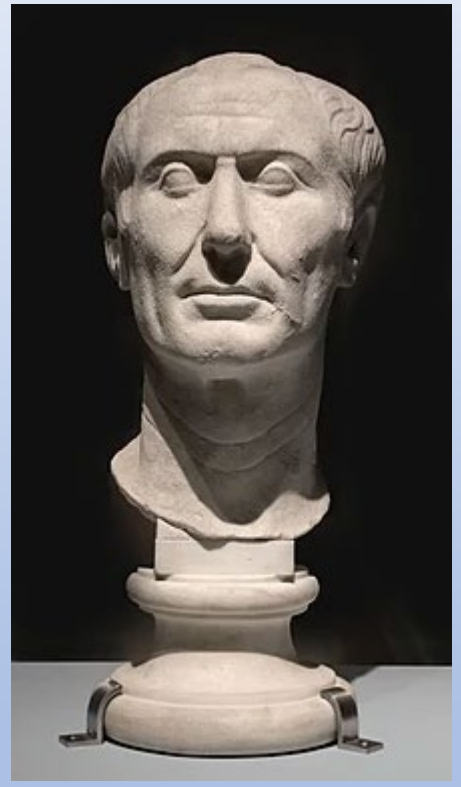
# Sweating The Squishy Stuff

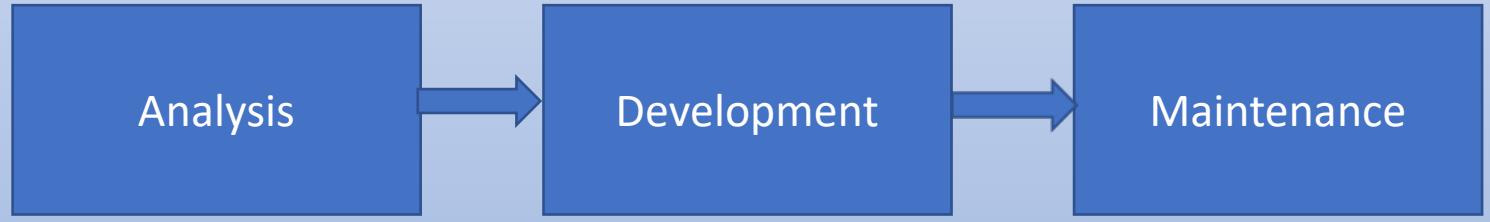
**Knowledge Analytics Best Practices for Effective Automated Decisioning**

SmartFix

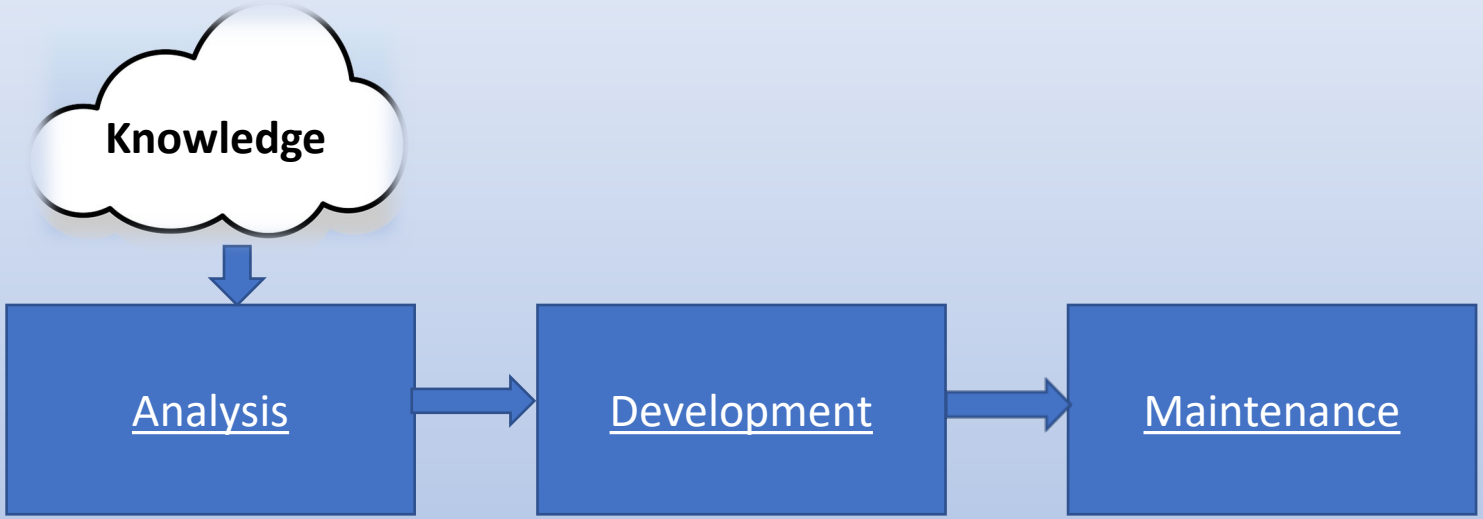
# What's with this "Squishy Stuff ?"



**All systems development is divided into three parts.**

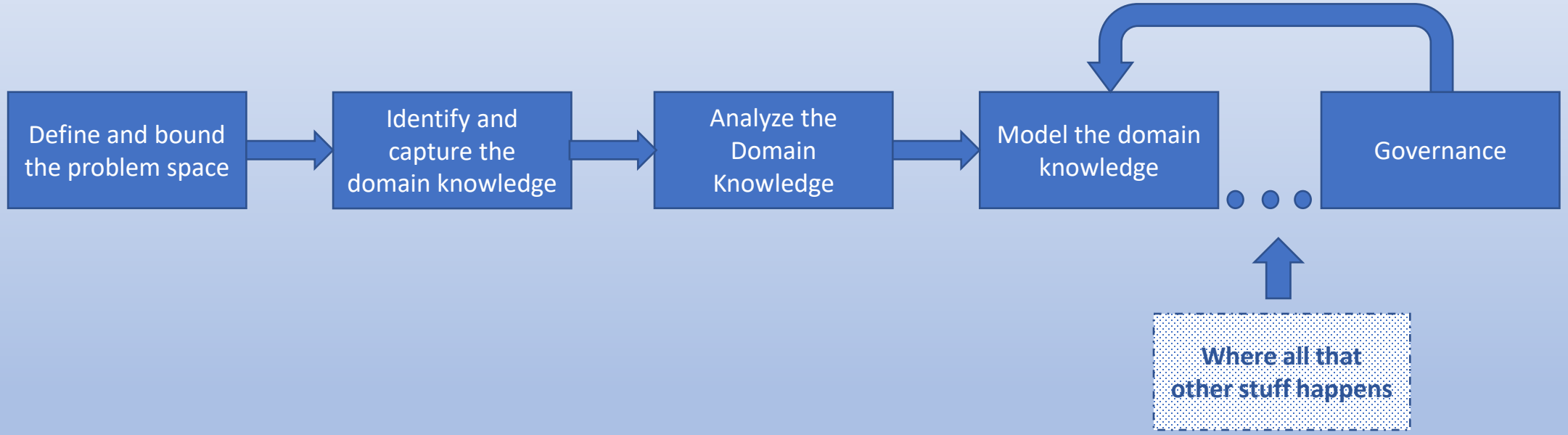


# What's different about "Knowledge Analysis" (And what makes it "Squishy"?)

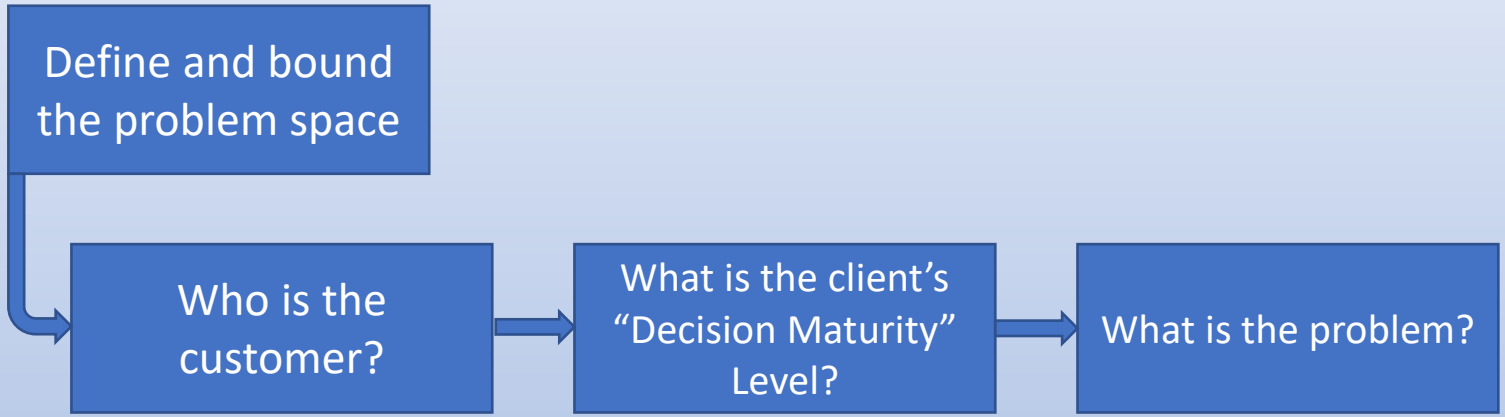



"Knowledge is information combined with experience, context, interpretation, and reflection. It is a high value form of information that is ready to apply to decisions and actions." (T. Davenport et al., 1998)

# The Phases of Knowledge Analysis (The Macro View)



# The Phases of Knowledge Analysis (A Micro View)



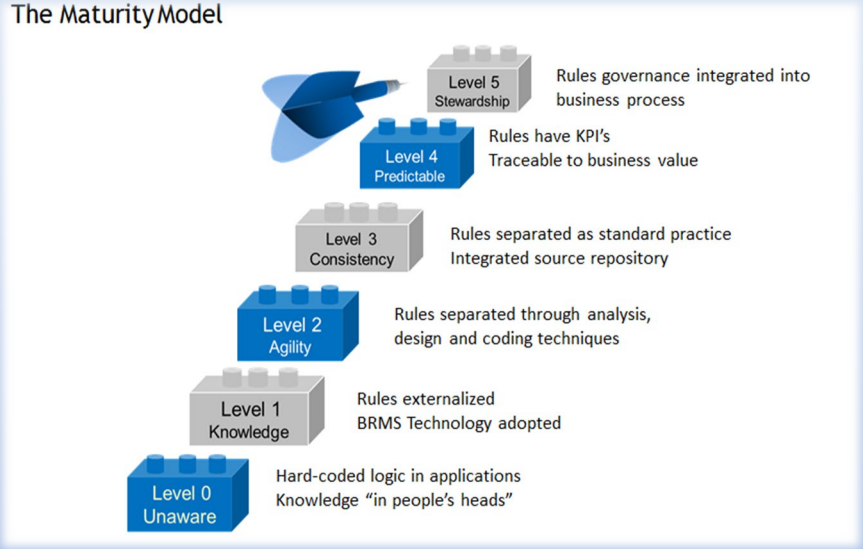
# Define and bound the problem space

**Who is the customer?**

OR

# Define and bound the problem space

**What is the client's "Decision Maturity" Level?**

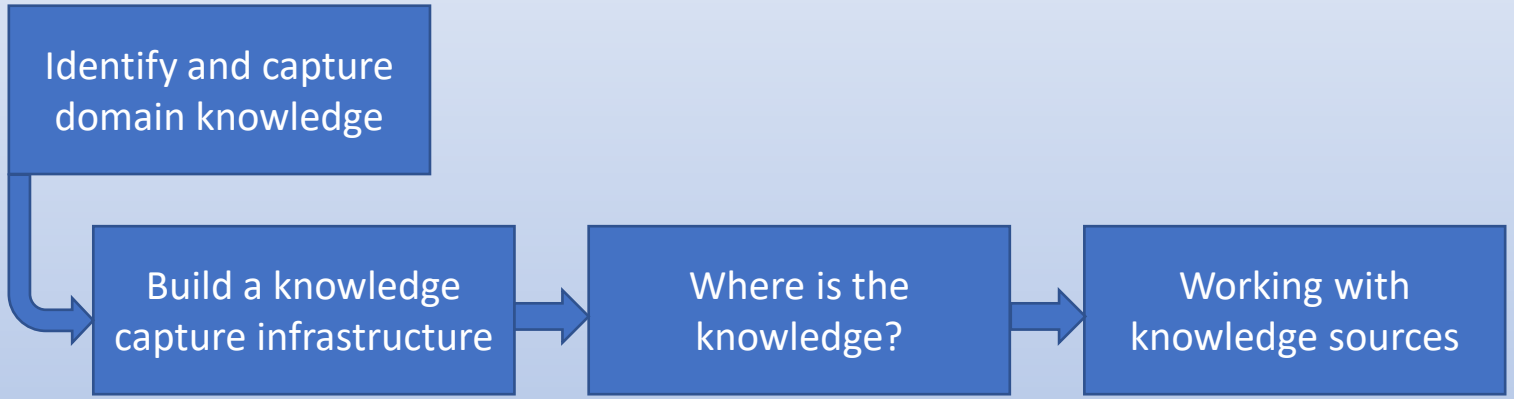



**Credit: Larry Goldberg & Barbera Von Halle**

# Define and bound the problem space

**What is the problem?**


# The Phases of Knowledge Analysis (A Micro View):



# Identify and capture domain knowledge

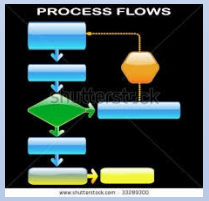
**Build a knowledge capture infrastructure**

# Identify and capture domain knowledge

**Where is the knowledge?**


**Legacy Code and Procedures**

**Policies and Practices**


**Processes**

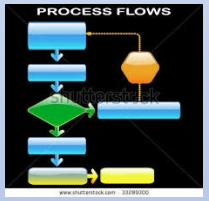
**People**

# Identify and capture domain knowledge

Working with knowledge sources


Legacy Code and Procedures

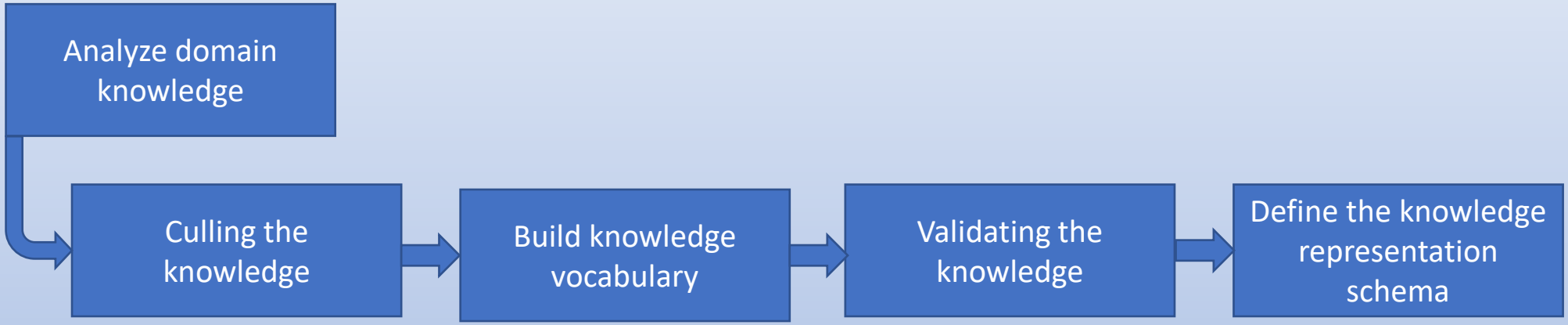
Policies and Practices


Processes

People

# The Phases of Knowledge Analysis (A Micro View)



# Analyze domain knowledge

**Culling the knowledge**

# Analyze domain knowledge

**Build knowledge vocabulary**

**MUD** != **MUD**

soft, sticky matter resulting from the mixing of earth and water.

a heavy, viscous fluid mixture that is used in oil and gas drilling operations to carry rock cuttings to the surface and also to lubricate and cool the drill bit. The drilling mud, by hydrostatic pressure, also helps prevent the collapse of unstable strata into the borehole and the intrusion of water from water-bearing strata that may be encountered.

# Analyze domain knowledge

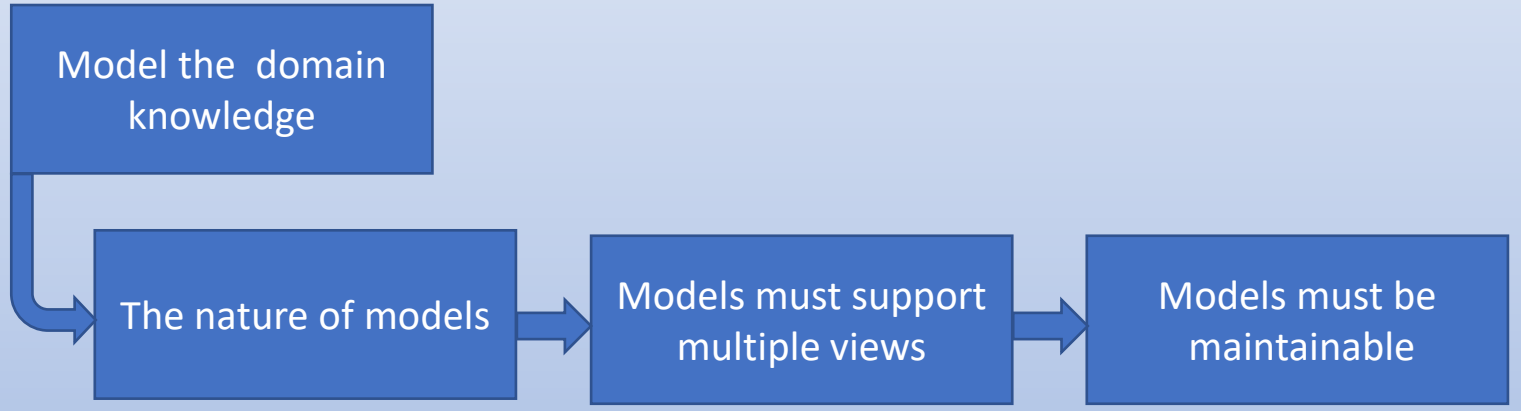
**Validating the knowledge**

# Analyze domain knowledge

**Define the knowledge representation schema**

**BAYESIAN NETWORKS & ANP**
**ARTIFICIAL NEURAL NETWORK**
**GENETIC ALGORITHMS**
**RULES**
**CASE BASED REASONING**
**…**

# The Phases of Knowledge Analysis (A Micro View)



# Model the  domain knowledge

**The nature of models**

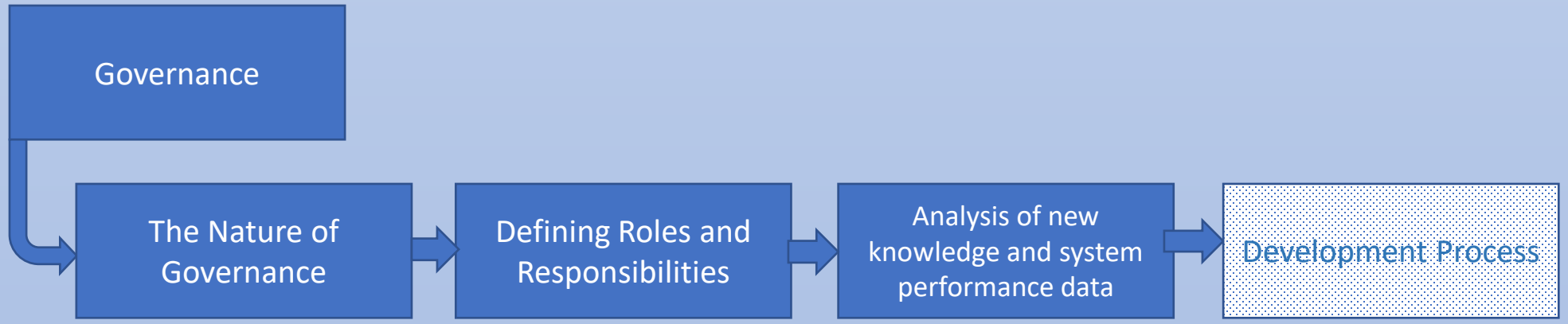

# Model the  domain knowledge

**Models must support multiple views**

# Model the  domain knowledge

**Models must be maintainable**

# The Phases of Knowledge Analysis (A Micro View):



# The Nature of Governance

**A defined and enforced set of steps that will be followed in the extraction of the business logic, engineering it into business rules and decisions, deploying and testing, moving the decisions into production and manage their total life cycle.**

# Roles and Responsibilities

**A set of roles with meaningful titles and associated responsibilities that are mapped specific tasks within the governance process**

# Analysis of new knowledge and system performance data

- The introduction of “new” knowledge relevant to the problem space
- “In process reporting” including response time and number of times a request must be returned to the client for additional information.
- “Post Process Monitoring” at a variety of levels of granularity including, but not limited to, rule performance and impact (speed and effect on the overall performance of the project) and Usage over specific time intervals.

# Conclusion

1. Knowing where in the organization or institution the “knowledge” relevant to a problem space is, and that the space is defined and bounded, is critical to creating and maintaining an effective application
2. Establishing a pipeline from sources to knowledge repositories on a cycle that meets the needs of Operations not IT, is critical to creating and insuring the continued effectiveness of an application. Knowledge that is not consistent, correct, complete and current is useless.
3. The Knowledge must be accepted by the organization or institution as “authoritative” (dispositive and verifiable) and the decisions derived from the knowledge must be enforced.