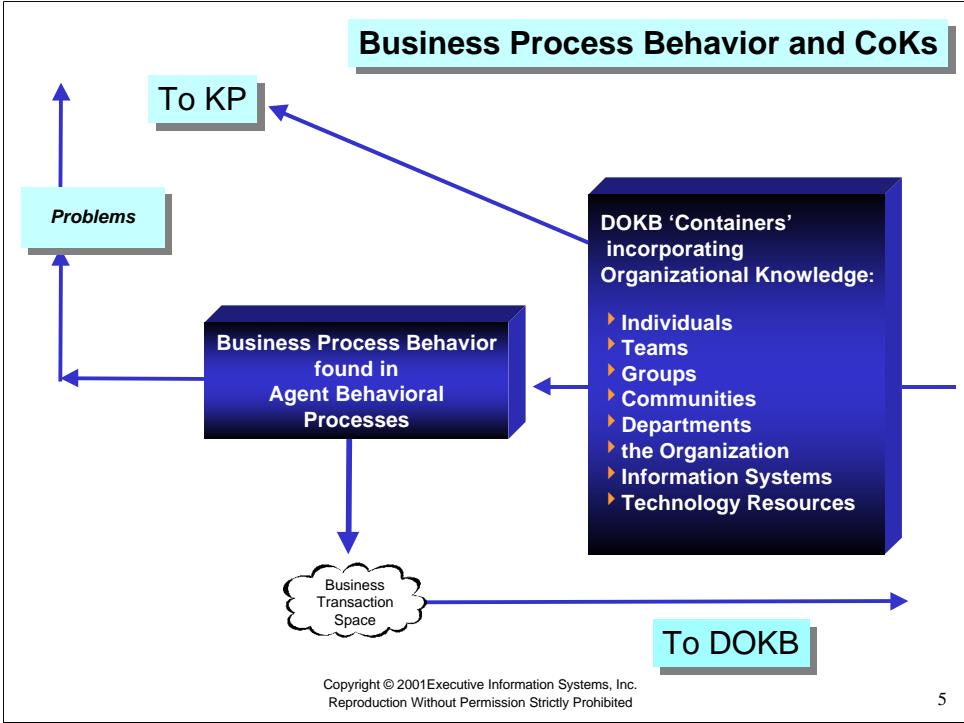
- ▶ Knowledge Management is handling, directing, governing, controlling, coordinating, planning, and organizing:
 - Changes in organizational knowledge processes and their immediate products,
 - Organizational Knowledge, and
 - the Distributed Organizational Knowledge Base (DOKB)

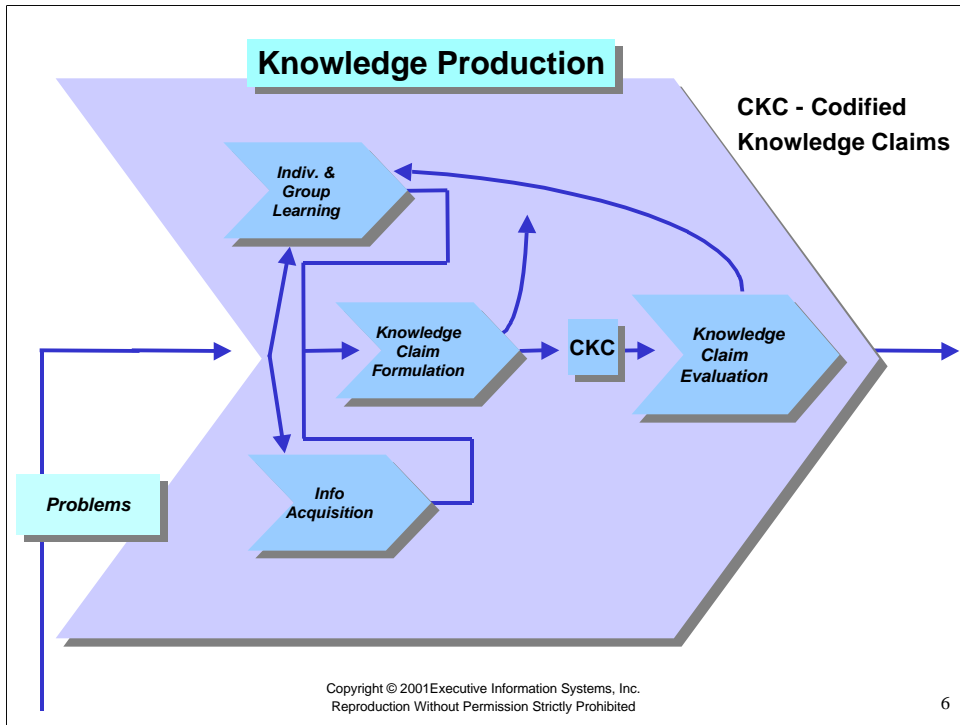


Distributed Organizational Knowledge Base

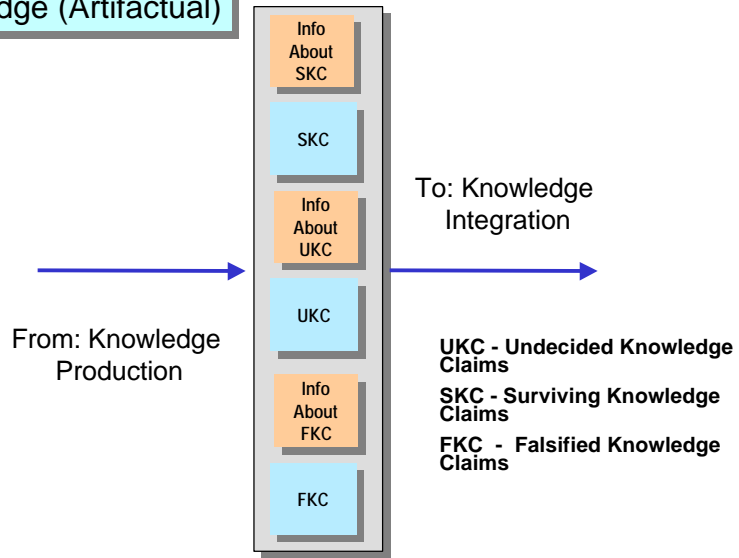


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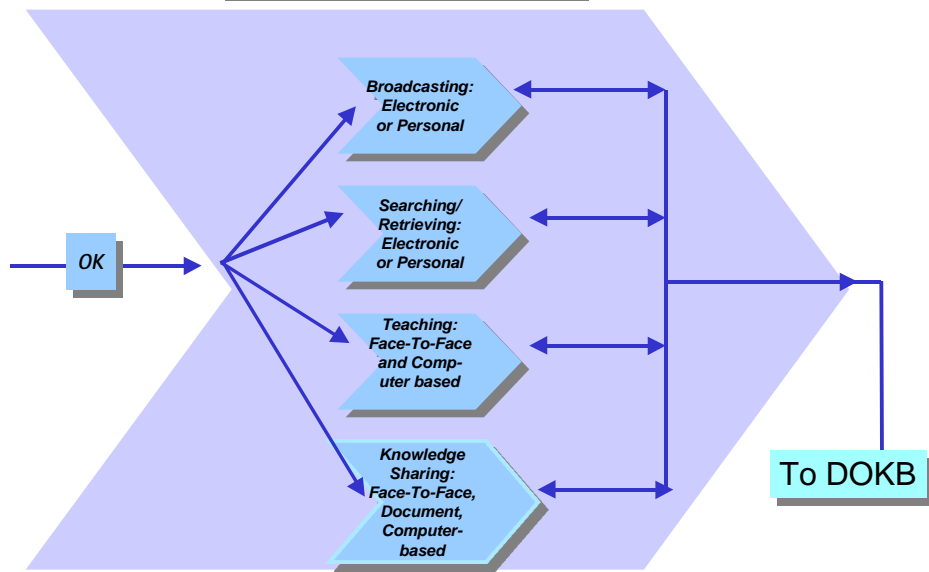


OK = Organizational Knowledge (Artifactual)



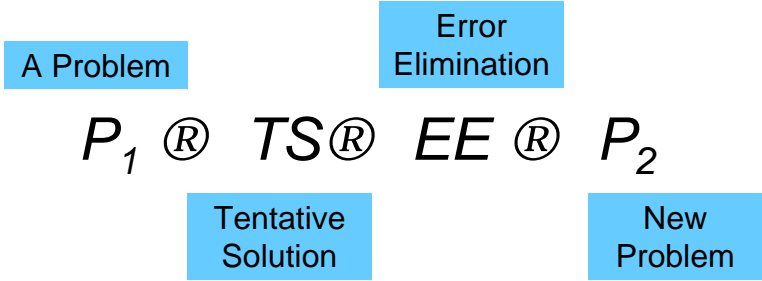
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Knowledge Integration



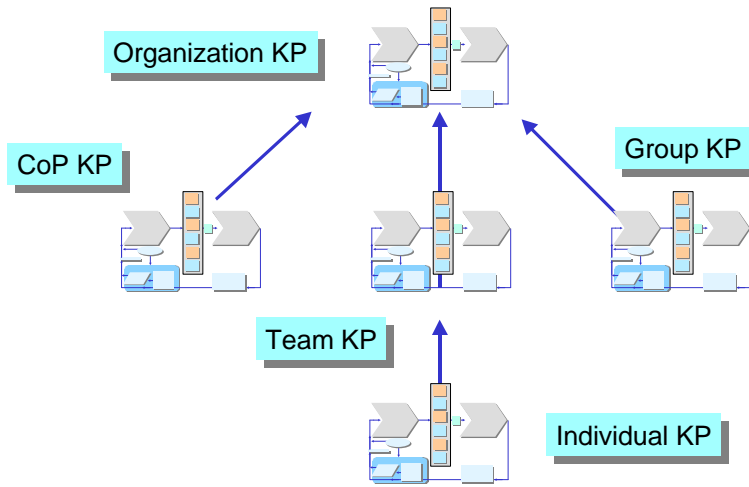
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Popper's Tetradic Schema: A Framework for Adaptation



- ▶ Tentative Solutions are produced by Knowledge Claim Formulation
- ▶ Error Elimination will later be called Knowledge Claim Evaluation

Nested Knowledge Processes



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What is Knowledge Management? The Process

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Breadth of the KM Process

- ▶ Interpersonal Behavior
 - Symbolic Representation Activities
 - Leadership
 - Building External Relations
- ▶ Knowledge and Information Processing Behavior
 - KM Knowledge Production
 - KM Knowledge Integration

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recruiting
hiring,
training,
motivating,
monitoring,
and
evaluating
staff
persuading
others of
the utility
of KM

Specific Leadership Process descriptors

Use and Frequency of use of interpersonal methods

Consensus-building
Persuading
Compelling
Incenting
Informing
Obligating
Evaluating
Delegating
Meeting
Using memoranda

Breadth of the KM Process (Two)

- ▶ Decision making behavior
 - Crisis Handling
 - Rule Changing
 - Resource Allocation
 - Resource Negotiation
 - Other KM Activities

What is Knowledge Management? The Discipline

- ▶ Knowledge management (KM) is a management discipline that focuses on improving the means by which individual and collectively-held knowledge is produced and integrated in organizations.
- ▶ As such, KM is practiced at the level of knowledge and innovation processes, policies, and technology support. (Mark McElroy)

Source: Mark W. McElroy @
www.kmci.org/AboutUs.htm

Knowledge Management and September 11th

- ▶ September 11th didn't change the nature of the KM process or how we view its nature
- ▶ What it did was to administer a shock to the *discipline* and to get many people to ask questions such as the following three:

Knowledge Management and September 11th

- ▶ Can KM, as a *discipline*, offer any help in the war against terrorism?
- ▶ Can KM improve our ability to have relevant knowledge available at the point of decision?
- ▶ Can KM improve our ability to solve decision making problems when knowledge is not available?

What KM Can Offer

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Basic Assumptions

- ▶ The effort against terrorism is dispersed among many organizations and agencies
- ▶ In each of those agencies, terrorism is presented to decision makers in the form of decisions to be taken and a multiplicity of problems at all organizational levels
- ▶ “Problem-free” decisions are those that can be taken through the use of previous knowledge and without the need to turn to knowledge production and integration

Basic Assumptions (Two)

- ▶ But all sorts of decisions in the pursuit of terrorism require the support of knowledge production and integration either because the requisite knowledge has not been produced, or because it is not available to those who need it due to mal-integration of an organization's DOKB
- ▶ In any event, each organization engaged in an effort against terrorism has naturally occurring knowledge production and knowledge integration processes

Basic Assumptions (Three)

- ▶ In addition, each has naturally occurring knowledge management activities whether or not these are formally identified and legitimized by the organization.
- ▶ So KM, the discipline, embodied in practice, can contribute to the effort against terrorism provided that we can use it to **change** the previous knowledge management process in such a way as to **enhance knowledge production, knowledge integration or innovation.**

What Do We Need to Do?

- ▶ We need to improve *the availability* of previously produced knowledge including both the knowledge claims themselves and the information about them that constitutes the grounds for accepting these claims.
 - If we do this, then previously produced knowledge will be there to use when we need it
- ▶ We need to *accelerate innovation* in response to problems.
 - If we do this we will literally be adapting to the terrorist threat as it develops, and creating the capability for timely response.

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What Do We Need to Do? (Two)

- ▶ We need to do the above not only within the agencies fighting terrorism, but across these agencies.
- ▶ That is *we need to set up an “Extraprise”* that organizes the agencies into a supra-system of “intelligence trading partners”, revolving around the White House and the Office of Homeland Security, while maintaining the independence and autonomy of the problem solving functions of each.

What Do We Need to Do? (Three)

- ▶ To accomplish the above changes we need to introduce appropriate changes in KM *in each organization* fighting terrorism in such a way as to facilitate the changes in knowledge processing we seek.
- ▶ Each organization will be different in its knowledge processing patterns. So *each will need a different KM solution* to achieve the goals previously stated.
- ▶ What tools does KM have to offer to achieve the needed solutions?
- ▶ The answer is many. Here is a brief survey.

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Basic Concepts

- ▶ Unified Theory of Knowledge (Material, Mental, Artifactual)
- ▶ Tacit/Implicit/Explicit/Mental/Artifactual Knowledge Conversion Framework
- ▶ Second Generation Knowledge Management Orientation
- ▶ Knowledge Processing vs. Knowledge Management
- ▶ The role of Culture in knowledge processing and KM

Conceptual Frameworks

- ▶ Conceptual frameworks, both descriptive and normative, to provide perspectives on the direction of transformation of current knowledge processing to states in which problem-solving, knowledge integration, and innovation processes are accelerated in organizations and their components.
 - The KLC Framework
 - The Open Enterprise
 - Sustainable Innovation
 - The Metaprise
 - Social Innovation Capital

KM Metrics Frameworks

	Entity	Process	Products
KM Function	Metrics	Metrics	Metrics
The KLC	Metrics	Metrics	Metrics
Business Processes	Metrics	Metrics	Metrics
Business Outcomes	Metrics	Metrics	Metrics

Source: Mark W. McElroy
KMCI CKIM Program

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KM Process Methodologies

- ▶ Some in KM are beginning to develop methodologies for arriving at KM program and project solutions to KM problems.
- ▶ One such methodology is called Knowledge Management Framework Methodology (KMFM)
- ▶ It is intended to be non-linear and adaptive. It is:
 - Task Pattern Driven
 - Business-Structure Centric
 - Iterative and Incremental

KM/KP Techniques

- ▶ Communities of Practice
- ▶ Story-telling
- ▶ Knowledge Café
- ▶ Group Decision Process Methods
 - Delphi
 - Nominal Group Technique
 - Group Value Measurement Technique
 - Team Analytic Hierarchy Process
- ▶ Cultural Analysis
- ▶ Value Network Analysis
- ▶ Influence Network Analysis
- ▶ Semantic Network Analysis/Cognitive Mapping/Knowledge Mapping
- ▶ Process Modeling
- ▶ Systems and Statistical Modeling
- ▶ Intangible Asset Analysis

IT Tools

▶ Enterprise Knowledge Portals

- ▶ Collaborative IT Apps
- ▶ Knowledge Discovery in Databases/Data Mining
- ▶ Group Decision Process Tools
- ▶ Analytical Modeling and Simulation
- ▶ Intelligent Agents
- ▶ Computer-assisted Learning
- ▶ Semantic Network Analysis/ Cognitive Mapping
- ▶ Text Abstracting and Full-text Indexing
- ▶ Querying and Reporting
- ▶ Searching/Retrieving
- ▶ Packaged Analytical Apps
- ▶ Balanced Scorecard Apps
- ▶ Object and other IT modeling
- ▶ Assessment Capture/Best Practices Software

KM, Its Tools, and Analysis

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Analysis

- ▶ “Analysis is the process by which people transform information into intelligence. At the basic level, this analytic process fully describes the phenomenon under study, accounting for as many relevant variables as possible. At the next level, analysis reaches beyond the descriptive to explain fully the phenomenon. Ultimately, analysis leads to synthesis and effective persuasion, often referred to as estimation.”

Source: D. Moore and L. Krizan,
“Intelligence Analysis”

Compare to Knowledge Production in the KLC

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Analysis and Terrorism

- ▶ Intelligence analysis has a key role to play in combating terrorism
- ▶ To the extent that KM relates to analysis, KM is key to our efforts to end the present crisis
- ▶ In what follows then, I'll show in various ways that knowledge processing and KM are very closely related to analysis and in fact that analysis is a species of knowledge production and analysis management is a species of Knowledge Management.

Compare to Knowledge Production in the KLC

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Analysis and Evaluation

- ▶ “Since the advent of the Information Age, “[collecting] information is less of a problem and verifying is more of one. . . .”
- ▶ “Thus the role of analysis becomes more vital as the supply of information available to customers from every type of source, proven and unproven, multiplies exponentially.”

Source: D. Moore and L. Krizan,
“Intelligence Analysis”

Compare to Knowledge Claim Evaluation in KLC

Competitive Analysis and Evaluation

- ▶ “A vital contributor to the analytic process is a spirit of competition, both within an intelligence-producing agency and especially between intelligence agencies. There is a tendency for analysts working together to develop a common mindset. This trap occurs typically when analysts fail to question their assumptions about their role in the intelligence process and about the target. The Council on Foreign Relations independent task force on the future of U.S. intelligence recommends that “competitive or redundant analysis be encouraged” precisely for these reasons.

Source: D. Moore and L. Krizan,
“Intelligence Analysis”

Knowledge claim evaluation in the KLC also emphasizes differences between competitive and non-competitive KCE processes.

Analysis and Critical Thinking

- ▶ “Successful analysts are those whose work goes to this highest level whenever possible – by taking risks these analysts go beyond mere description and explanation to make judgments, to estimate. These risks are carefully calculated, for successful analysts rely on critical thinking.”

Source: D. Moore and L. Krizan,
“Intelligence Analysis”

Critical thinking occurs in individual and group learning and in knowledge claim evaluation in the KLC. In fact, error elimination is about critical thinking

Analysis and Collaboration

- ▶ “. . . most importantly, successful analysts collaborate at every opportunity. Such partnering ensures that analytic results, even if controversial, remain grounded in reality.”

Source: D. Moore and L. Krizan,
“Intelligence Analysis”

Collaboration in the KLC is represented in the notions of group learning and nested KLCs

Analysis Management and KM

- ▶ “What role does management play in ensuring analytic success? First and foremost, management effectively uses financial and political capital to ensure that analysts have access to customers, and the resources they require to answer those customers’ intelligence needs. This includes the organization of the work itself, allocation of materiel and personnel, and coordination with other producers and with customers. When management is successful, the analyst has the necessary tools and the correct information for successful intelligence analysis. A good indicator that the intelligence process has been effectively managed is high morale among analytic personnel. This includes a high level of satisfaction with mission and the analysts’ own performance, a feeling of empowerment and the belief that the organization places great value on analytic talent.”

Source: D. Moore &
L. Krizan,
“Intelligence Analysis”

Replace
Management
with KM.

Replace analyst
with “knowledge
worker.”

Replace analytic,
intelligence
analysis and
intelligence
process with
knowledge
production.

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“Devil’s Advocate” and KCE

- ▶ “When defending their analytic judgments, successful analysts will argue a point of view passionately. However, when asked, the best analysts can adopt alternative viewpoints to play “Devil’s Advocate” to their own analysis or that of others. They will also discover alternative ways of doing business. This questioning of convention may lead to previously unobserved analytic results.”

Source: D. Moore and L. Krizan,
“Intelligence Analysis”

This addresses degree of openness to criticism and commitment to unbiased knowledge claim evaluation

Intelligence Analysis Stages and the KLC

- ▶ Collection -- Information Acquisition
- ▶ Monitoring -- Information Acquisition
- ▶ Organizing -- Knowledge Claim Formulation
- ▶ Analysis/Synthesis - Knowledge Claim Formulation
- ▶ Interpretation -- Knowledge Claim Evaluation
- ▶ Dissemination -- Knowledge Integration
- ▶ Coordination -- Knowledge Integration
- ▶ Evaluation -- Knowledge Integration

Analysis and “Error Elimination”

- ▶ “One analytic method, “Analysis of Competing Hypotheses,” developed by Central Intelligence Agency (CIA) analyst Richards Heuer, provides a structured approach to rigorous intelligence analysis. In Heuer’s methodology, which is used at the CIA, the analyst begins with a full set of alternative possibilities rather than the apparent single most likely alternative. The most probable hypothesis is found to be the one with the least evidence against it, not the one with the most evidence for it. This contrasts with conventional analysis, which generally entails looking for evidence to confirm a favored hypothesis. Following the scientific method, Analysis of Competing Hypotheses seeks to eliminate hypotheses, whereas conventional analysis seeks to prove them.”

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Source: D. Moore and L. Krizan,
“Intelligence Analysis”

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Analysis and KM Techniques

- ▶ All of the KM techniques specified earlier have their place in analysis and its management
- ▶ I'm sure most of them have been or are being used in analysis right now.
- ▶ KM Methodology and conceptual frameworks can provide a focus targeting these techniques on knowledge production, integration, and accelerating innovation and in this way can increase adaptiveness and innovation in analysis and its applications

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Analysis and KM IT Tools

- ▶ I believe that all of the classes of KM IT tools mentioned earlier, with but one exception, are already in use in supporting the KLC in intelligence agencies.
- ▶ But again, KM Methodology and conceptual frameworks can provide a focus targeting these tools so as to increase adaptiveness and innovation in analysis and its applications

Analysis and Knowledge Portals

- ▶ The one exception is the Knowledge Portal (KP).
- ▶ The KP is an Information Portal software application providing IT support for all of the sub-processes of the KLC and for the major classes of activities in KM.
- ▶ Present EIPs or eBusiness portals do not provide systematic support for either knowledge claim evaluation or for KM processes.
- ▶ Producing an Extraprise Knowledge Portal (ExIP) for supporting Interagency knowledge production and integration relating to terrorism could provide much expanded support for Intelligence analysts
- ▶ Construction of such an application is another area where KM can help analysis in fighting terrorism

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KM is Ready. Are Anti-terrorism Organizations Ready for KM?

- ▶ I've said enough to indicate that KM is ready.
- ▶ It has the tools necessary to enhance previously existing knowledge and KM processes.
- ▶ But KM practice is not easy for organizations to implement. It requires adjustments of a political nature to implement.
- ▶ Whether KM does contribute to winning the fight against terrorism then, is not only a function of whether KM is ready. It also depends on whether the agencies that need KM are ready for it.

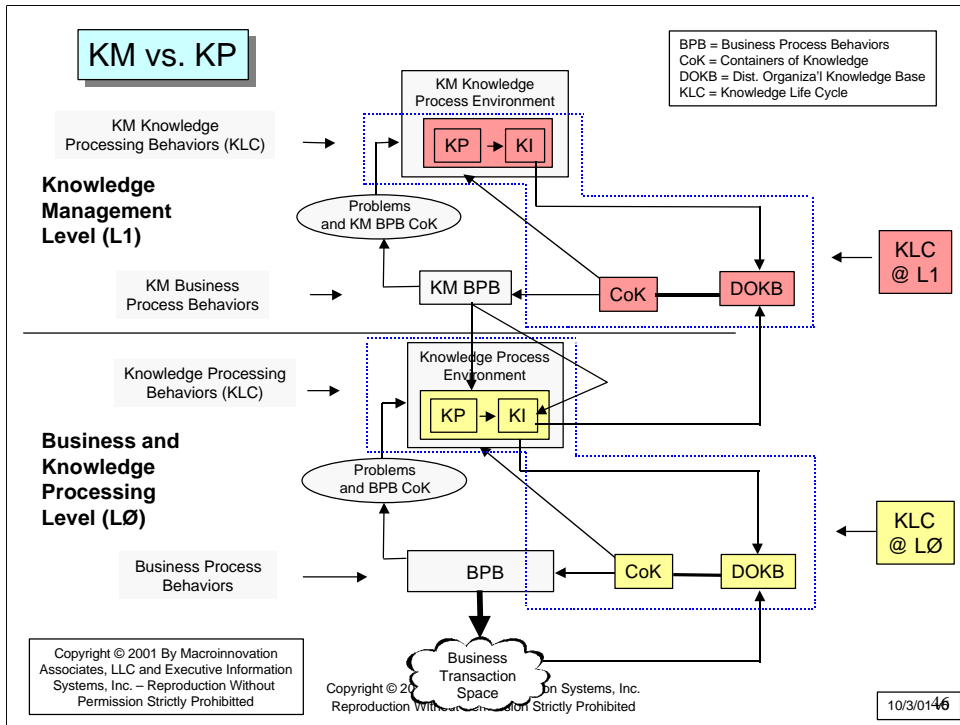
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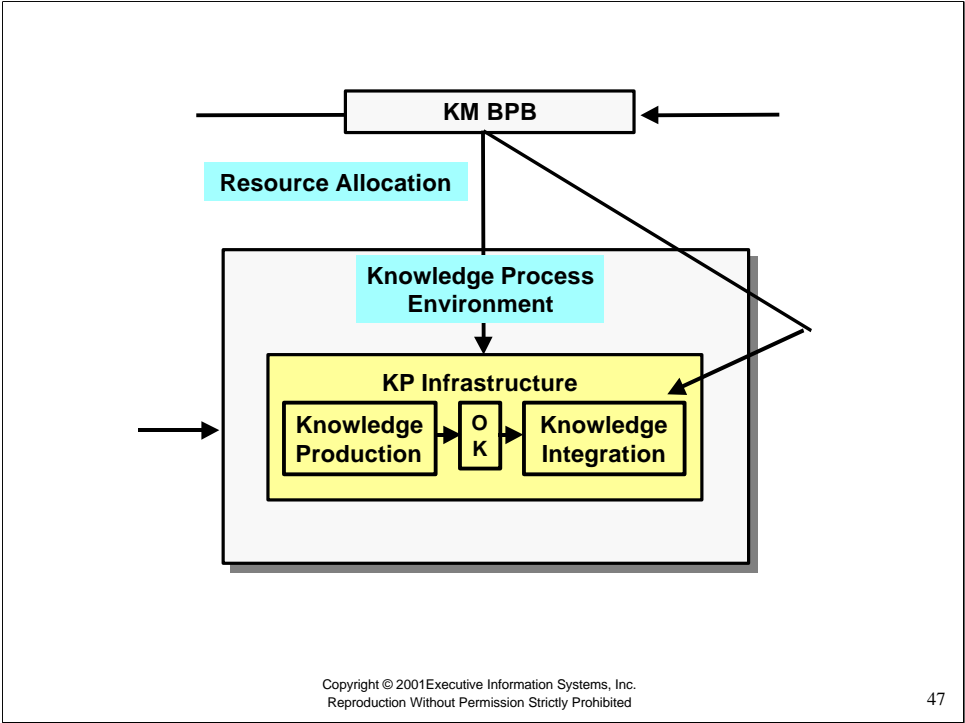
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Back-up Slides

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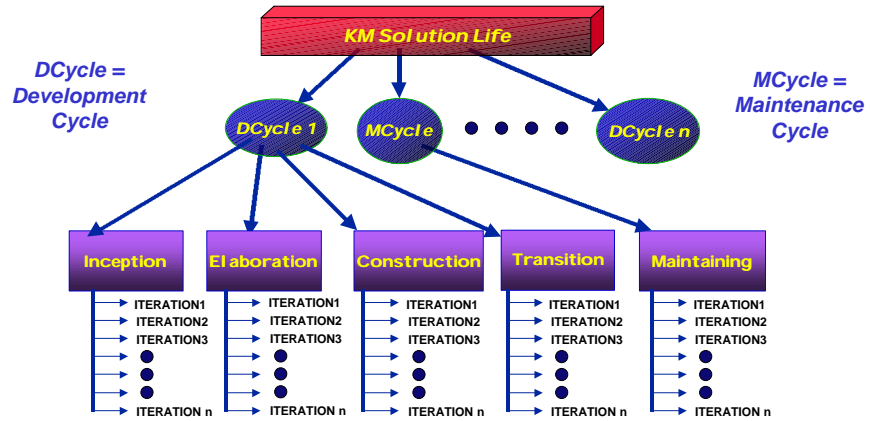
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The KM Project/Cycle/ Phase/Iteration Hierarchy



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