

# Origin of the Knowledge Life Cycle

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# Knowledge Life Cycles (KLCs) and Organizational Learning Cycles (OLCs)

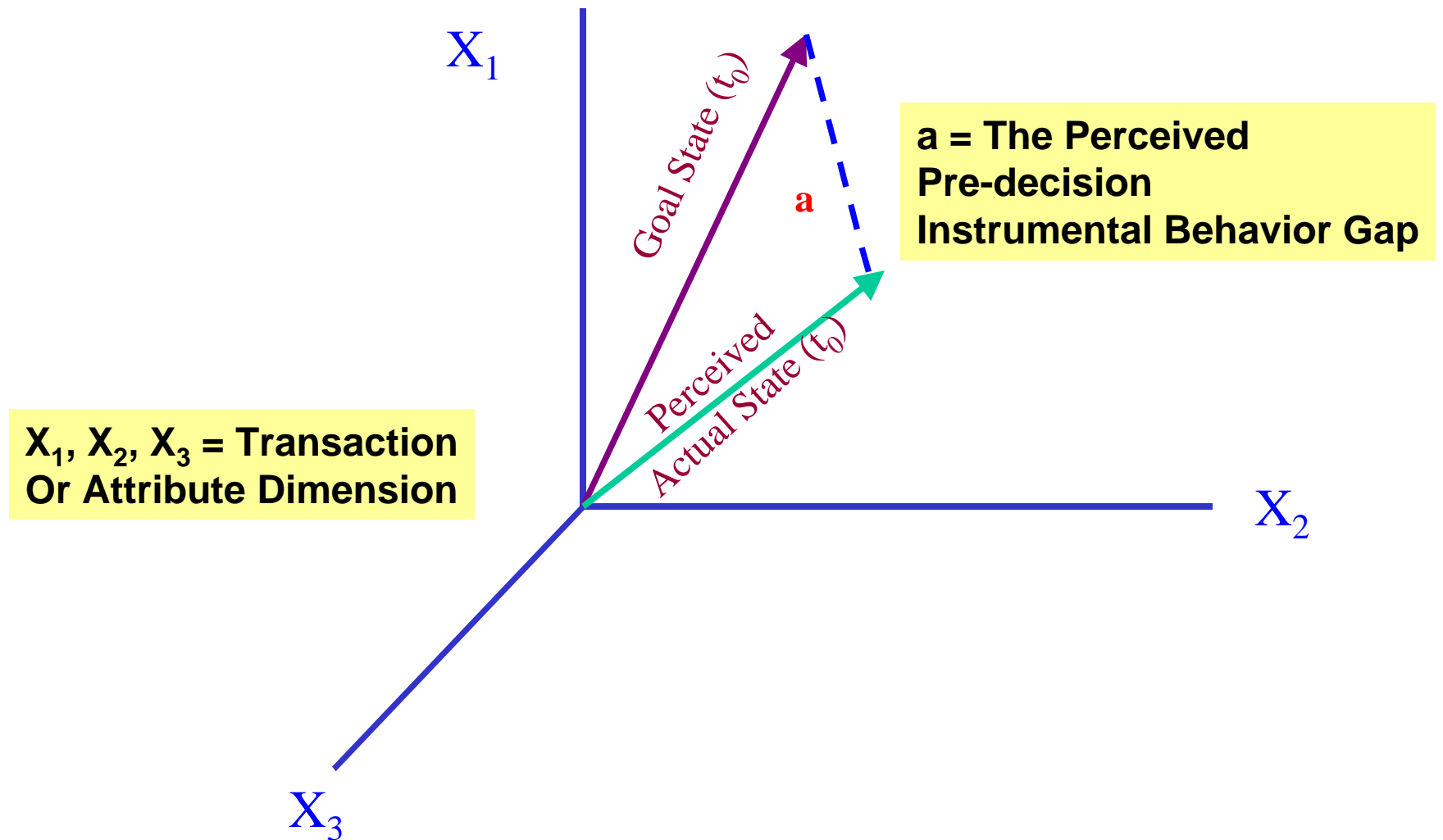
- ▶ Knowledge life cycle frameworks are getting increasing attention as people begin to accept that Knowledge Management is about managing KLCs and their process components.
- ▶ Alongside the KLC concept though, many others have been concerned with the Organizational Learning Cycle (OLC) and its role in knowledge processing and KM. Some even believe that there are no KLCs and that only OLCs exists.

# The KLC: A Separate Framework

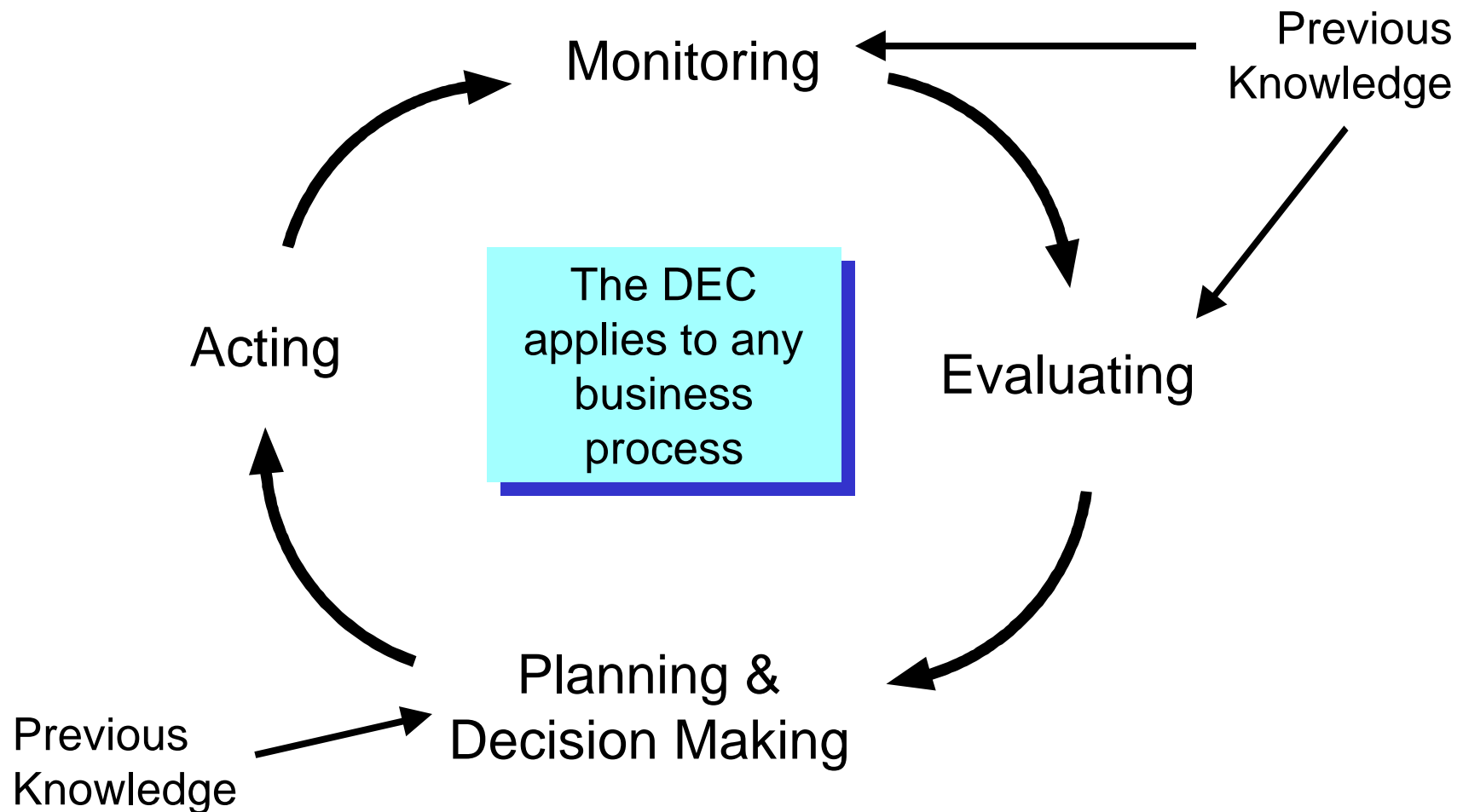
- ▶ I'll show that while the KLC is comprised of OLCs, it is a separate construct and that, in fact, KLC processes originate in OLCs and then feed back into them.
- ▶ The alternation between KLCs and OLCs is both basic to knowledge processing and grounded in human psychology, both at the individual and group levels of interaction.
- ▶ This alternation is the foundation of knowledge management as a distinct process and discipline.

# The Organizational Learning Cycle

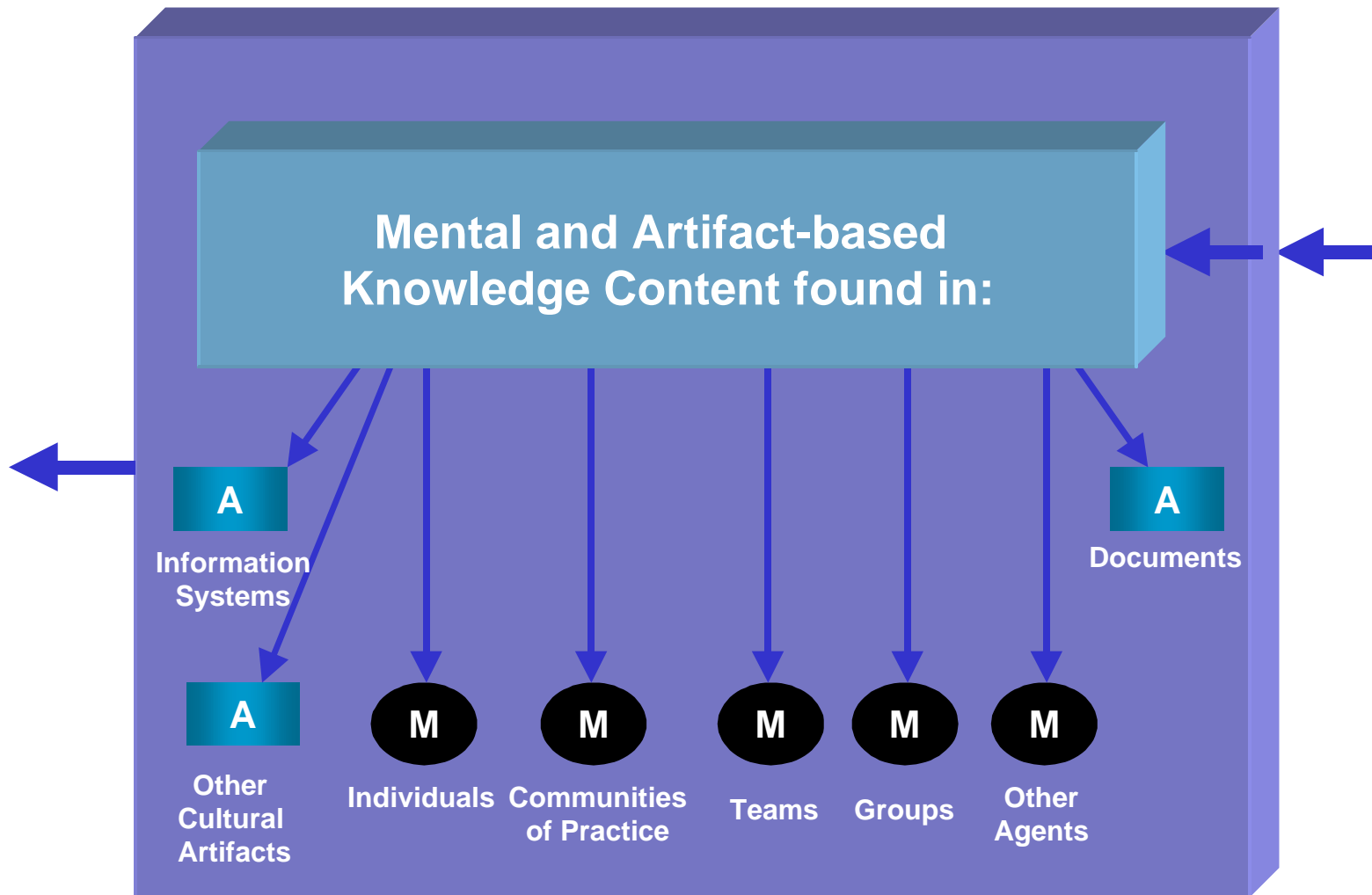
# The Gap Motivating Action



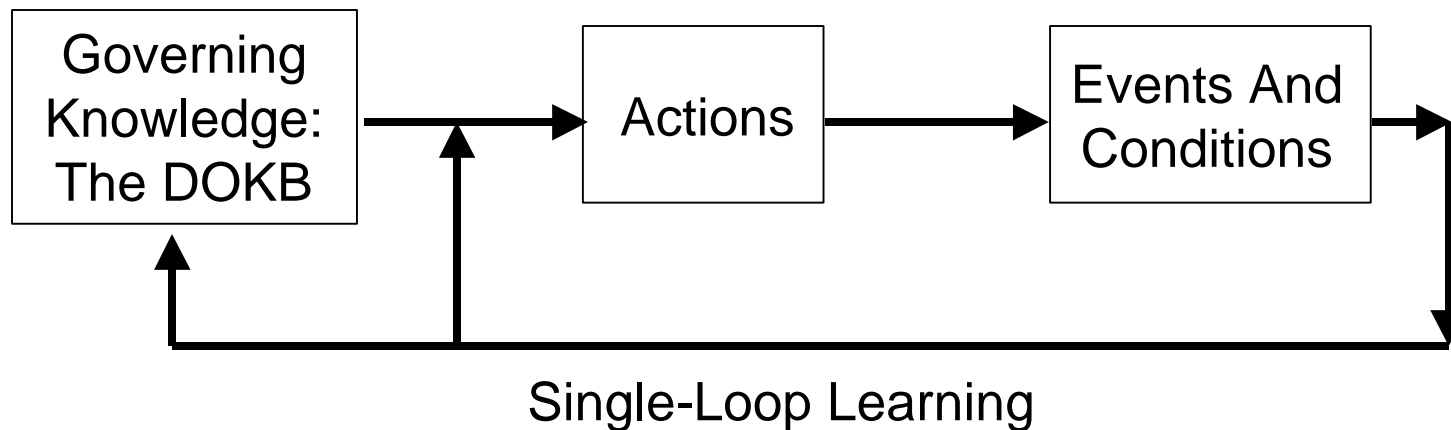
# The Decision Execution Cycle



# Previous Knowledge: The Distributed Organizational Knowledge Base



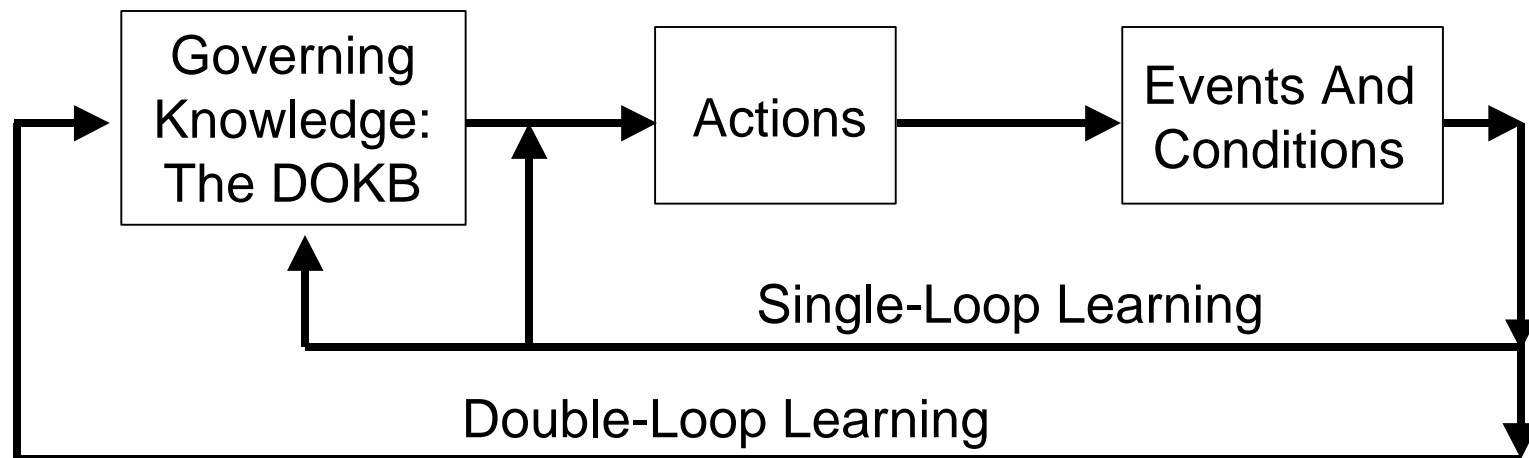
# Single-Loop Learning: Based on Argyris



Single-Loop learning involves adjustment of behavior based on previously developed general and specific knowledge in the DOKB and new knowledge of specific events and conditions!

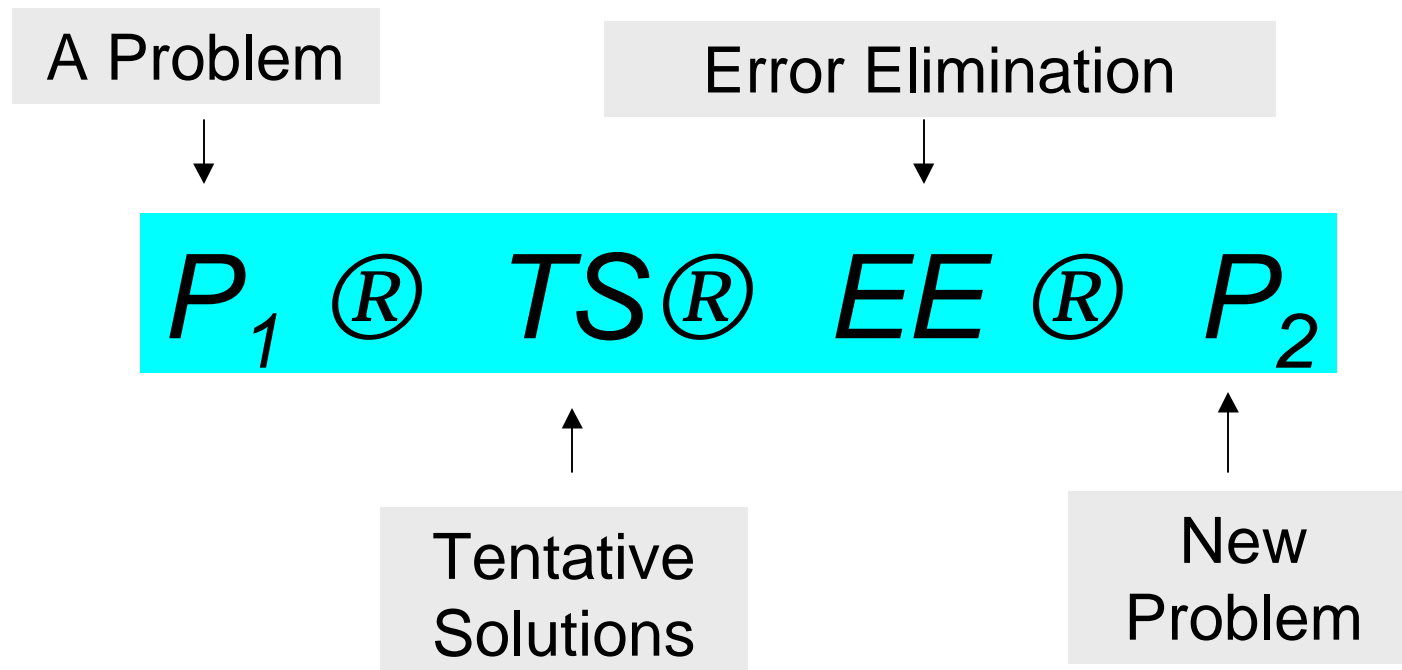


# Double-Loop Learning (loosely) Based on Argyris



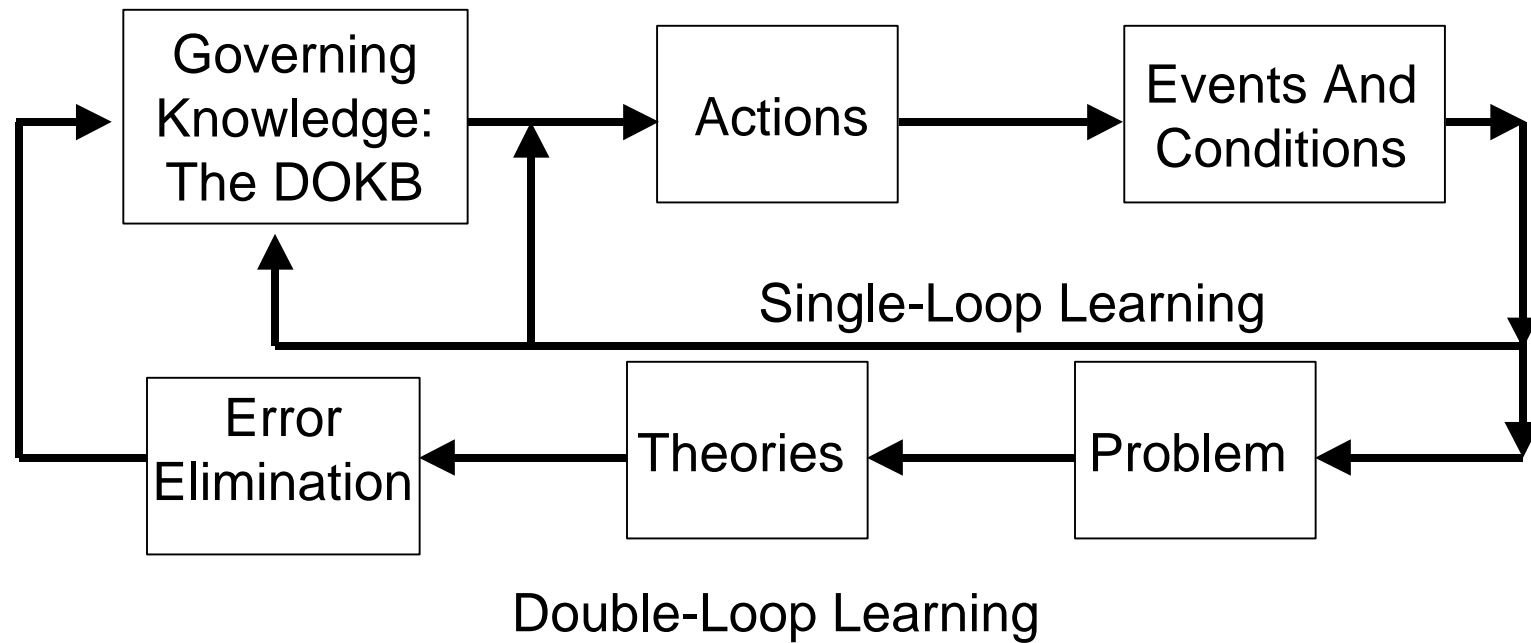
Double-Loop learning involves adjustment of behavior based on creative problem-solving resulting in change in the previous general and specific knowledge in the DOKB!

# Karl Popper's Tetradic Schema: A Framework for Adaptation



- ▶ Tentative Solutions are produced by ‘Knowledge Claim Formulation’
- ▶ Error Elimination occurs by means of ‘Knowledge Claim Evaluation’
- ▶ The result of EE is Falsified TSs, Undecided TSs and Surviving TSs.

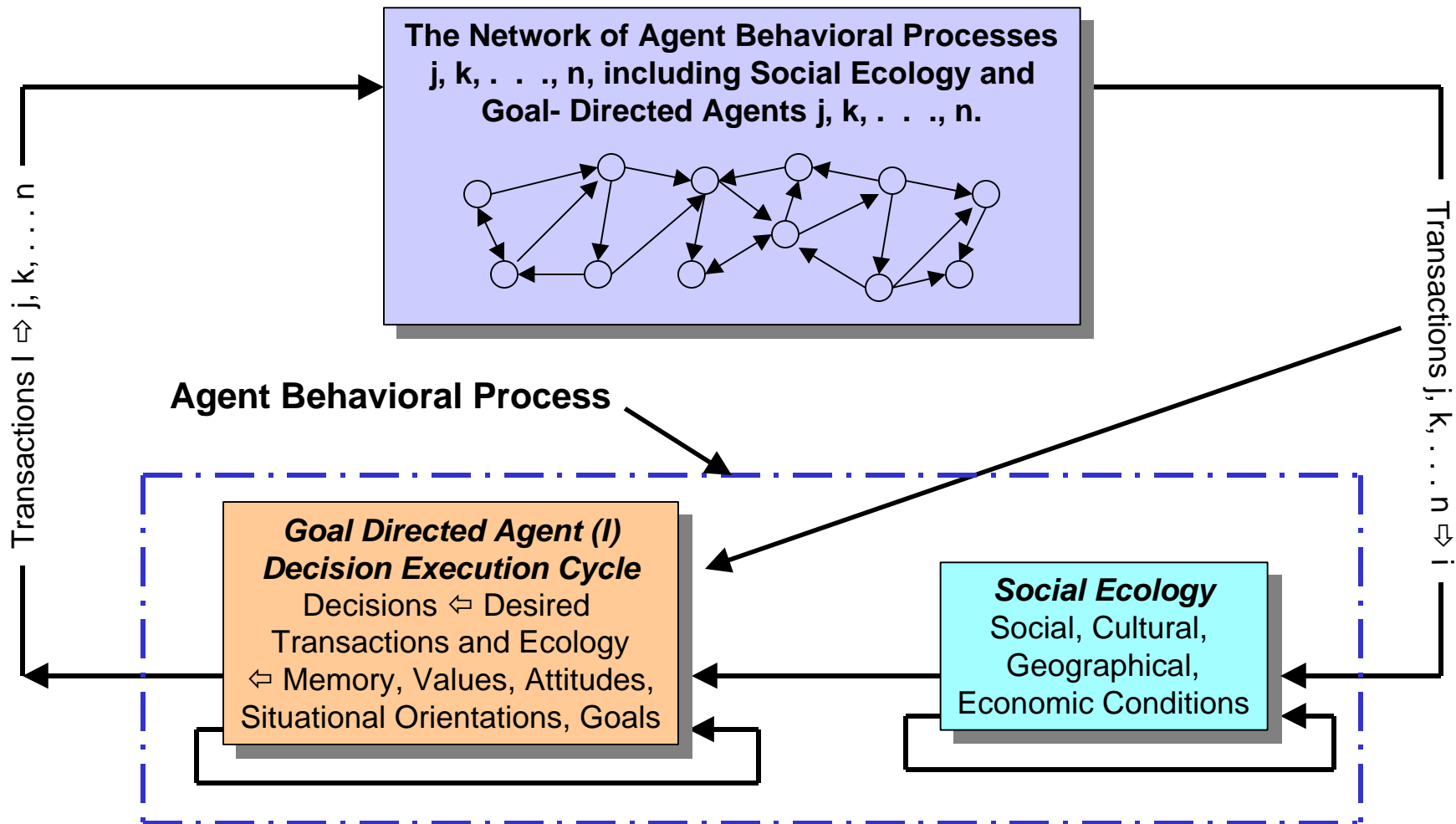
# Double-Loop Learning — Combining Argyris and Popper



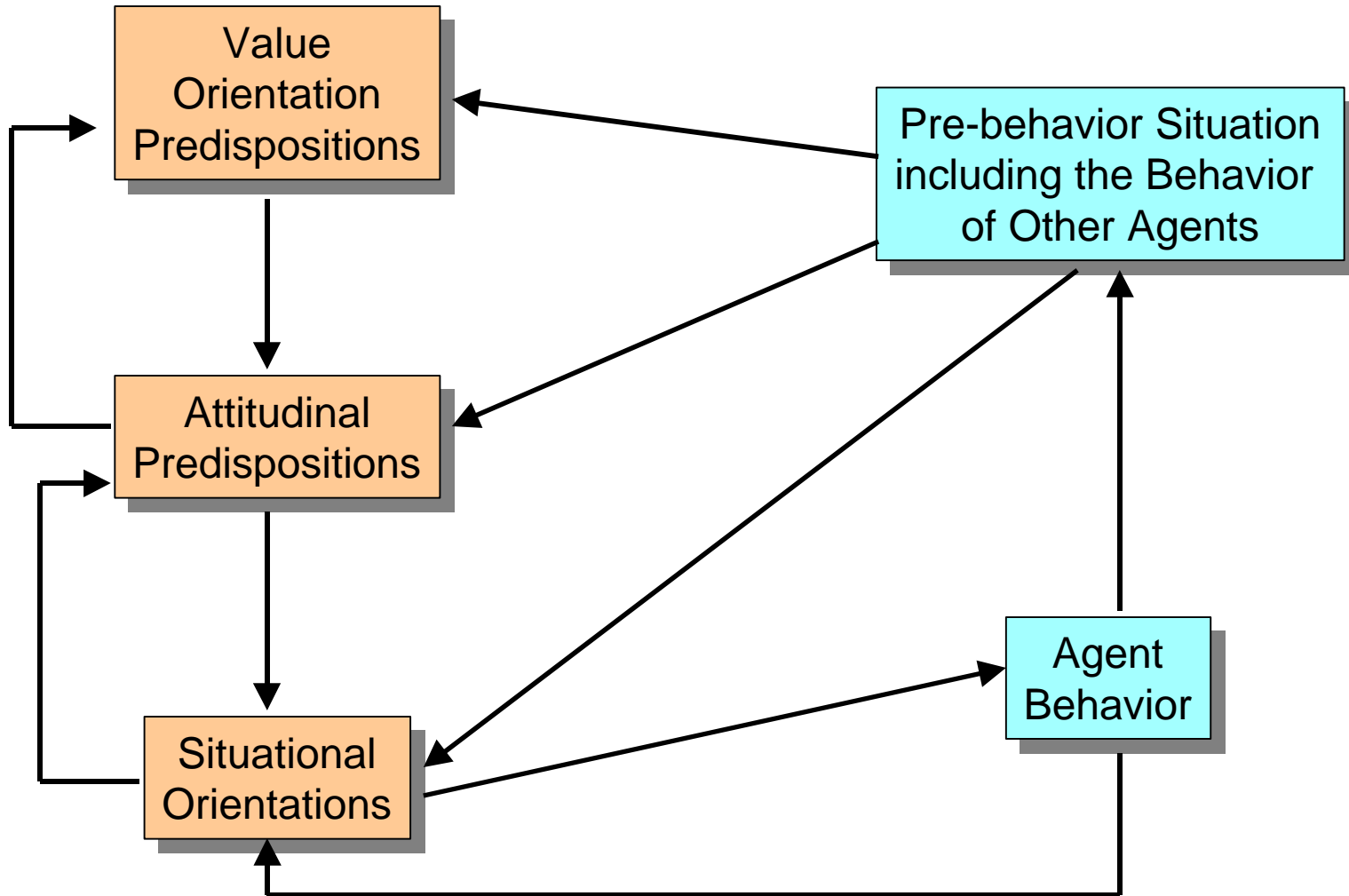
Since DLL involves adjustment of behavior after creative problem-solving, I identify it with Popper's Theory.

# The Social Psychological Foundation

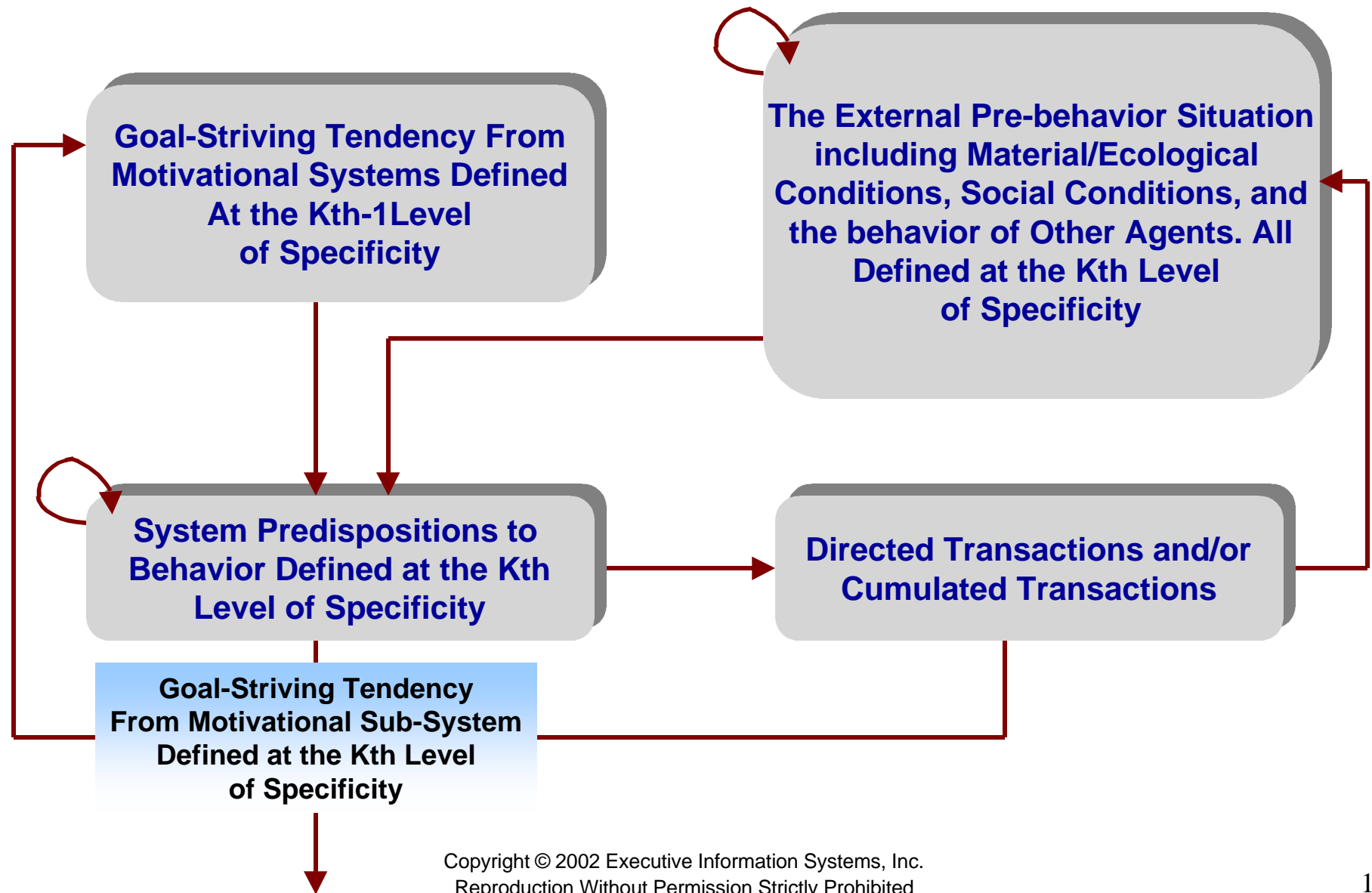
# The Flow of Behavior Among Agents



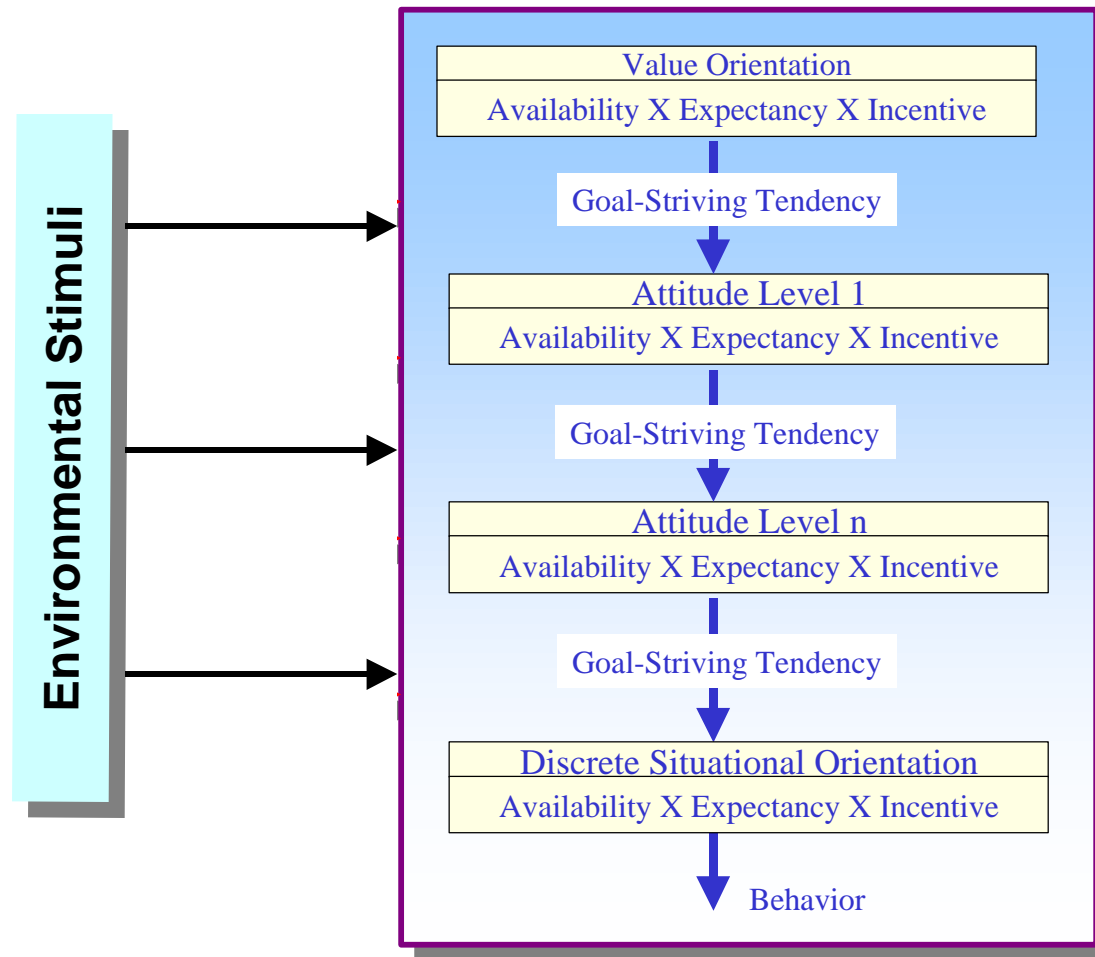
# The Immediate Pre-behavior Context



# Generalization: A Motivational Subsystem



# The Incentive System of an Agent





# Environmental Encouragement/Resistance

- ▶ An agent interprets environmental stimuli in terms of whether they constitute resources and opportunities (social ecology) or cooperation (transactions).
- ▶ This is environmental encouragement
- ▶ An agent interprets environmental stimuli in terms of whether they constitute constraints (social ecology) or conflict (transactions)
- ▶ This is environmental resistance or inertia
- ▶ **Any situation involving instrumental behavior has an environmental encouragement/resistance mix**

# Reactions to the Encouragement/Resistance Mix

- ▶ To social encouragement the agent responds with goal-striving tendencies and transactions perceived as contributing to reaching the goal state. This I call *steering* behavior
- ▶ To social resistance the agent responds in a variety of ways depending on its expectancy concerning the ease or difficulty involved in closing the instrumental behavior gap in the face of social resistance. If resistance is seen as “moderate” the agent will respond with *coping behavior*

# Coping Behavior

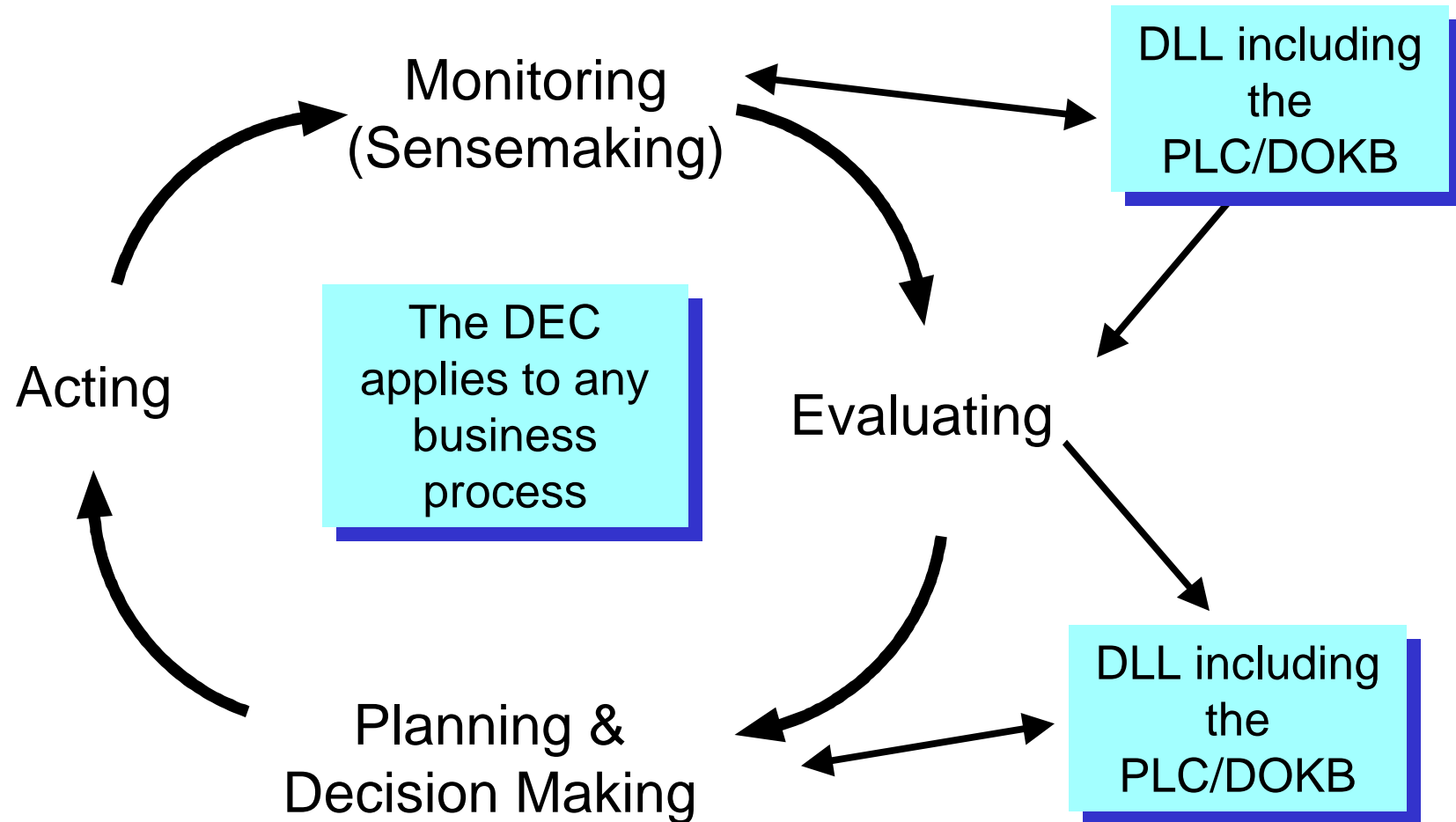
- ▶ There are two classes of coping behavior:
  - A habitual pattern of regulatory behavior applying previous knowledge more or less according to a procedure, routine, or rule. This corresponds to single loop learning
  - A novel development and selection of decision alternatives involving *learning* new ways of coping with the environmental resistance. This, of course corresponds to double-loop learning and Popperian problem-solving
- ▶ Habitual/regulatory coping behavior continues the instrumental behavior toward the original goal

# Problem-Solving Life Cycles

- ▶ But problem-solving represents a temporary *interruption* of instrumental behavior in which a new problem is defined: a problem viewed in terms of a **gap between what we know and what we need to know** to cope with environmental resistance
- ▶ So a problem-solving situation in the context of coping behavior **arouses its own incentive system, the incentive to learn**, and this motivation reinforced by the initial motivation toward goal attainment, drives what we might call a problem-solving, or adaptive life cycle.

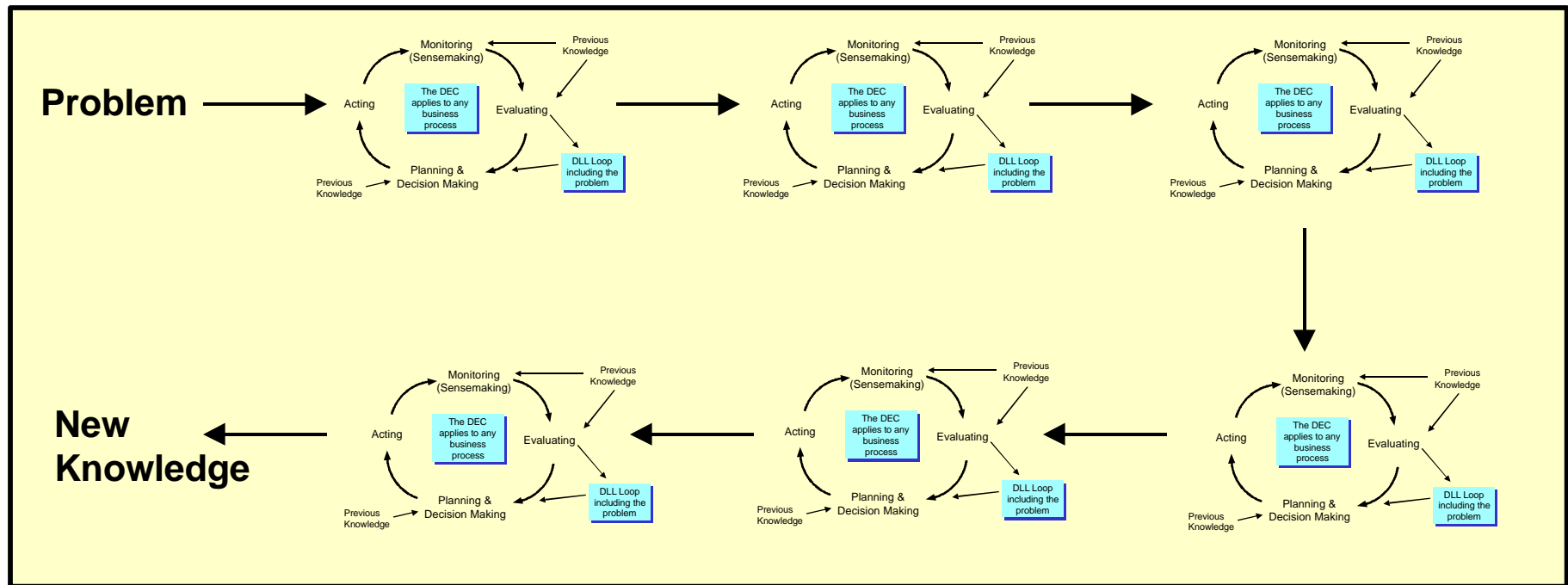
Problem-solving Life Cycles are basic to the motivation of all intelligent agents!

# The Decision Execution Cycle Sometimes “Kicks” off the Problem Life Cycle (PLC)



# Problem-Solving Life Cycles and Decision Execution Cycles

## The Problem Life Cycle



The Problem Life Cycle is a process composed of many Decision Execution Cycles all motivated by the learning incentive system!

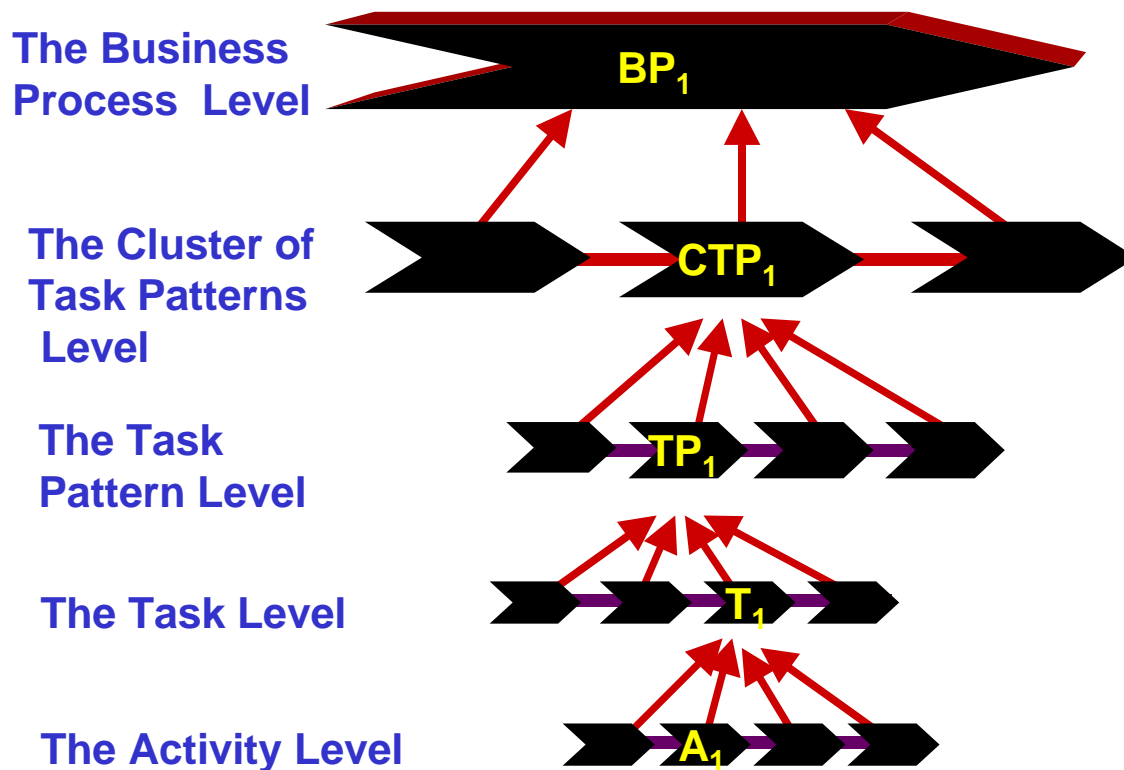
# Sense Making

- ▶ Recently, writers in knowledge management such as Ralph Stacey and David Snowden have begun to rely on ideas about “sensemaking” developed by Karl Weick over the past 30 years
- ▶ While the perspective presented here is different in many ways from Weick’s, it has many similarities to that perspective. In particular, the importance of the following characteristics is common to sensemaking and the transaction framework
  - identity construction ((the idea that agents and systems create their own identities in the process of adapting to their environments)
  - Monitoring (sensemaking) after action
  - Sensemaking partly shapes (enacts) sensemaking environments (social interaction shapes social ecology)
  - Sensemaking occurs in social settings (monitoring occurs in the social interaction framework)
  - Sensemaking (and DEC activity) is ongoing

# Behavioral Business Processes, the KLC, and KM

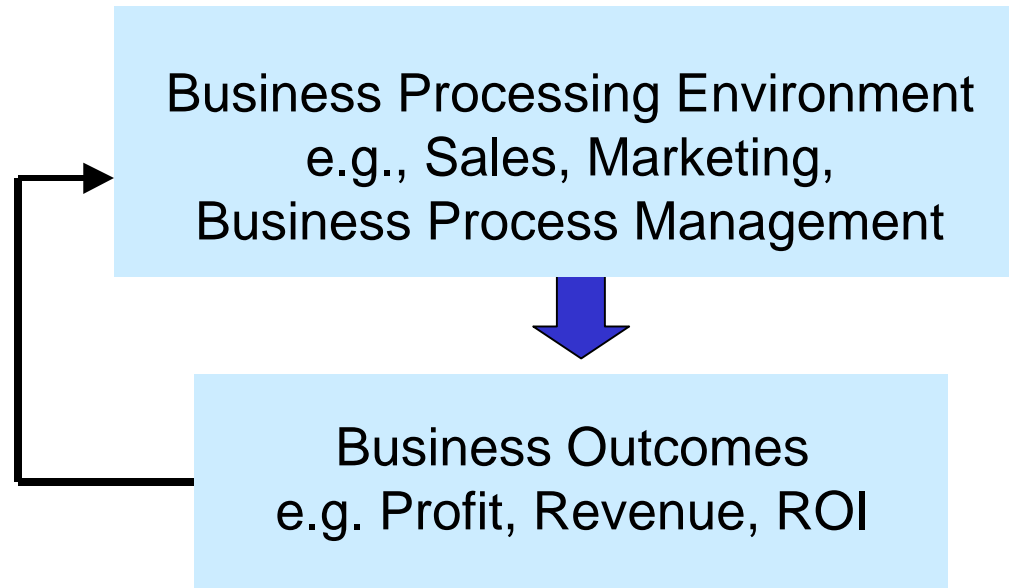


# The Activity to Business Process Hierarchy



Business Processes Ultimately break down to activities, and activities, as we have seen, are produced by Decision Execution Cycles.

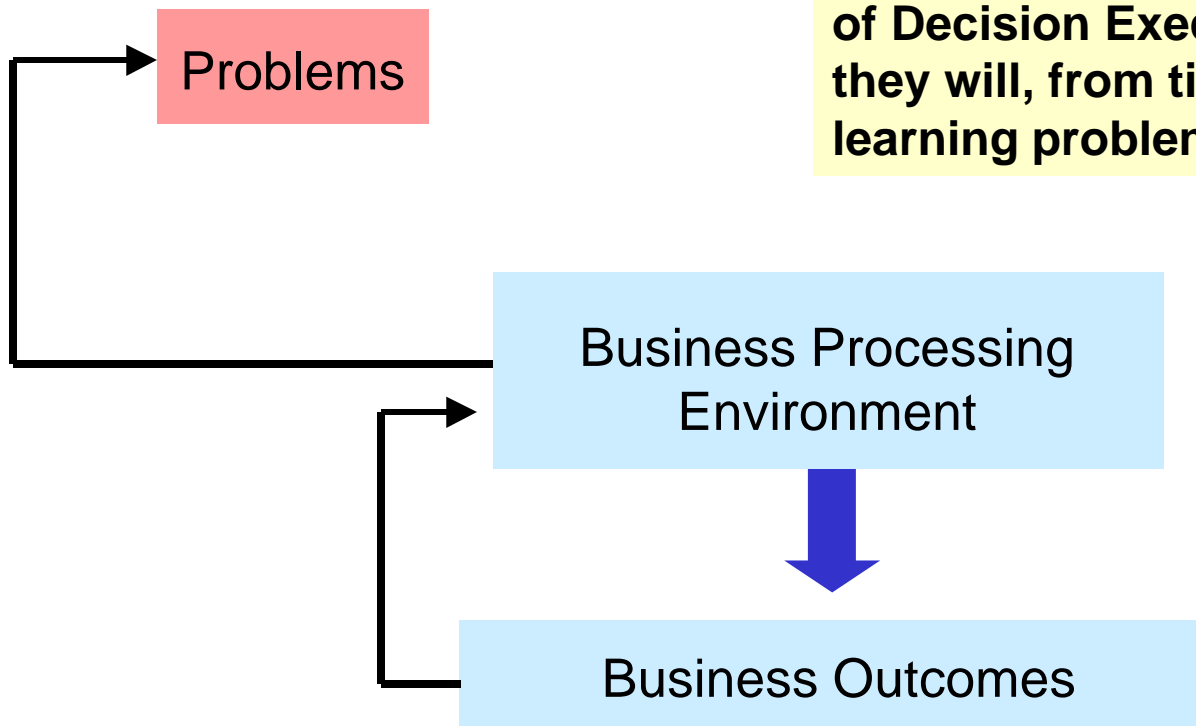
# The Business Processing Environment and Business Outcomes



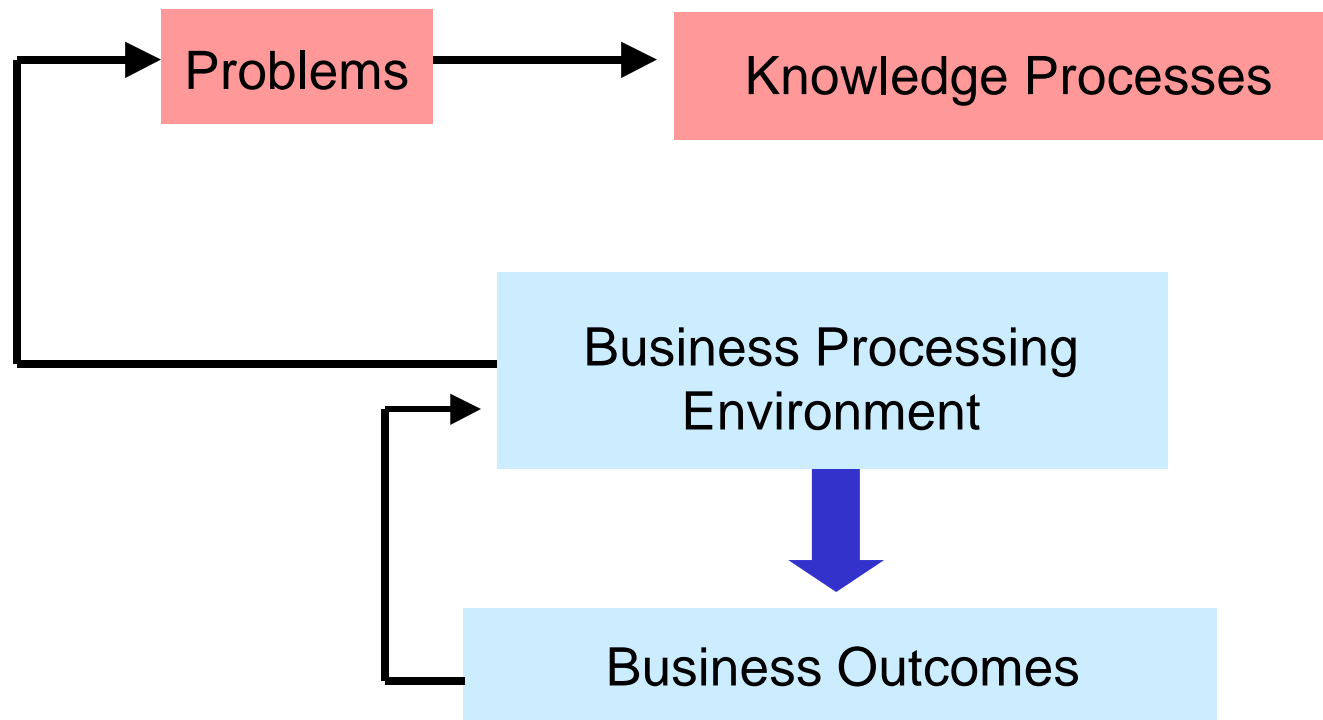
Business Processes are performed and managed by agents. Agents, if they're groups, have an internal culture. At the same time the cultural component of social ecology also impacts the agent decision execution cycles that ultimately comprise the business processes.

# Business Processing Environment and Business Problems

**Since Business Processing Environments are comprised of Decision Execution Cycles, they will, from time-to-time, spawn learning problems**



# And Knowledge Processes

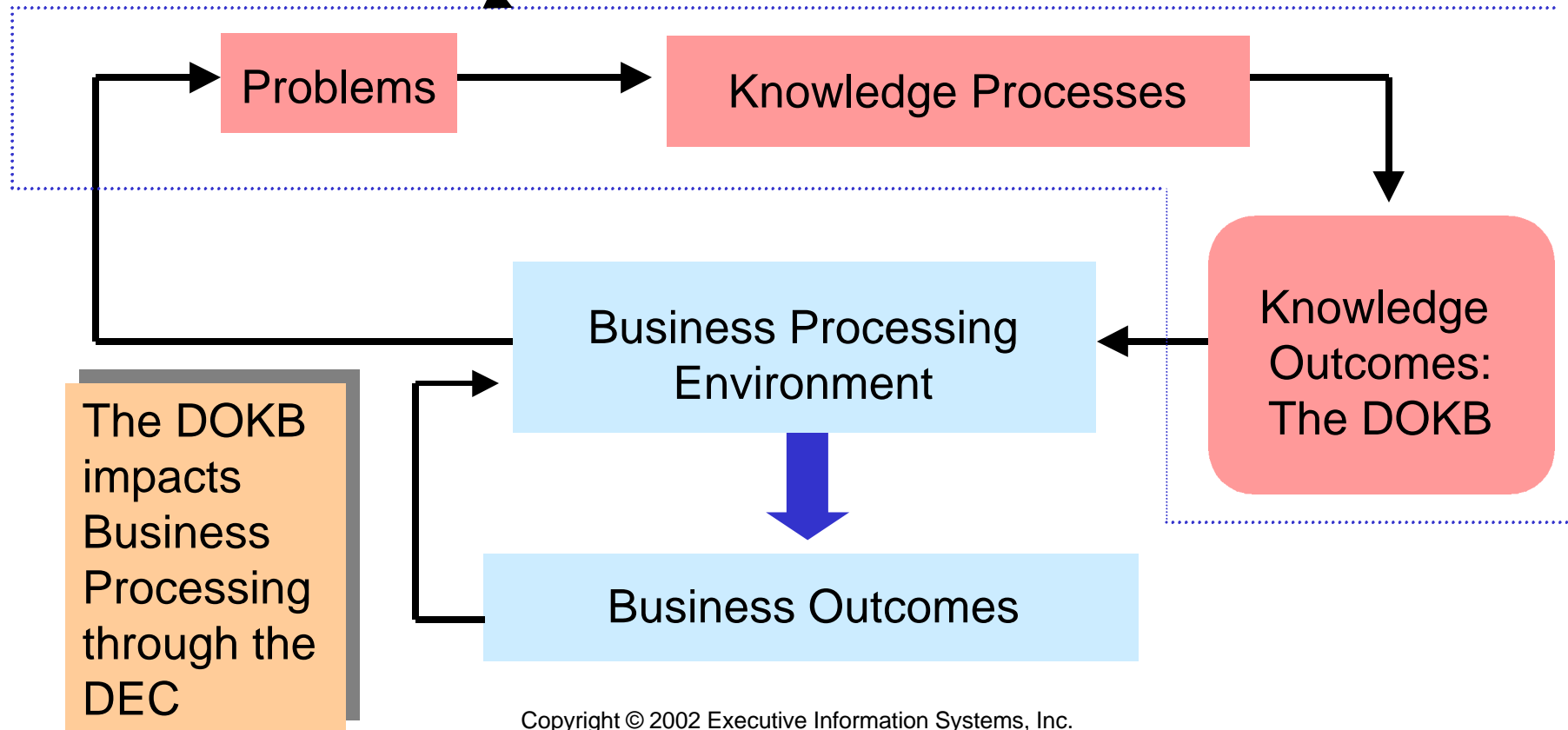


Problems require problem-solving processes.  
In organizations we call these knowledge processes

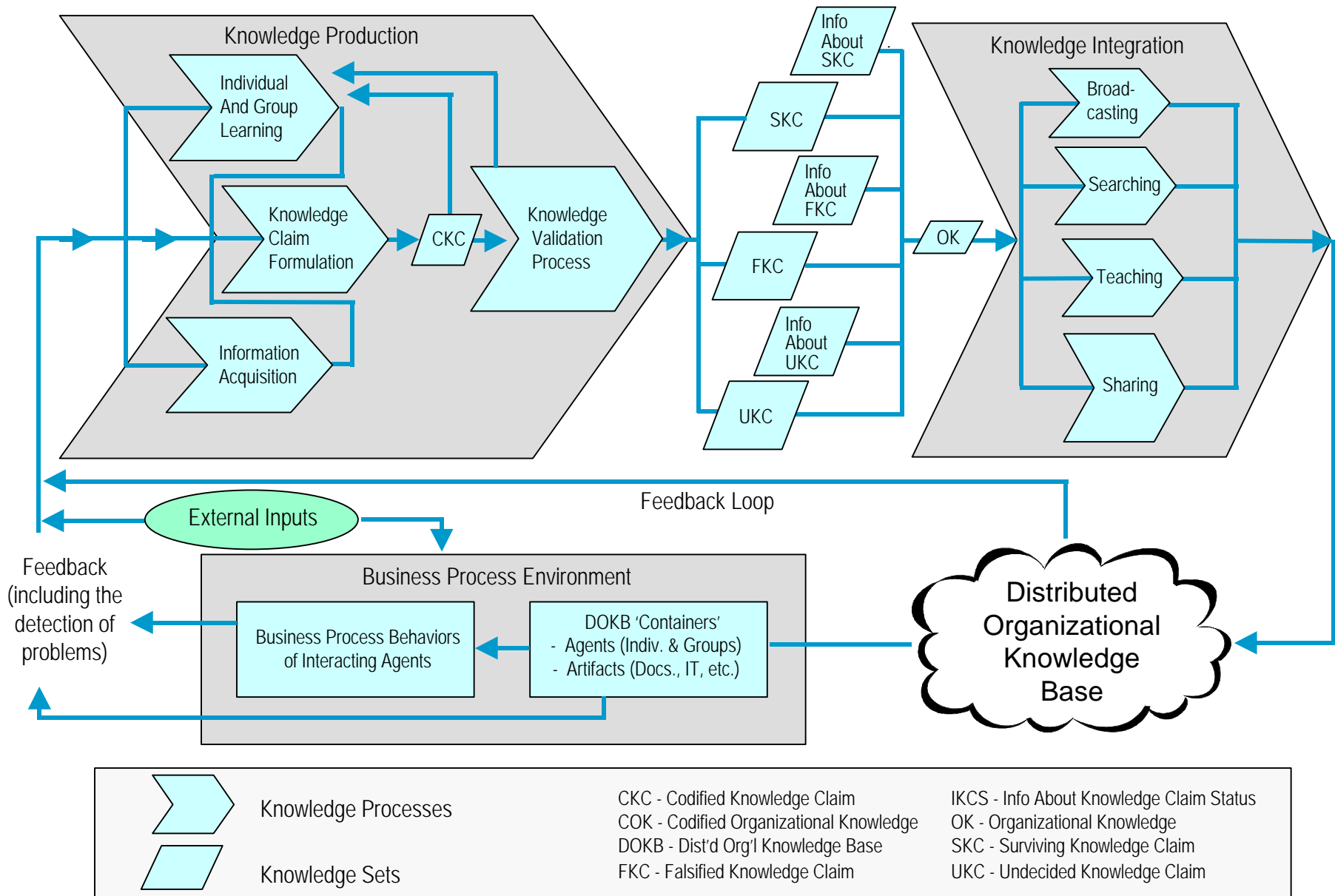
# And Knowledge Outcomes: the DOKB

The Knowledge Life Cycle (KLC)

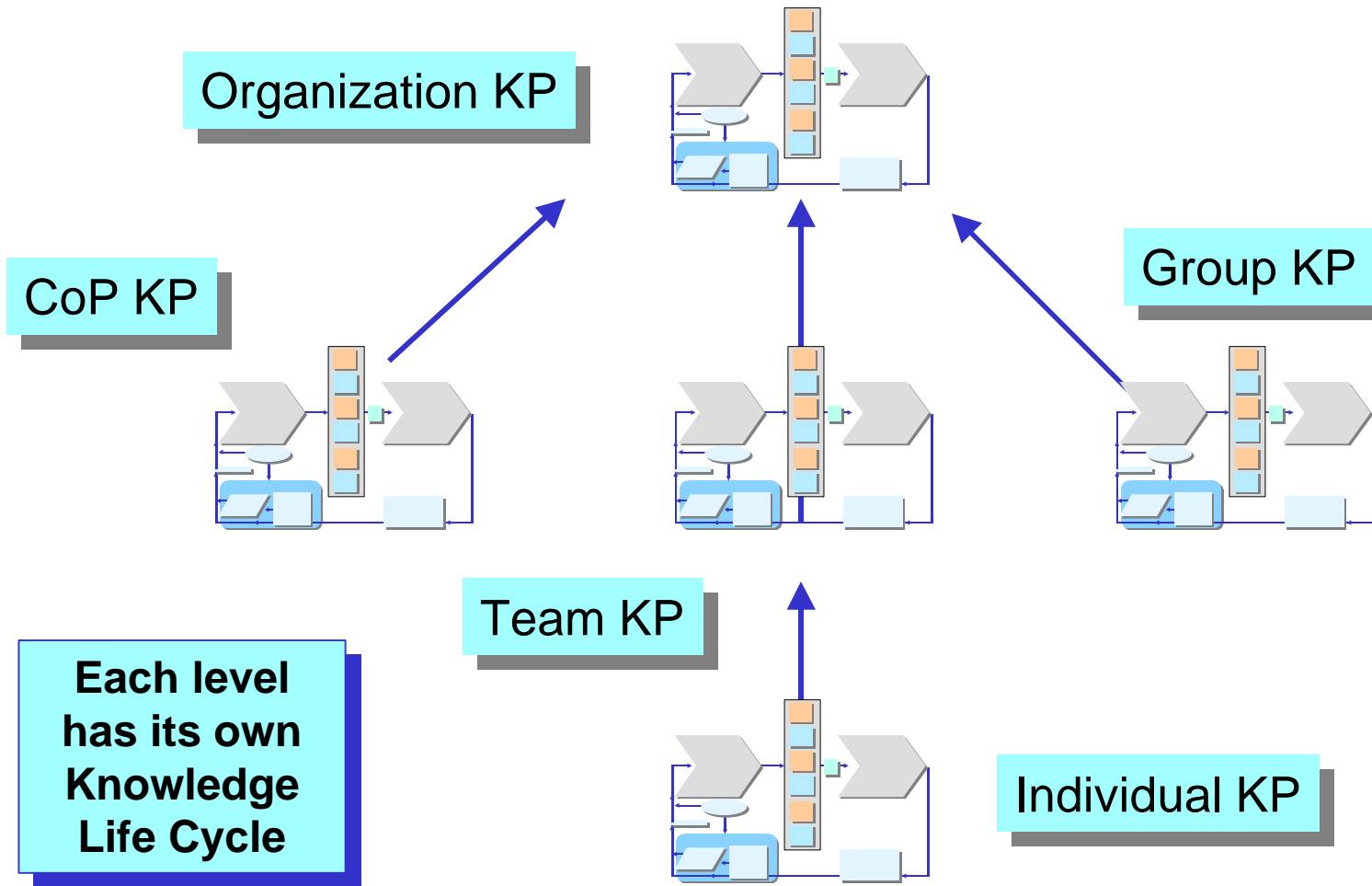
The Knowledge Life Cycle is the Problem Life Cycle! It is comprised of DEC's.



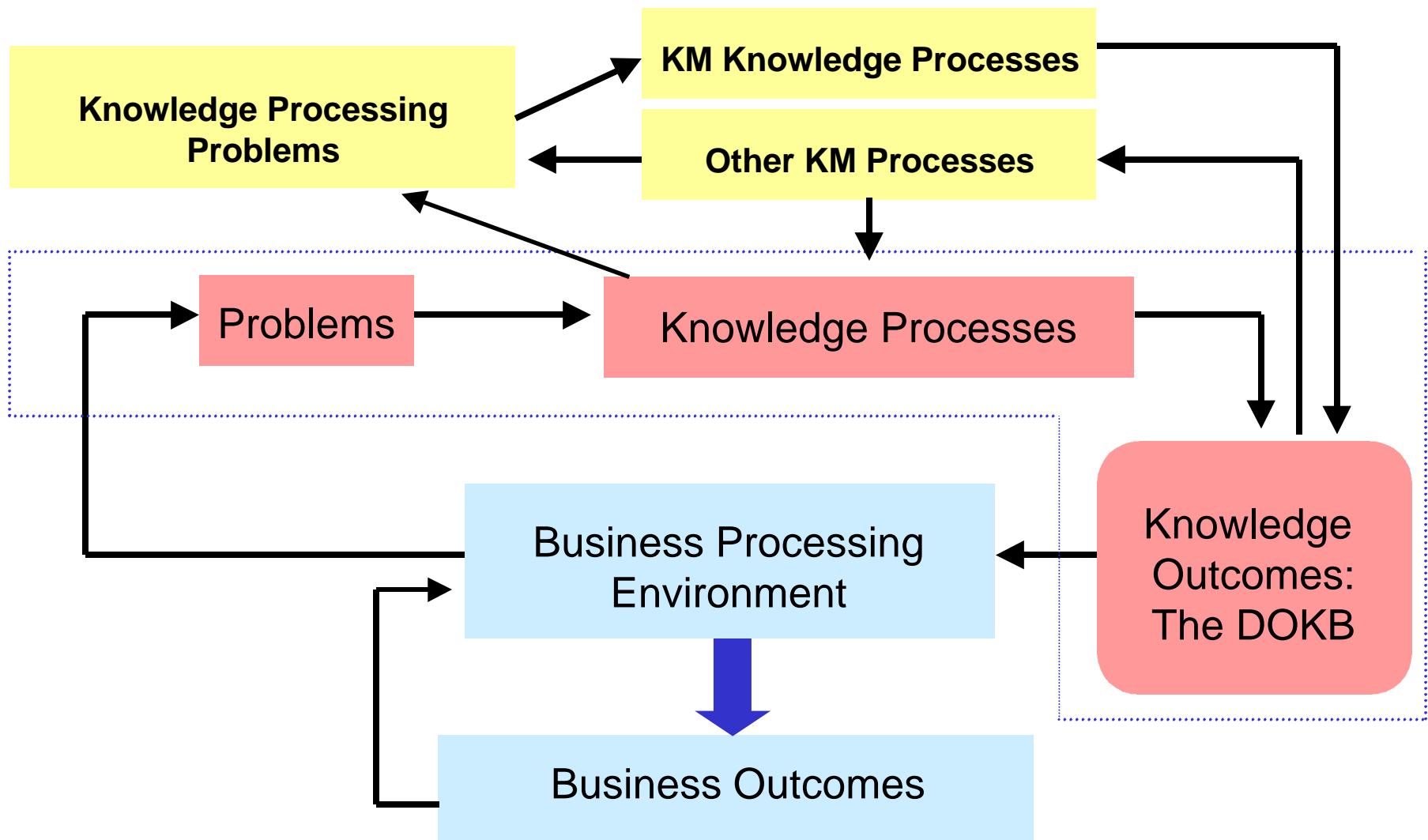
# The KLC: A *More* Granular View (From McElroy, 2003)



# Nested Knowledge Processes



# And Knowledge Management





# Conclusion

- ▶ I've shown that the KLC is a separate framework from the DEC/OLC.
- ▶ KLC processes both originate in the DEC/OLC, are comprised of DEC's themselves and then feed back into DEC's at the business process level.
- ▶ Yet KLCs are not the same as DEC's. Rather, they are higher level processes or value networks, patterns of DEC's integrated by motivation toward achieving knowledge production and integration goals, rather than primary business goals common in sales, marketing, manufacturing, and other business processes.

# Conclusion (Two)

- ▶ We have seen that the alternation between KLCs and OLCs is both basic to knowledge processing and grounded in human psychology, both at the individual level and group level.
- ▶ It is an alternation between different types of motivation, and this alternation is the foundation of a distinction between business processing and knowledge processing and between the latter and knowledge management.
- ▶ This last distinction is the basis of knowledge management as a distinct process and discipline.  
**Without it there can be no knowledge management.**

# The End

Questions?  
Call me at 703-461-8823  
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# Back-up Slides on the KLC

# What is Knowledge?

# What Is Knowledge?

## The KMCI View

- ▶ World 1 “knowledge” – encoded structures in physical systems (such as genetic encoding in DNA) that allow those objects to adapt to an environment
- ▶ World 2 “knowledge” – beliefs and belief predisposition (in minds) about the world that we believe have survived our tests, evaluations, and experience;
- ▶ World 3 sharable linguistic expressions, that is, knowledge claims about the world, the beautiful and the right, that have survived testing and evaluation by the agent (individual, group, community, team, organization, society, etc.) acquiring, formulating, and testing and evaluating the knowledge claims.
- ▶ The distinction between World 2 and World 3 Knowledge is Karl Popper’s

# What Is Knowledge?

## The KMCI View (Two)

- ▶ The notion of World 1 knowledge is my own extension

All three types of knowledge are about encoded structures in one kind of system or another, that arguably help the systems involved to adapt.

Issue: What should be the primary focus of KM?

# Knowledge and Validation

- ▶ The difference between information and knowledge is validation
- ▶ But what is validation? It is:
  - Testing and evaluation of knowledge claims (World 3) or
  - Testing and evaluation of beliefs (World 2)
- ▶ Testing and evaluation of knowledge claims is public and sharable in the sense that the claims themselves are sharable and the tests and their results are sharable. That is why world 3 knowledge is objective
- ▶ Testing and evaluation of beliefs is private and personal
- ▶ It is this difference that makes world 2 knowledge subjective



# Knowledge and Validation (Two)

- ▶ Validation is not the same thing as justification
- ▶ Justification is the process of proving that a knowledge claim is true
- ▶ Validation never proves anything with certainty
- ▶ It simply provides (a) a record of how well competing knowledge claims stand up to our tests or (b) personal experience of how well competing beliefs stand up to our tests.

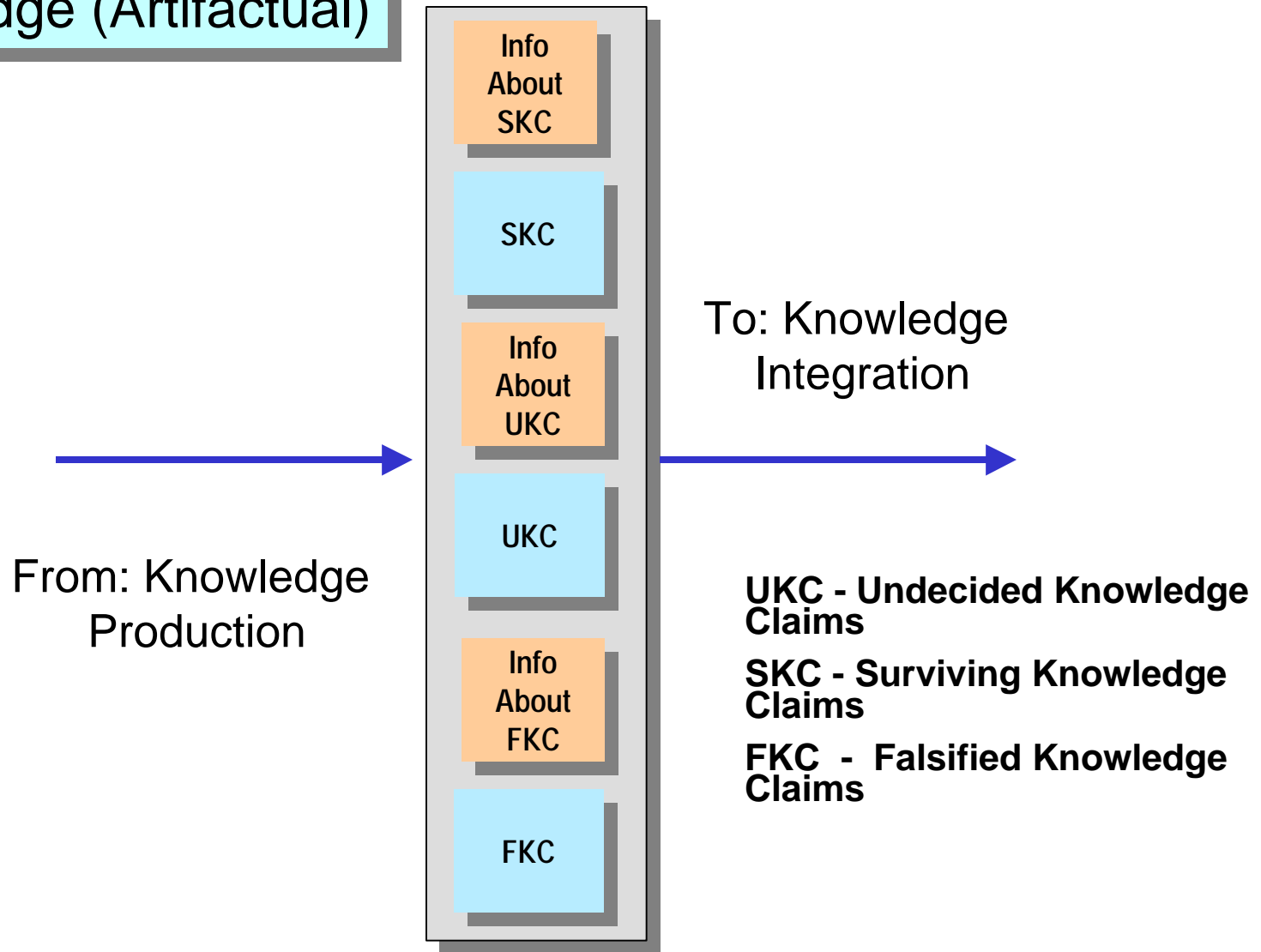
In our view, justification of knowledge claims and beliefs is impossible, but validation of them is not

# Variation in Validation

- ▶ Since validation is just our process of testing and evaluating knowledge claims or beliefs, the practice of it will vary across individuals, groups, communities, teams, and organizations
- ▶ A particular entity may use validation practices based on explicit rules or specified criteria, to compare knowledge claims, but it need not
- ▶ Agents are free to change their tests or criteria at any time, to invent new ones, or to apply ad hoc tests and criticisms in validation

That is, validation is a free-for-all, it is just the process by which knowledge claims and beliefs run the gauntlet of our skepticism and our criticism

OK = Organizational Knowledge (Artifactual)



# Knowledge Life Cycle Categories

- ▶ Information Acquisition
- ▶ Individual and Group Learning
- ▶ Knowledge Claim Formulation
- ▶ Knowledge Claim Evaluation
- ▶ OK: Falsified, Undecided, and Surviving Knowledge Claims and Meta-information about these claims
- ▶ Knowledge and Information Broadcasting
- ▶ Knowledge and Information Searching and retrieving
- ▶ Teaching
- ▶ Knowledge and Information Sharing
- ▶ The Distributed Organizational Knowledge Base

# KM Categories

- ▶ Knowledge Management - Interpersonal Behavior
  - Leadership (hiring, training, motivating, monitoring, evaluating, etc.)
  - Building relationships with individuals and organizations external to the enterprise
- ▶ Knowledge Management - Knowledge Processing Behavior (Knowledge Production and Integration and their sub-processes)

# KM Categories (Two)

- ▶ Knowledge Management - Decision-Making KM Activities
  - Changing knowledge process rules at lower KM and knowledge process levels
  - Crisis Handling
  - Allocating Knowledge-related and KM Resources
  - Negotiating agreements with representatives of other business processes