



# Knowledge Generation

**Connecting the Dots Between  
Strategy, Technology, and Implementation**

**WK-3**



## Real Time KM for Inventory Management

**"If a hammer is sold today at one of Ace Hardware Corp.'s 5,200 stores, it takes two days before managers at company headquarters know about it. So the hardware chain is implementing an IT system called Eagle Vision that will provide a real-time link from the stores' point-of-sale systems that immediately updates an inventory database at headquarters."**

## Smooth Processes With Fast Data Sept. 16, 2002

**Companies discover additional benefits as they experiment with real-time data integration**

By Rick Whiting

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If a hammer is sold today at one of Ace Hardware Corp.'s 5,200 stores, it takes two days before managers at company headquarters know about it. So the hardware chain is implementing an IT system called Eagle Vision that will provide a real-time link from the stores' point-of-sale systems that immediately updates an inventory database at headquarters.

"For the people here at corporate, it will be very enlightening to see sales in the stores close to when they actually happen," says data warehouse architect Mark Cothron. Eagle Vision, which is based on Informatica Corp.'s PowerCenter and PowerConnect technology, is being tested at two Ace Hardware stores and will be expanded to as many as 3,000 within four years.

But getting more up-to-date data isn't the only benefit companies are finding as they experiment with real-time data integration and data-warehouse systems.

XM Satellite Radio Holdings Inc., a satellite radio service that offers more than 100 channels of programming, uses a real-time system to process new subscriptions and commission payments to retailers that sell XM Satellite service and receivers. Retailers send new subscriber and receiver sales

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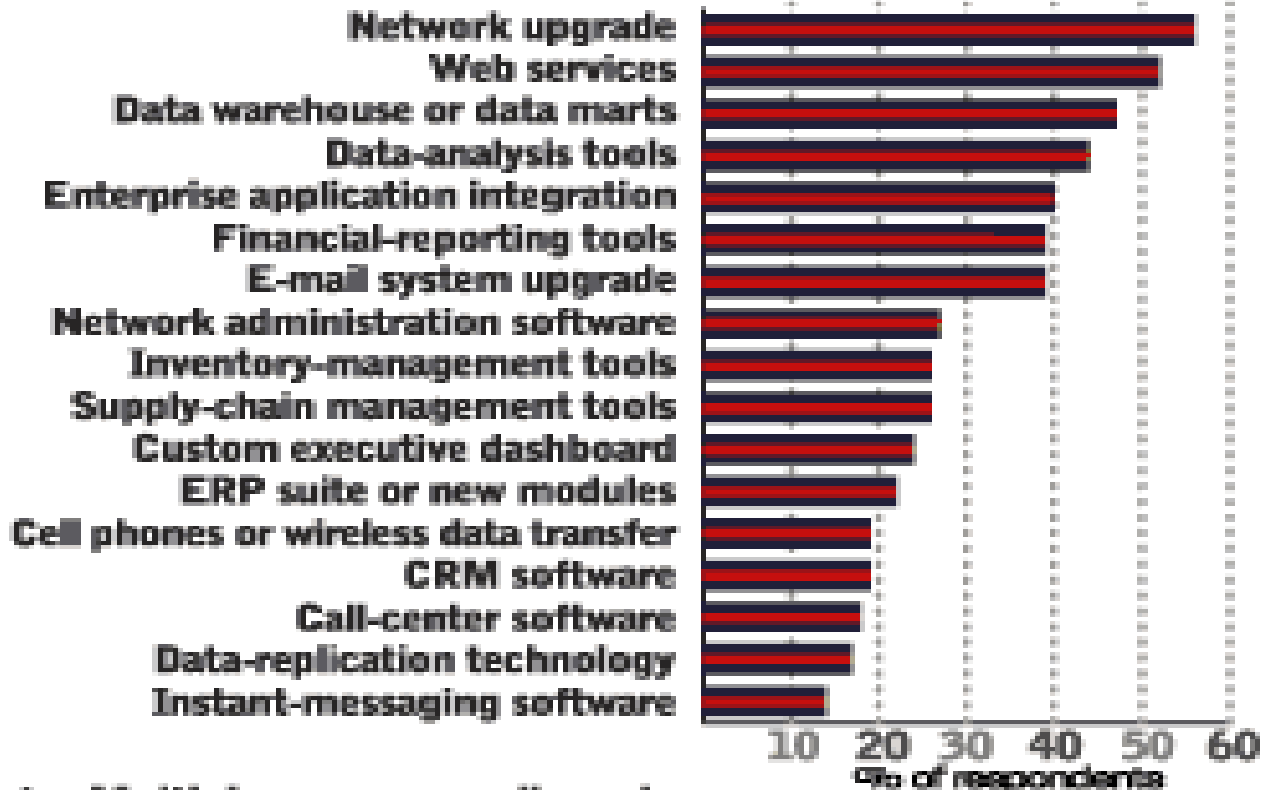
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**NOW YOU'RE TALKING  
E-BUSINESS.**



# Road To Real Time

What key investments did your company make in the past 12 months to compress the time it takes for operational data to reach managers' desks?



Note: Multiple responses allowed.

Data: InformationWeek Research Real-Time Business survey of 467 business-technology professionals

**I N F O R M A T I O N W E E K R E S E A R C H**

# From Reengineering to “Re-Everything”

**OLD**

**NEW**

**ERP / BPR**

**Inter-Enterprise**

**Reengineering**



**Rationalization**



**Automation**



**“Re-Everything”  
Business Model Innovation**

- **Internal Business Processes ... Inter-enterprise decisions**
- **ERP ..... Post-ERP – CRM and SCM**
- **Componentization of ERP Systems**
- **ERP ..... EAI, ASPs, Meta-ASPs**

## Real Time Sept. 16, 2002

### Businesses aren't even close to harnessing all the benefits of their lightning-speed systems

By John Foley

In the second it takes to read this sentence, a top-end server can handle 10,000 electronic transactions. An Intel chip can process billions of instructions. An Oracle database with 3 terabytes of information can answer more than seven ad hoc queries. In today's computing environments, speed of light isn't hyperbole -- it's the velocity at which bits actually move through optical fiber.



Yet most businesses have only begun to harness all that latent speed. Despite a cost-performance ratio that has made state-of-the-art computers affordable even to small companies, few have come close to exploiting the time-compressing benefits of those systems. This gap between system potential and operational reality hasn't gone unnoticed. In a just-completed survey by *InformationWeek Research*, three-quarters of the business-technology managers responding say senior executives at their companies have asked their IT departments to shorten the time it takes to deliver key operational data. And 86% of respondents think their companies would gain competitive advantages if they reduced the time it takes to collect, analyze, and redistribute data.

Senior management and business technologists alike sense an opportunity. "Time is money" is something that resonates with everyone," says Anne

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**FOR MULTI-PLATFORM PERFORM  
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DB2 WINS OVER ORACLE.**



## What is KM – 2 Perspectives from ‘Darwin’ Based upon the ‘Knowing What You Know’

- "Knowledge is the **right information** put into use in the **right way** at the **right time**, whereas information is merely the amalgamation of various data sets within a specific context." - Darwin Magazine, July, 2001
- "Knowledge management is fundamentally active... people need to have access to the **right information** at the **right time**. Knowledge management needs to be proactive, tightly integrated with business processes and integrally related to day-to-day operational activities." - Darwin Magazine, July, 2001

# PRESENCE AWARENESS & IM => FOR KM




InformationWeek > Instant Messaging > Who Goes There? > August 29, 2002 - Netscape

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Baildon is looking forward to using presence awareness widely, too. For instance, when a Ryder call-center representative doesn't know the answer to a question, presence awareness would make it possible for the rep to quickly locate someone with the required expertise, have a brief IM exchange, and ultimately provide a better answer for the customer. Or a dispatcher with an emergency shipment could use presence awareness to find dispatchers who know the locations of the closest trucks with spare capacity.



That's exactly the kind of interaction Ram Gupta, executive VP of products and technology at PeopleSoft Inc., thinks his company needs to offer. Last week, PeopleSoft said it's investing R&D dollars to incorporate presence awareness in future products.

Other vendors are already there. IBM's Lotus Software division is readying a version of Sametime with a toolkit that enables tighter integration with other Lotus software and that can be used to embed presence awareness throughout a company's IT systems. For example, Sametime functionality will be embedded in the next version of Lotus' Quickplace online workspace application. In June, Lotus released a version of its document-management software, Domino.doc 3.5, which incorporates Sametime. Lotus plans in a subsequent release of

>> *Comment ça va? ΣΠΕΚ ΣΕΡ*

>> Click for IBM's latest integration white paper.

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# Knowledge Generation

- Information, Knowledge and Actions
  - Based on Experiences, Values, Rules
- Conscious and Intentional K generation
- Five modes of knowledge generation:
  - Acquisition
  - Dedicated Resources
  - Fusion
  - Adaptation
  - Knowledge Networking



## K Generation – Process or ‘Thing’: Acquisitions

- NIH Syndrome – Other Extreme
- Acquiring other firms, practices, individuals
- **Minds more valuable than their creations??**
- K and talent – not related to degrees??
- Valuation of companies – difficult!
- Organic connection of K to particular people and environment “stickiness”
- **Ecology of Knowledge**

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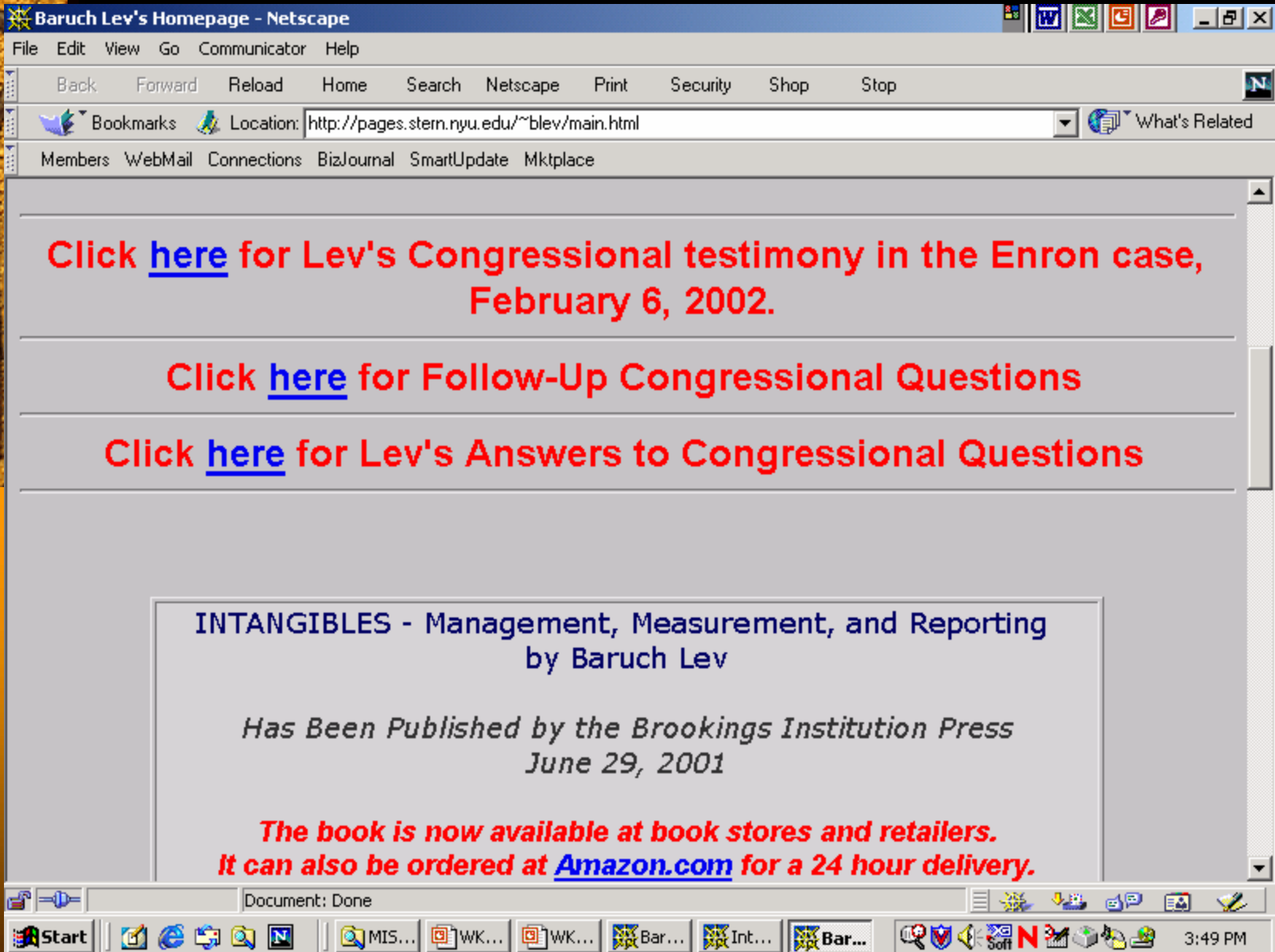
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**Intangibles - Measurement & Management**

1. **Announcement:** Lev's Book: [Intangibles-Management, Measurement and Reporting](#) has been published by the Brookings Institution Press. Get your copy now at book stores and retailers.
2. Paper with Feng Gu: [Intangible Assets](#), discussing Lev's methodology for measuring intangible assets.  
- [intangible-assets.doc](#)  
- [intangibles-tables.ppt](#) (*Accompany Tables in Microsoft Powerpoint*)
3. Paper with Feng Gu: [Markets in Intangibles: Patent Licensing](#),  
- [patent-licensing.doc](#) (*Microsoft Word*)  
- [patent-licensing-tables.doc](#) (*Microsoft Word*)
4. *April 16, 2001* - ["Accounting Gets Radical"](#) - Fortune
5. *April 2001* - ["Knowledge Capital Scoreboard: Treasures Revealed"](#) - CFO online
6. *May 10, 2001* - [Interview with Baruch Lev](#) - *(in spanish)*



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# W. Brian Arthur

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**Citibank Professor, Santa Fe Institute**

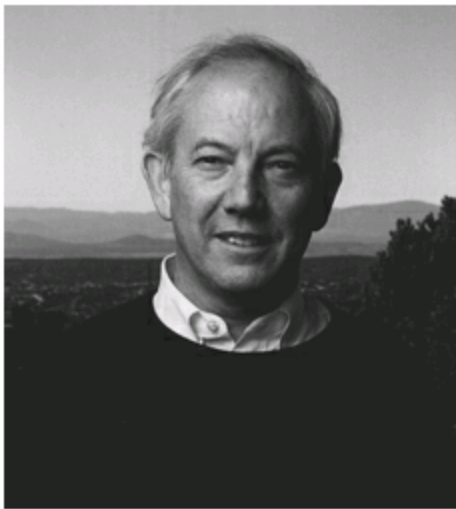
Schumpeter Prize in Economics 1990; Guggenheim Fellow, 1987-88; Fellow of the Econometric Society

Dean and Virginia Morrison Professor of Population Studies and Economics, Stanford; Professor of Human Biology, Stanford, 1983-1996

Member, Board of Trustees, Santa Fe Institute. Director, Economics Research Program, 1988-90 and 1995-96, Santa Fe Institute

Ph.D in Operations Research, Univ. Calif. Berkeley, 1973; MA in Mathematics, Univ. Mich., Ann Arbor, 1969

**Research Interests**



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## Dedicated Resources

- Contrast with ‘renting’ the brains
- R&D, Competency development groups, technology research centers, Xerox PARC
- Stickiness to dedicated centers may pose problems – gap between r&d and execution

## Fusion

- ‘Creative Abrasion’ and ‘Creative Conflict’
- Innovation occurs at the boundaries between mind-sets, not within...
- ‘Requisite variety’ and creative chaos
- Redundancy, routine innovation and spillover effects ??
- How often executives question ‘what they know’?






## Adaptation

- Self-organizing and CASs
- Success traps and the winner's curse
- Learning and unlearning – organizations
- “Why fix when it ain't broken!”
- Anticipation of surprise – proactive change
- Developing Requisite Variety – openness to learning, change and adaptation

## Networks

- Informal, self-organizing networks
- Communities of knowers, COPs
- Formal networks versus informal networks?
- Teams versus Communities of practice??
- Informal knowledge sharing – how to enable it – role of technologies and of other factors... (Hoeschst example)



## New Knowledge – Old Knowledge


**Obstacles create opportunities, in his view. In fact, according to the author, we need ambiguity to create profit. "Common risks lead to common returns," he writes. "The opportunity to profit comes from uncertainty." Careful to distinguish profiting from profiteering, he says the goal of industry decision makers should not be to capitalize on hardship or heartbreak, but to benefit from anticipating and preparing for the possibilities.**

# New Knowledge – Old Knowledge


**KM is "obsoleting what you know before others obsolete it and profit by creating the challenges and opportunities others haven't even thought about"- Yogesh Malhotra**

**- Quoted in *The Data is Key!*, Defense Information Systems Agency (DISA) Interoperability, Directorate, United States Navy Presentation to CALS/EC International Symposium, January 2001, Tokyo, Japan.**

## **New Knowledge – Old Knowledge**



**"Many definitions exist for knowledge management. If one were to explore a common theme however, it would be that markets and consumer demand are not static, nor are they fixed. The environment in which we do business is constantly changing, and changing at an increasingly faster rate. To meet the needs of this rapidly changing environment, an organization must be aware, flexible, responsive, and proactive in seeking that which is new or which is yet to be, thus be prepared for new and emerging business models..." [continued] - Verisign White Paper**




## New Knowledge – Old Knowledge

"This is reflective of Dr. Yogesh Malhotra's suggestion that companies should **"profit by creating the challenges and opportunities others haven't even thought about."** Strategic efficiency, founded in effective communication, planning, and decision making at every level of the organization, is the only way to achieve this goal. Knowledge Management, in turn, drives strategic efficiency, not only through technological efforts but also, and more importantly, through the efforts of the employees within **the** organization."

- Verisign White Paper

## New Knowledge – Old Knowledge



"However as Malhotra says, "the new business model in the Information Age is marked by fundamental, not incremental change. **Businesses can't plan long-term; instead, they must shift to a more flexible 'anticipation of surprise' model. Thus it is impossible to build a system that predicts who the right person at the right time even is, let alone what constitutes the right information."**

- *Quoted in Knowledge Management - The Evolution Of Man And Machine, Knowledge Management, Corporate Portal Series, Microsoft Corporation, Europe*

## From Information to Knowledge

- Knowledge, Information, Data
- K versus I; KM versus IM ??
- Tacit Knowledge and Explicit Knowledge??
- Relate to Change... SR – UN ??
- Information and Noise ?? Construction of Meaning versus Processing of Information
- Too much data... too little wisdom



## Myths About Knowledge Management Information vs. Knowledge

- MYTH: KM technologies deliver the **right information** to the **right person** at the **right time**
- MYTH: KM technologies can **store** human **intelligence** and **experience**
- MYTH: KM technologies can **distribute** human **intelligence**

“Knowledge management is in danger of being perceived as so seamlessly entwined with technology that its **true critical success factors** will be **lost** in the pleasing hum of servers, software and pipes.”

-- Does KM=IT?, *CIO Magazine*, Sep. 15, 1999



## Beyond Information Flow to K Flow

- HP – Moving its ‘best practices’
- Tacit Knowledge and Explicit Knowledge
- Subjective Tacit Knowledge (based on experience) to Objective Explicit Knowledge ??? - RS - NU
- Three fundamental steps: ??
  - K Acquisition
  - K Sharing
  - K Utilization



# Professional Intellect: Know What to Care Why

- ‘Care-Why’ – W - Insights
- ‘Know-Why’ – K - Expertise
- ‘Know-How’ – I - Experience
- ‘Know-What’ – Data – ‘Bookish knowledge’
- Motivation, commitment, intrinsic nature of K-W

## Knowledge Utilization

- Telephone as role model of KMS???
- Of Telephones and CrossPads....
- Supporting Informal Knowledge – Amazon
- Perils of Excessive Formalization – RS / NU ??



# Differences: Data Warehouses and KMS

- Types of Information Managed
- Context
- Size
- Content Focus
- Performance
- Networks

## Differences: KMS, Intranet and Extranet

- Content Focus
- Performance
- Broader Base (confusion: BI and DA)
- Reciprocity – How to develop? Silver bullets?
- Is this one the silver bullet?



## How Companies Learn to Learn

- Knowledge-Friendly Companies
- Knowledge-Sharing Companies
- Is Your Company Ready for KM?
  - Performance gaps
  - Metrics
  - Corporate Culture
  - Knowledge Champions
  - Strategic Alignment      Of 4Cs and 5Cs!