

The Knowledge of Business Intelligence

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The Knowledge of Business Intelligence

Basic Proposition

Business intelligence (BI) research and practice can benefit from *careful* study of knowledge management (KM) concepts and theory.

Let's sketch out a KM perspective on BI

The Knowledge of Business Intelligence

- Perspectives can strongly influence
 - Interpretation and analysis
 - Design
 - Implementation
 - Application
- Fresh perspectives
 - Stimulate
 - Provoke
 - Challenge

The Knowledge of Business Intelligence

- Business intelligence from a knowledge management perspective
 - Superficial view
 - How does it help us design, implement, apply BI?
 - Does it stimulate, provoke, challenge our understanding of what BI is, or could be?
 - Deep view
 - Is there value to grounding BI initiatives in KM theory?
 - Does it add clarity and context to planning and/or execution of BI initiatives? Can it foster BI creativity?

The Knowledge of Business Intelligence

- Here, we consider a deep KM perspective on the nature of BI
 - Stimulate better understanding of BI and its context
 - Provoke new ways of thinking about BI issues
 - Challenge to expand BI initiatives and research along lines suggested by KM theory
- Furnish a lens that lets us see BI as a knowledge management phenomenon

Traditional Perspectives on BI

“An automatic system ... to **disseminate information** to the various sections of any ... organization... utilize data-processing machines for **auto-abstracting and auto-encoding of documents and for creating interest profiles for each of the ‘action points’ in an organization.**

“Both incoming and internally generated documents are automatically abstracted, characterized by a word pattern, and sent automatically to appropriate action points...

“... shows the flexibility of such a system in **identifying known information, in finding who needs to know it and in disseminating it efficiently either in abstract form or as a complete document.**”

Traditional Perspectives on BI

- Simon says that *intelligence* is a crucial aspect of decision making
 - **Gathering information**
 - Relevant
 - Important
 - **Paying attention**
 - Problem finding
 - Recognize need to take action
 - Watch for occasion to make a decision
- Also, there are *design* and *choice* aspects of decision making, which both depend on intelligence

H. A. Simon, *The New Science of Management Decision*, Englewood Cliffs, NJ: Prentice-Hall 1960, 1977

Traditional Perspectives on BI

- “Business intelligence...is central to many decisions made in the firm...real revolution is in the **efforts to *institutionalize intelligence activities***...in the hope of establishing business intelligence as a legitimate organizational function”
- “Business intelligence is **a process**”
 - Raw data => Intelligence involving 5 tasks
 - Collect data about the environment
 - Evaluate for usefulness, reducing it to relevant & reliable
 - Store data (and intelligence) in a way that allows for rapid selection
 - Analyze/interpret/digest to get a sense of a situation or to answer a specific question
 - Disseminate the intelligence within the organization to makers of strategic decisions

Traditional Perspectives on BI

- BI is an **analytical process**
 - **Transforms** raw data into intelligence that is of strategic relevance
 - Needs continuous **monitoring** of customers, competitors, suppliers, actors and forces in other fields
- There are various types of business intelligence
 - Customer intelligence
 - Competitor intelligence
 - Market intelligence
 - Technological intelligence
 - Product intelligence
 - Environmental intelligence

Traditional Perspectives on BI

- H. Dresner (1989) suggests the term "business intelligence" to refer to
“...**concepts and methods** to improve business **decision making** by using **fact-based** support systems”
- H. Watson explains that BI refers to “a broad category of **applications, technologies, and processes** for **gathering, storing, accessing** and **analyzing data** to help business users make **better decisions**”

H. J. Watson "Tutorial: Business Intelligence - Past, Present and Future," *Communications of the AIS* 25(Article 39) 2009, 487-510

Traditional Perspectives on BI

“BI is defined as an intelligence **process** that includes a series of **systematic activities**, being driven by the specific information **needs of decision makers** and the objective of achieving **competitive advantage**. Other intelligence concepts are considered as components of BI”

V.H. Pirttimäki Conceptual analysis of business intelligence *South African Journal of Information Management* 9(2) 2007, 1-17

Traditional Perspectives on BI

- What is it?
 - Processes and activities
 - Techniques
 - Tools
- What does it do?
 - Converts “data” into “intelligence”
 - Monitor, gather, analyze/interpret, store, selective access, disseminate
- Why?
 - Better decision making, competitiveness
- What is the level?
 - Strategic, operational
- Where is the focus?
 - External, internal
- What is the mode?
 - Quantitative, qualitative

So, what is BI to YOU?

The answer influences what you
do as a BI practitioner,
researcher, or educator

A knowledge management perspective
may contribute to your answer

A Knowledge Management Perspective

- Call for integrating BI and KM
 - “distinguish between BI and KM to **clarify the role of each in a business environment**”
 - Findings
 - “**BI focuses on explicit knowledge**, but KM encompasses both tacit and explicit knowledge.
 - “**Both** concepts promote learning, decision making, and understanding.
 - “Yet, **KM can influence the very nature of BI itself. ...**
 - “**BI should be viewed as a subset of KM**”

R. T. Herschel, N. E. Jones, "Knowledge management and business intelligence: The importance of integration" *Journal of Knowledge Management* 9(4) 2005, 45 – 55

A Knowledge Management Perspective

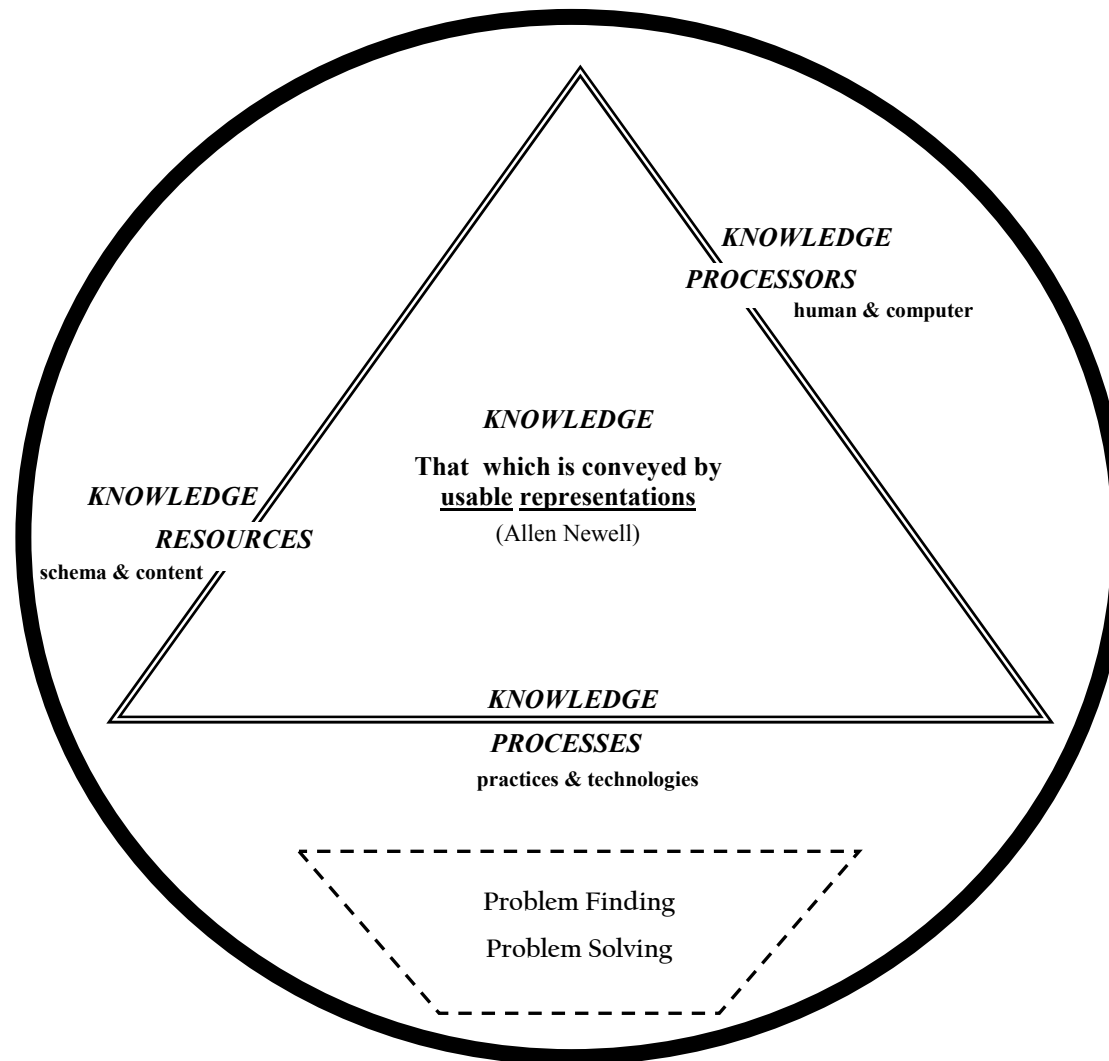
- Implications for BI
 - “Integration establishes “an **expanded role for BI...the role of BI in knowledge improvement...**
 - “Suggests that the **effectiveness of a BI** will, in the future, be **measured based on**
 - how well it promotes and enhances knowledge
 - how well it improves the mental model(s) and understanding of the decision maker(s)...
 - how well it improves their decision making and hence firm performance”

R. T. Herschel, N. E. Jones, "Knowledge management and business intelligence: The importance of integration" *Journal of Knowledge Management* 9(4) 2005, 45 – 55

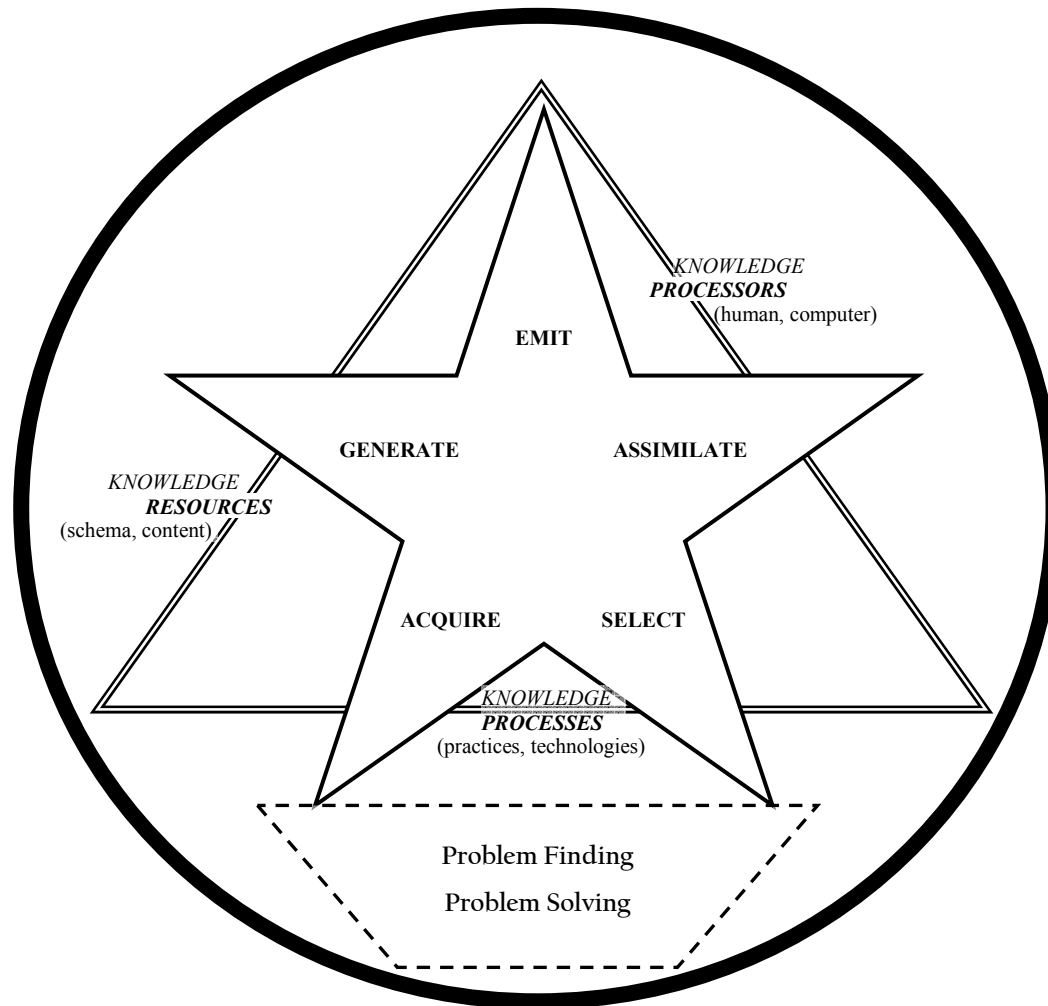
KM Perspective for BI

- If we accept that BI inhabits a KM world,
 - It follows that BI is related to and consistent with knowledge management concepts and theory
 - We may find that BI is in a fertile field for growth, development, and yields of increased value
- Let's sketch out a KM ontology and KM theory that you can use as a perspective for
 - Stimulating, provoking, and challenging your appreciation of BI
 - Enriching your answer of “What does BI mean to me?”

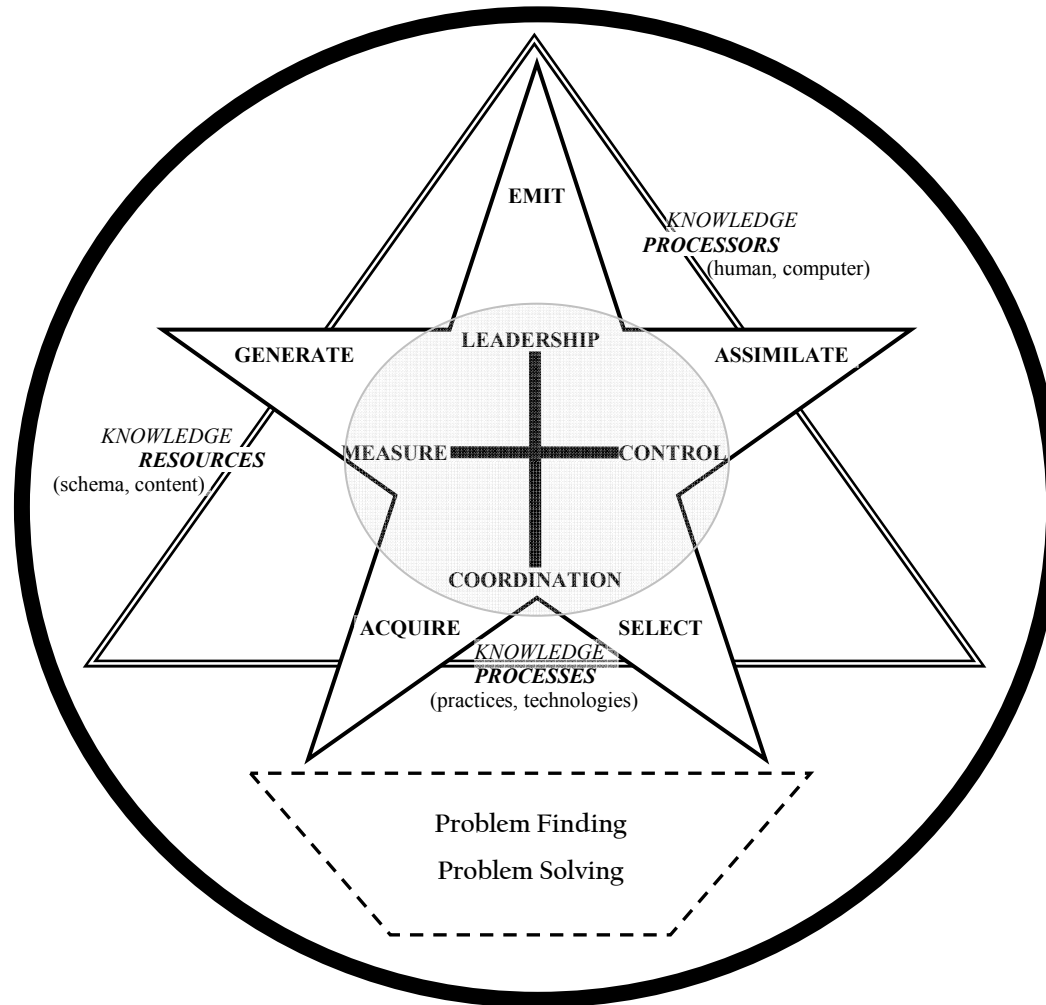
An Organization's Knowledge Triangle



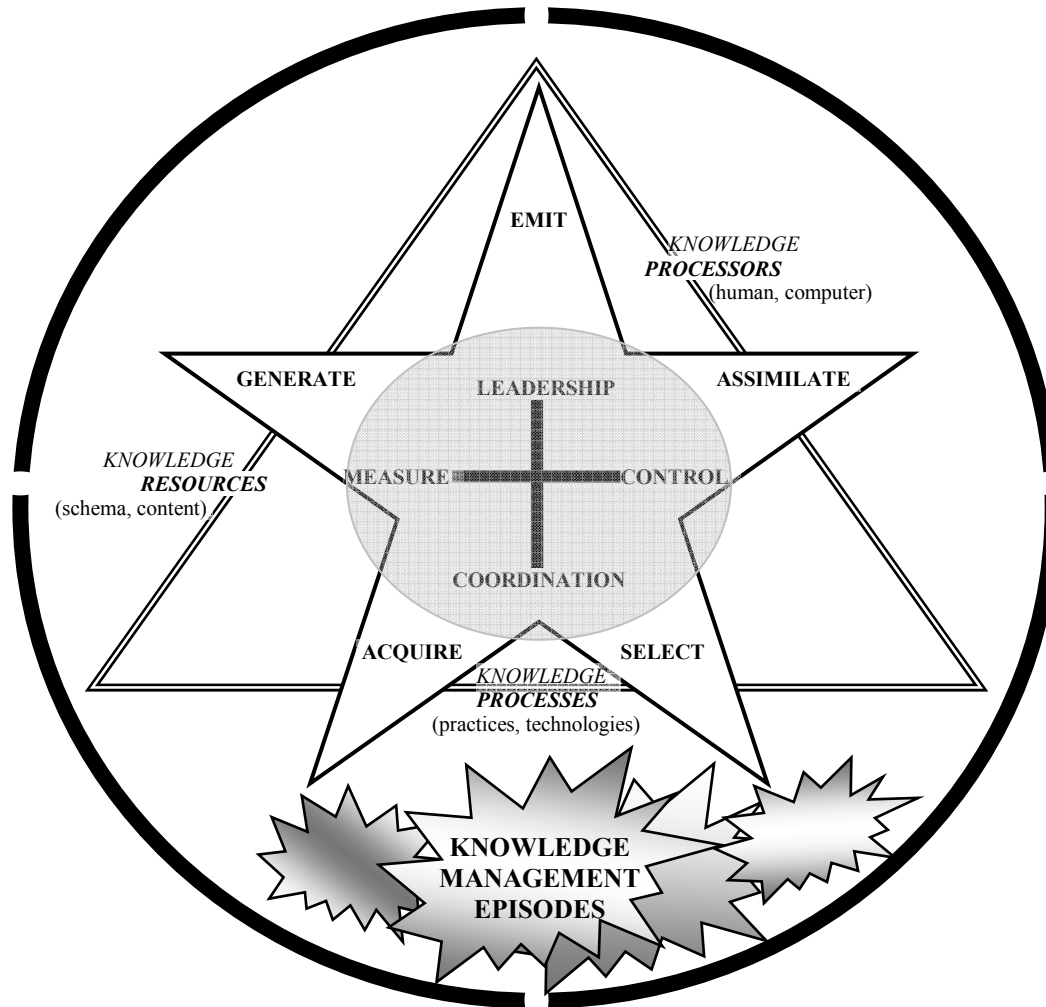
Starring Knowledge Manipulation Actions



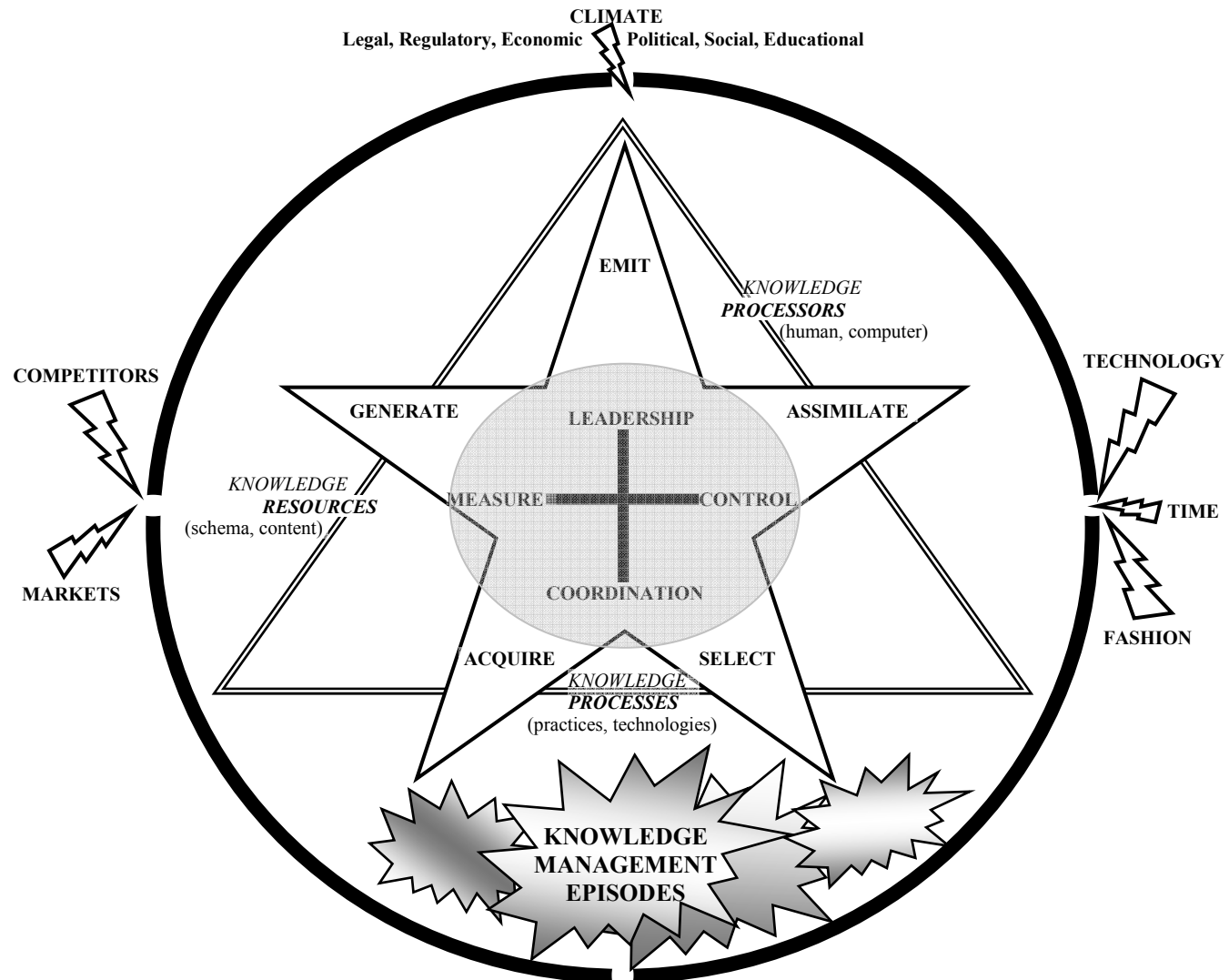
Plus Managerial Influences



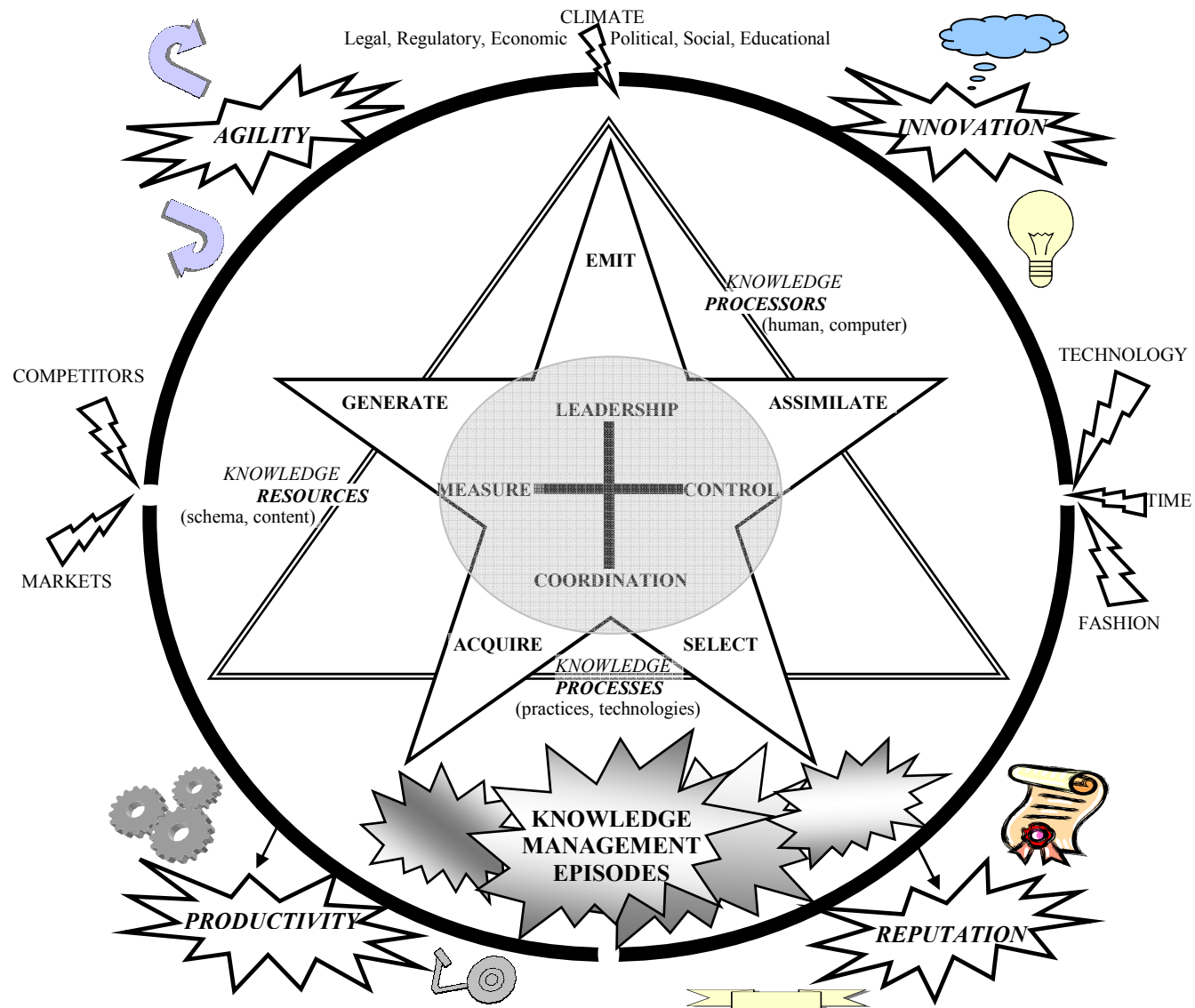
Manifesting as Knowledge Management Episodes



Subject to Environment Influences



Effects on Organization Performance



Knowledge Management

An entity's systematic and deliberate efforts to expand, cultivate, and apply available knowledge in ways that add value to the entity, in the sense of positive results in accomplishing its objectives or fulfilling its purpose.

Knowledge Management

The RIGHT definition of knowledge management

*An organization's initiatives to ensure that the
RIGHT knowledge gets to the
RIGHT processor in the
RIGHT format at the
RIGHT time in the
RIGHT place for the
RIGHT cost with preservation of
RIGHT relationships
in alignment with its mission, vision, and values*

Knowledge Management

- Is this also the RIGHT definition of BI?
 - Technology-centric initiatives?
 - Digital knowledge representations?
 - Computer-generated visualizations?
- The KM perspective on BI
 - Appears to be consistent with traditional perspectives
 - Complements and supplements
 - Offers a systematic, unifying characterization of BI
 - May, upon serious thought, reveal BI potentials yet unrealized

Knowledge Management

But, does Knowledge Management matter?

- Organization structures explicitly recognize KM
- KM services and technologies
- Cases and anecdotes
- Surveys of practitioners
- Does superior KM performance predict superior financial performance?

Knowledge Management

Does Knowledge Management Pay Off?

- **H1:** Superior KM Performance is Positively Related to Higher Profit Ratios
- **H2:** Superior KM Performance is Positively Related to Lower Cost Ratios
- **H3:** Superior KM Performance is Positively Related to Higher Market Measures (e.g., Tobin's q Ratio)

Knowledge Chain Theory

- What underpins superior KM?
- The Knowledge Chain Theory
 - Identifies 9 activities that may be performed in ways that result in greater competitiveness
 - First order activities
 - Acquire
 - Assimilate
 - Select
 - Generate
 - Emit
 - Second order activities
 - Measure
 - Control
 - Coordinate
 - Lead

Knowledge Chain Theory

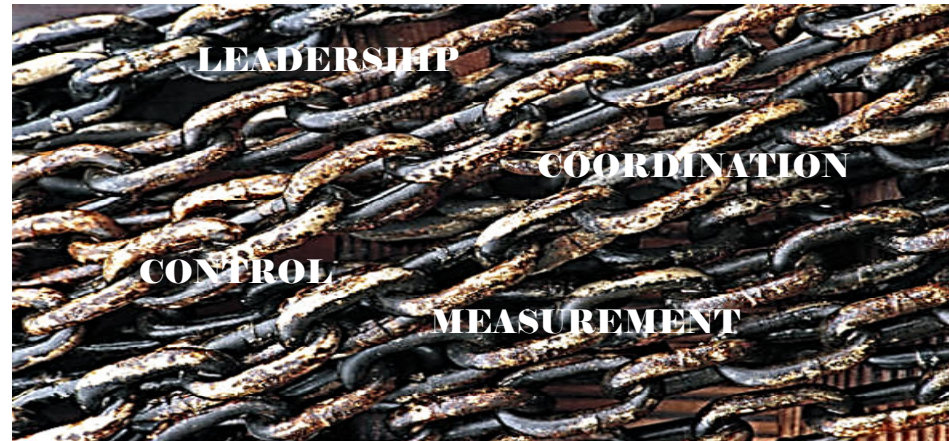
- By strengthening any/all of the 9 KM activities
 - KM is strengthened
 - Competitiveness/performance is better supported
 - This may be sustainable
 - Activity performed in ways that are rare, not easy to imitate, not subject to substitution, and yield value
 - BI may be an essential ingredient to implementing a strong link that supports sustainable advantage
- Other legs of the KM triangle may also give support
 - Knowledge resources
 - Knowledge processors

Knowledge Chain Theory

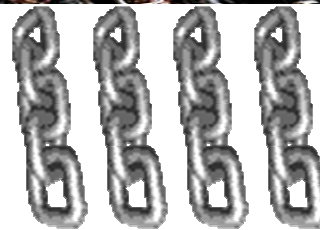
- The knowledge chain's PAIR model
 - KM activity implementations may contribute to competitiveness in one or more of four directions
 - **P**roductivity (output/input)
 - **A**gility (alertness, response-ability)
 - **I**nnovation (novel products, methods)
 - **R**eputation (stature, trust, quality)
 - There may be trade-offs among these
- Organization strategy may emphasize a PAIR direction(s)
 - KM, through the knowledge chain, can be instrumental in implementing the strategy
 - Tie BI to the PAIR model

Knowledge Chain Support for an Organization

2ND Order
Activities



1ST Order
Activities



**The PAIR Links to
Organization Performance
and Competitiveness**

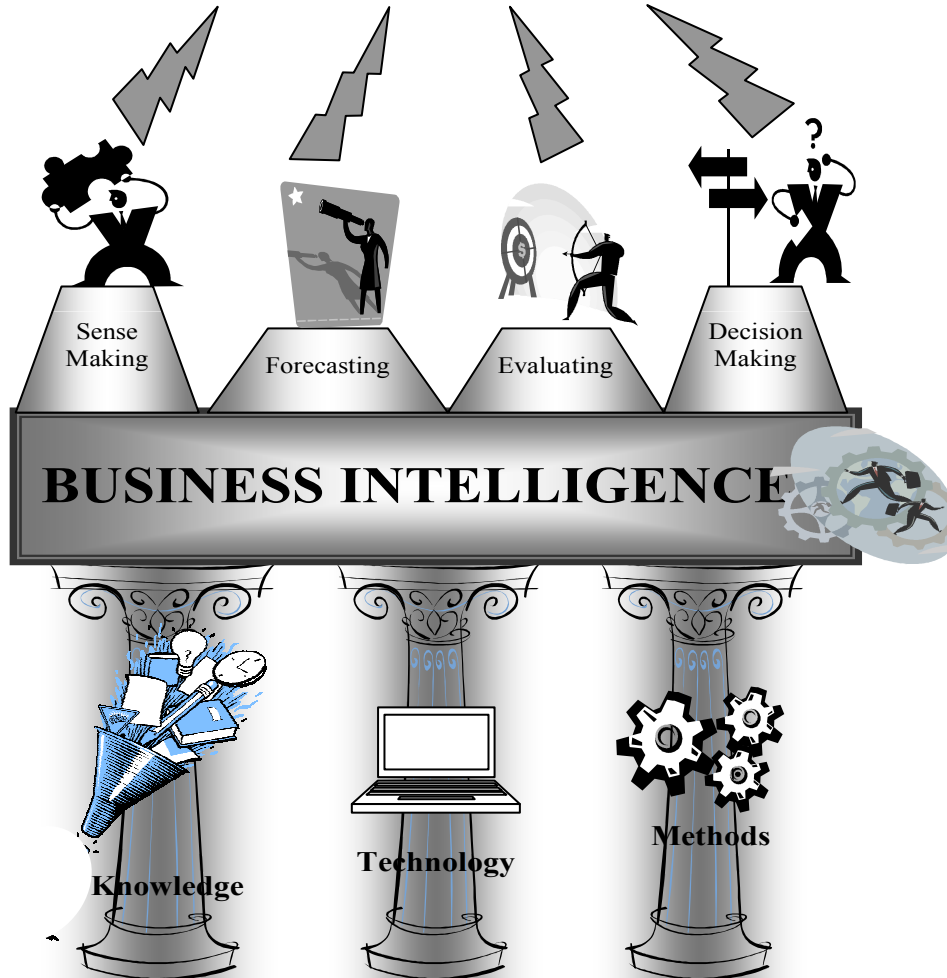
Business Intelligence

Business Intelligence:

*The integrated use of
knowledge, technology, methods
to enhance organizations' abilities for
sense making,
predicting,
evaluating, and
decision making –
leading to more effective performance by
these organizations and
their supply chains*



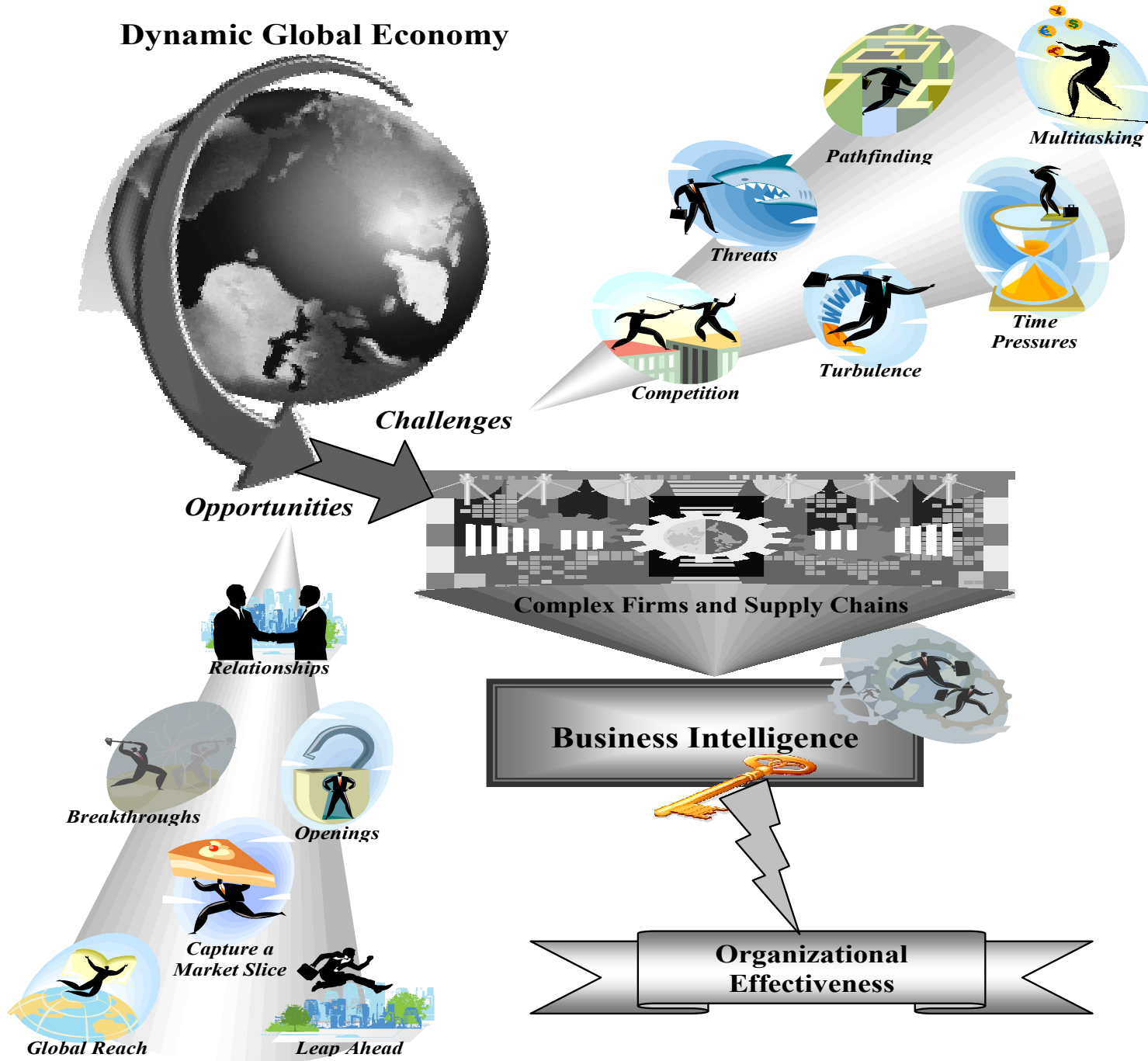
Organizational Effectiveness



Business Intelligence

- Why is BI important?
 - In today's dynamic global economy, organizations must
 - confront daunting **challenges** to their effectiveness – and even to their very survival
 - recognize and screen **opportunities** – and then actualize the potentials
 - Business Intelligence is a knowledge-based key for doing so
 - Through incorporation into knowledge chain activities
 - In ways that advance organizational effectiveness

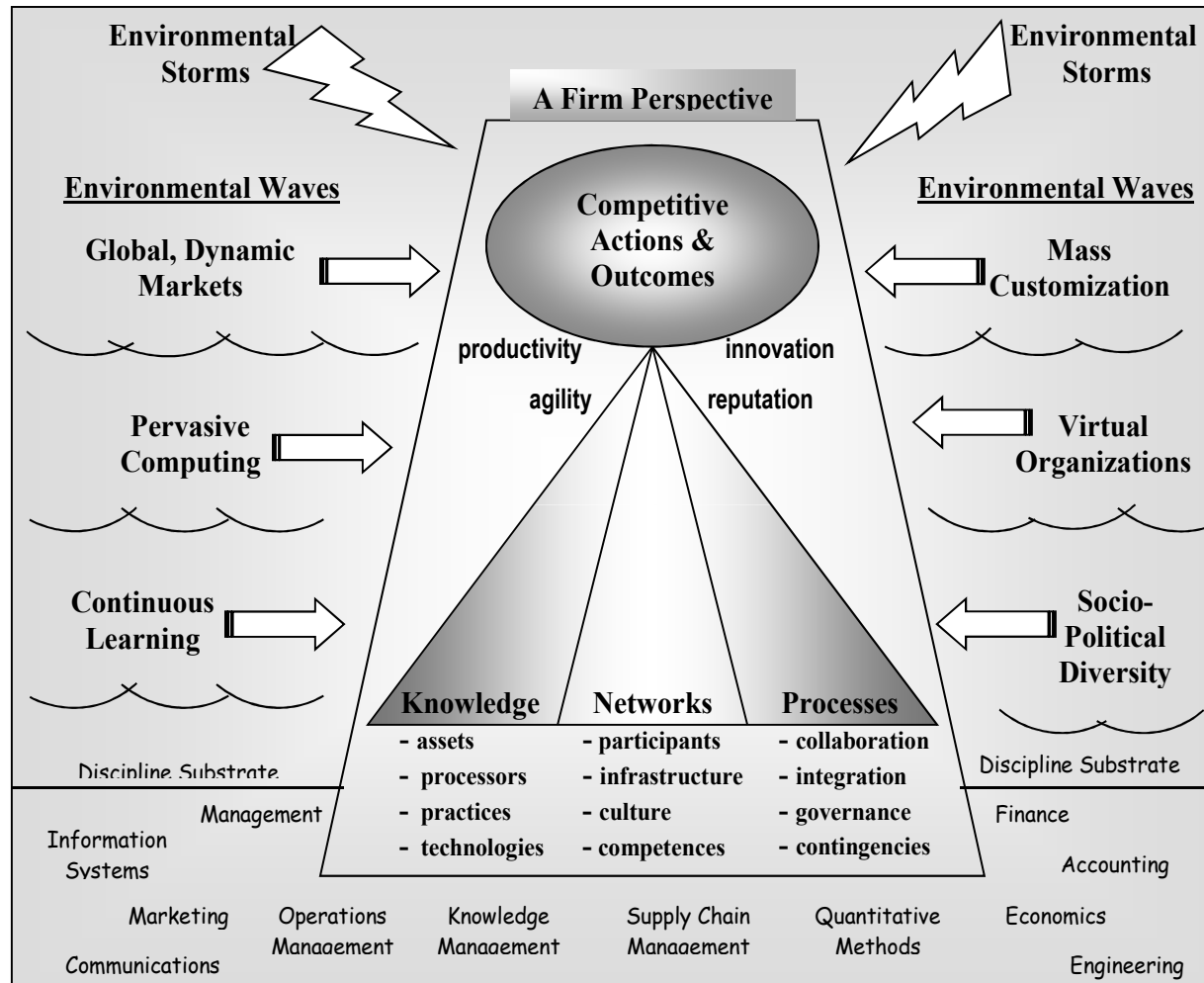
Dynamic Global Economy



Toward a Science of Competitiveness

- Given today's inescapable complexities, challenges, and opportunities
 - Competitiveness is a never-ending, non-trivial pursuit
 - It demands a coherent, holistic intellectual foundation
- We close with a call for development and application of a ***Science of Competitiveness*** (SoC)
- Some thoughts in that direction
 - Integrate what is known about competitiveness across disciplines, research, practice
 - Its nature, antecedents, consequences
 - Fostering it and sustaining it
 - Business Intelligence has a role to play in SoC

Fundamental Elements for a Science of Competitiveness



The Knowledge of Business Intelligence

From traditional perspectives of BI to a knowledge management perspective

Sharpen & enrich BI research and practice

Connect to performance & competitiveness

Stimulate, provoke, challenge your thinking about business intelligence