

Push-Pull

performance-based

Knowledge Management Systems

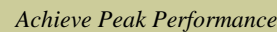
A performance-based view of KMS . . .

...for the sake of the enterprise shareholders,
customers, employees, and suppliers

Originally authored by:

Guy W. Wallace

for the ISPI Conference in April 2001

The logo for EPPIC Inc. features a blue wavy line above the text "EPPIC Inc." in a bold, blue, serif font.The tagline "Achieve Peak Performance" is written in a black, italicized serif font and is positioned on a light green rectangular background.

Session Description

This session will present

- ▶ The marketing concept of **push-pull** as it applies to performance-based **Knowledge Management Systems (KMS)**
- The use of **ISD methods** and customer-supplier teams to deliberately populate the KMS and
 - **Push** knowledge products to high-payback *processes* and *human performers* audiences
 - *Chunk and store* the knowledge products for additional, user friendly retrieval to meet the needs of **pull** audiences
- A KMS **business case** outline and **four KMS implementation stages**

Session Objectives

Participants will be able to

- ▶ Describe a **performance-based KMS**
- Describe the **push-pull** orientation to performance-based KMS to better ensure shareholder ROI
- Describe the **use of performance-based ISD and HPT methodologies** to populate a KMS
- Describe the **organizational teams** and their roles to implement, operate, and maintain a performance-based KMS
- Describe a **four-stage implementation plan** for KMS

Session Agenda

1. Session open
2. What is KM and KMS
 - Knowledge Management
 - Knowledge Management Systems
3. Push-pull KMS
4. Performance-based/push-pull KMS
5. Four stages of KMS implementation
 - The KMS business case
 - Calculating potential “returns” and “investment costs” for KMS
 - KMS teams, roles, and responsibilities
 - ISD methodologies in populating KMS
6. Session close



Guy has been in the T&D field since 1979 and an ISD consultant since 1982. He is the author of two books, more than 20 articles, and has presented more than 40 times at ISPI conferences and local chapters.

He is currently the treasurer and on the 1999–2000 Board of Directors of ISPI.

Key Areas of Expertise

Performance Modeling (PM)

Since 1979, Guy has conducted more than 150 group process Performance Modeling sessions.

Curriculum Architecture DesignSM (CAD)

He has conducted 71 performance-based CAD projects since 1982.

Modular Curriculum DevelopmentSM (MCD)

Guy has conducted more than 35 performance-based MCD projects since 1982.

Instructional Activity DevelopmentSM (IAD)

He has designed and developed more than two dozen performance-based simulation exercises for performances covering labor relations, high-tech product management, sales, ISD, plus many others.

ISD Project Planning and Management

Guy is the lead author of CADDI's *lean-ISD* methodologies of the planning and management of the PACTSM Processes for T&D.

Group/Team Process and Facilitation

Guy has facilitated more than 300 group meetings to accomplish both human performance and business process improvement goals.

<u>#</u>	<u>Company</u>	<u>Target Audience</u>	<u>Year</u>
#71	Verizon Communications	Consumer Sales Center Personnel	2001
#70	GTE Service Corporation/Verizon	Billing Center Personnel	2000
#69	General Motors University	Brand Management—Europe	1999
#68	Eli Lilly and Company	District Sales Managers	1999
#67	General Motors University	Brand Management—North America	1999
#66	BankAmerica Corporation	Financial Relationship Managers	1998
#65	General Motors University	Internal Controls	1998
#64	Siemens Building Technologies, Inc.	Sales Engineering	1998
#63	General Motors University	MFD Area Managers	1998
#62	General Motors University	Global Dealer Auditors	1998
#61	BankAmerica Corporation	Retail Branch Personnel	1997
#60	Eli Lilly and Company	Leadership and Management	1997
#59	General Motors	Tool & Die Supervisors	1997
#58	Bandag, Inc.	Franchise Dealership Management Personnel and Bandag Sales Personnel	1996
#57	Amoco	Coaching and Support	1996
#56	Amoco	Project BEST	1996
#55	Bellcore Tech	Web Masters	1996
#54	General Motors	Product Engineers	1996
#53	Sphinx Pharmaceuticals	Combinatorial Chemists	1996
#52	Valuometrics, Inc.	Associate and Senior Associate	1995
#51	Ford Motor Company	Engineering	1994
#50	AT&T Network Systems	Global Contract Management	1994
#49	Novacor, Corunna Site	Operations Management and Self-regulated Team	1994
#48	Spartan Stores/ISSC	Companywide	1993
#47	Data General	Sales	1993

Guy W. Wallace's ISD via CAD Project History

(continued)

<u>#</u>	<u>Company</u>	<u>Target Audience</u>	<u>Year</u>
#46	Abbott Laboratories	Market Management, Product Management, and Sales Management	1993
#45	Hewlett Packard	Order Fulfillment (Order Processing, Quotes, Collections)	1993
#44	Amoco	Team Training	1993
#43	Imperial Bondware/Federal Paperboard	Sales Training	1993
#42	Commerce Clearing House (CCH)	Sales Representative and Sales Management	1993
#41	AT&T Network Systems	Product Management and Market Management	1993
#40	Ford Design Institute	Engineering	1992
#39	Detroit Ball Bearing	Field Sales Managers	1992
#38	Digital Equipment Corporation	Program Management	1991
#37	British Petroleum—America	Front-line Retail Personnel	1991
#36	General Dynamics	Electrical/Electronics Assembly	1991
#35	General Dynamics	CATIA System Designers	1991
#34	General Dynamics	MRP II - Manufacturing Personnel	1991
#33	General Dynamics	Software Engineering	1991
#32	Hewlett Packard	Information Technologists	1991
#31	AT&T Network Systems	Marketing Personnel	1991
#30	Occidental Petroleum Labs	Laboratory Personnel	1991
#29	NCR	Supply Line Management	1990
#28	Square D	Quality Training	1990
#27	General Dynamics	Composites Bonding & Fabrication	1990
#26	ARCO Alaska	AMPS	1990

Guy W. Wallace's ISD via CAD Project History

(continued)

<u>#</u>	<u>Company</u>	<u>Target Audience</u>	<u>Year</u>
#25	Hewlett Packard	Information Technologists	1989
#24	General Dynamics	Quality	1989
#23	Ameritech	Network Services Management	1989
#22	Ameritech	Distribution Services Second-level Management	1989
#21	AT&T Network Systems	Network Systems Sales	1989
#20	Northern Trust Bank (Chicago)	Trust and Financial Services	1988
#19	AT&T Microelectronics	Product Management	1988
#18	AT&T Network Systems	Switching Business Unit Sales	1988
#17	Dow Chemical	Safety Training	1987
#16	NASA	Middle Manager	1987
#15	AT&T Network Systems	Product Manager	1986
#14	Illinois Bell	Second-level Manager	1986
#13	Illinois Bell	Data Technician	1986
#12	Multigraphics	In-Branch Sales Orientation	1986
#11	Dow Chemical	Secretarial/Administrative	1986
#10	Dow Chemical	Top Operator	1986
#9	MCC Powers	Fire and Security	1985
#8	Alcoa Labs	Scientists, Engineers, Technicians, and Administrative	1984
#7	AT&T	AETM	1984
#6	AT&T	Switching Technician	1984
#5	Burroughs	Information Specialists	1984
#4	Westinghouse Defense Electronics	Technical Operators (WICAM/IAG)	1983
#3	Channel Gas Industries/Tenneco	Fixed-rate Personnel	1983
#2	MCC Powers	ATC Branch Personnel	1983
#1	Exxon Exploration USA	Geologists/Geophysicists	1982

What Worries Me about KMS

- ▶ A lack of business-based thinking and approaches to KMS planning and decision-making
- A lack of focus on ROI for KMS efforts and investments
- Development of a philosophy and software tools to allow SMEs to create content for the KMS versus using ISD and HPT methods
- Dialogue about whether or not learners should always finish their modules (from the e-learning world)

What Is KM and KMS?

While Knowledge Management has many definitions, most definitions include

- ▶ Knowledge as **intellectual capital**
- ▶ The **capture, storage, and dissemination** of knowledge

For our purposes here

**KM is intellectual capital that is
captured, stored, and disseminated
to both protect and improve the enterprise**

What Is Knowledge?

There are two primary “types” of knowledge

- **Explicit knowledge:** documented knowledge
- **Tacit knowledge:** nonrecorded or nonexchanged knowledge

Explicit
<ul style="list-style-type: none">• Policies• Procedures• Copyrights• Patents• Databases• Etc.

Tacit
<ul style="list-style-type: none">• Tricks of the trade• Insights• Lessons learned

Explicit is easier to capture, tacit is harder to capture for Knowledge Product development/deployment

Examples of Content for KMS

KM content for Knowledge Products can include

- Best practices
- Lessons learned
- Policies
- Procedures
- Job aids/EPSS
- Databases
- Tools
- Templates
- *Examples* of various documents

The goals include reducing “reinventing the wheel” and/or “starting from ground zero” for each performance effort

What Is a KMS?

KMS is a **system** for the **capture, storage, and dissemination** of *knowledge*

Enterprise KM systems will require

- A knowledge-sharing culture
- Reinforcing consequences (positive and negative)
- KM policies, procedures, processes, and clear performer roles
- Staff and infrastructure
- A knowledge repository and distribution mechanism
 - Usually an **electronic warehouse** and **intranet-Internet accessibility**

Why KM and KMS?

What business rationale is there for considering and implementing KMS?

- To **protect** and/or **improve** the enterprise
- **Protect** – via provisioning Knowledge Products that guide *process performance* and support compliance with external laws and regulations and internal policies and procedures
- **Improve** – via provisioning Knowledge Products that guide/streamline *process performance* using
 - Job aids (paper/EPSS), tools, templates, best practices, lessons learned, and examples of process outputs (plans/documents)

KMS – to protect and improve the enterprise

Performance-based KMS

Performance-based KMS

- ▶ Is where all Knowledge Products within the KMS
 - Are *required to know* for enterprise process performance
- None of the content is *nice to know*

This is where our ISD and HPT methodologies
become part of the KMS effort

more on this later

KMS – to protect and improve the enterprise

Push-Pull

A marketing concept where “products” are *deliberately pushed* to certain target audiences, while other audiences are *enabled to pull* content from the product distribution system

Push examples

- Nonrequested credit cards in the mail
- Free trial magazine subscriptions

Pull examples

- Credit cards at your bank
- Magazines available in stores

Push-Pull performance-based KMS

This is a Knowledge Management System where all Knowledge Products

- ▶ Are “required to know” for critical enterprise process performance
- Are *deliberately pushed* to certain target audiences, while other audiences are *enabled to pull* content from the KMS product distribution system
 - Only **push target audiences** are addressed fully
 - **Pull target audiences** are partially addressed (if at all)

KMS and E-learning

If

▶ “E-learning” is simply the *electronic distribution* of training content to facilitate learning

- “E” is a distribution channel to **push** T&D to certain target audiences faster and cheaper, *and* allows other target audiences to **pull** T&D more readily

Performance-based T&D should/could always include

- Best practices
- Lessons learned
- Policies/procedures
- Job aids/EPSS
- Templates
- *Example* plans
- *Example* documents

There isn't really much difference between KMS and e-learning today, or there really doesn't have to be any difference!

KMS and E-learning

- ▶ Any prior distinctions between **KMS** and **e-learning** and **traditional T&D** are blurring
- E-learning's infrastructure today can deliver and make accessible a **blend** of various types of "knowledge products" including
 - WBT: Web-based training
 - ILT: instructor-led training

For our purposes here,
T&D, e-learning, and KMS are the same
in terms of their ability to become Knowledge Products

Finish KMS e-learning Modules?

Should e-learners finish their KMS modules?

Questions such as this are being asked endlessly in magazines and journals targeting training & development and e-learning

The short answer is . . .
Yes if "Push" . . . Maybe if "Pull"

*. . . but first things first . . .
Is there business rationale for KMS
and module completion?*

Planning the KMS Implementation

Four stages for KMS implementation

- ▶ **Stage 1 – KMS Business Case Development**
- ▶ **Stage 2 – KMS Processes and Infrastructure Development/Deployment**
- ▶ **Stage 3 – Initial KMS Content Development and Implementation**
- ▶ **Stage 4 – Ongoing KMS Operations and Maintenance**

Business Case Development

A business case helps to prove that a KMS makes **business sense** in terms of the **investments** required given the **returns**;

this will require

- Determining both potential **ROI** and **strategic fit**
- Defining the enterprise **needs** and **financial stakes** (protect and improve)
- Planning and conducting **benchmarking** efforts
- **Sizing** and **costing** the KMS initial development and ongoing operations for both infrastructure and content
- Establishing KMS **goals, mission, and vision**

Business Case Content and Formats

Business Case Contents

- The business need
 - ▶ to protect and improve: what and why

- The response
 - The KMS systems needed
 - How it would work
 - How it would be structured

- The financials
 - Investments needed
 - Returns forecasted

Business Case Formats

- Use an existing business case as a template and edit it!

Focus on ROI as well as the “costs for doing nothing”

Return on Investment

$$\text{ROI} = \frac{\text{Returns} - \text{Investment Costs}}{\text{Investment Costs}}$$

Why invest \$100.00 if you'll only get \$90.00 in return?

Potential “Returns” for KMS

Note: hard data is hard to come by regarding ROI for KMS

But, if your KMS could increase revenues by 5 percent and reduce your operating costs by 5 percent, a \$20 million business operating with a 20 percent profit margin would have returns equaling \$1.8 million

5 percent of \$20 million revenues = \$1 million
5 percent of \$16 million expenses = \$800,000.00

And, a \$200M enterprise’s return would be \$18M; a \$2B would return \$180M; and a \$20B would return \$1.8B

KMS Returns

What are the potential returns for a performance-based KMS?

Returns can come from either or both

▶ **Reduced costs**

- Reduced performance cycle times
- Reduced/eliminated errors and rework

▶ **Increased revenues**

- From use of feed-up time and resources
- From new products or product innovations

In short: **better, faster, cheaper** *and new*

KMS Investment Costs?

KMS investment costs must include both *first costs* and *life-cycle costs*

- First costs

- Infrastructure development
- Knowledge Products development/acquisition (capture)

- ▶ Life-cycle costs

- Infrastructure operations
- Knowledge Products administration and maintenance

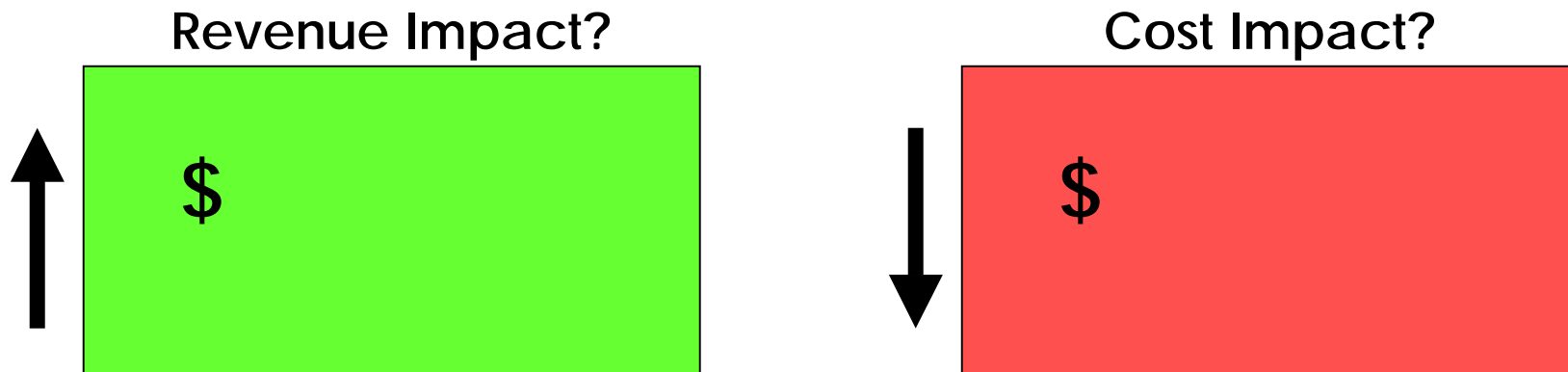
It is estimated that only 20 percent of the total costs of KMS is related to hardware and software. The rest are for Capture – Administration – Maintenance

ROI – Do Your Math for Your “R”

At any level, enterprise – business unit – departmental
what’s a reasonable figure for your focus? 2% — 5% — 10% — ???

Calculate a ___ percent potential **increase in revenues** if that “level” generates revenues (for profit centers)

Calculate a ___ percent potential **decrease in costs** (for both profit and cost centers)



Do the ROI Math

$$\text{ROI} = \frac{\text{Returns} - \text{Investment Costs}}{\text{Investment Costs}}$$

Potential **Returns** \$:

\$ _____ for _____
\$ _____ for _____
\$ _____ for _____
\$ _____ for _____
\$ _____ for _____
\$ _____ for _____

Total "R": \$ _____

Potential **Investment** \$:

\$ _____ for _____
\$ _____ for _____
\$ _____ for _____
\$ _____ for _____
\$ _____ for _____
\$ _____ for _____

Total "I": \$ _____

(\$ _____ Returns minus \$ _____ Investments) divided by \$ _____ Investments

KMS Processes & Infrastructure Development/Deployment

Development *and* deployment of the following processes and the required environmental and human infrastructure:

- ▶ Knowledge Product **analysis and design/development processes** and **deployment processes** (for **push**) and **access processes** (for **pull**)

- ▶ Infrastructure – **Environmental Assets**
 - Data/information
 - Facilities/grounds
 - Equipment/tools
 - Materials/supplies
 - Budget
 - Organization/job design
 - Consequences

- ▶ Infrastructure – **Human Assets**
 - Staff with the right knowledge/skills/attributes/values

KMS Roles and Responsibilities

The key teams for KMS include

- ▶ Customer-side roles
 - Governance board
 - Advisory groups
 - Communities of practice and/or performers
 - Coaches
 - Learners

- ▶ Supply-side roles
 - Analysts
 - Designers
 - Developers
 - Facilitators

Governance and Advisory

Governance Board

- ▶ “Owns” the KMS on behalf of the shareholders/owners
- ▶ Is responsible for all KMS ROI and the support and achievement for strategic initiative
 - Need to target “mission-critical” processes and audiences for investment in KMS knowledge products’ capture-storage-dissemination

Advisory Groups

- ▶ Advise the governance board on where and how to operationally target KMS investments for both financial and strategic returns
- ▶ Oversee the capture and maintenance efforts required
 - Identify master performers and subject matter experts to represent the processes and audiences targeted

KMS – to protect and improve the enterprise

Communities of Process/Performers

Communities of "Process"

- ▶ Are enterprise process (target process) focused
- ▶ Provide a cross-functional orientation
- ▶ Provide a content source for ISD efforts
- ▶ e.g., strategic planning processes, supplier qualification processes, new product development processes

Communities of "Performers"

- ▶ Are enterprise performers (target audience) focused
- ▶ Provide a functional discipline orientation
- ▶ Provide a content source for ISD efforts
- ▶ e.g., ISD professionals, electrical engineers, programmers, counter sales staff

**Note: Select one approach to addressing content capture—
either processes or performers**

Learners and Coaches

Coaches

- Help transfer knowledge (explicit and tacit) to the learners/users as on-the-job coaches and mentors, as well as classroom instructors and facilitators

Learners

- ▶ These are the users of KMS and can/should include anyone/everyone—as either **push** or **pull** target audiences

ISD Roles

Using traditional and nontraditional ISD methods to capture and maintain Knowledge Products

ISD Analysts

- ▶ Determine both the performance requirements and the enabling K/S

ISD Designers

- ▶ Chunk and “tag” (e.g., S.C.O.R.M.) content objects for both push and pull audiences

ISD Developers

- ▶ Develop content within “e” (electronic) or “t” (traditional) templates for storage and assembly (for push) and retrieval (for pull)

ISD Facilitators

- ▶ Deploy content as instructors/coaches/facilitators

Initial KMS Content Development and Implementation

- ▶ The initial KMS content is captured (created), stored, deployed (for **push**), or retrieved (for **pull**)
 - This is costly; and, according to our model, only push-audience needs are addressed, but addressed (chunked and stored) in such a manner as to facilitate related pull-audience needs
 - By definition, the needs of pull audiences never warrant meeting those needs; if we discover that there is a return on meeting those needs, then the pull becomes push

Using ISD/HPT for KMS

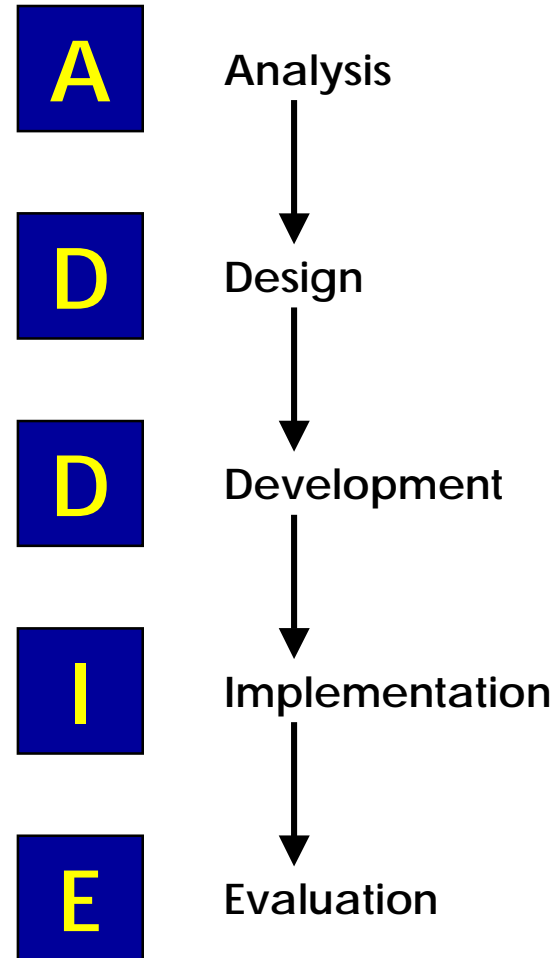
ISD and HPT methodologies can be used to capture/store/disseminate KMS content for *performance-based* Knowledge Products

- ▶ Awareness/knowledge/skills *via capture, storage and dissemination of*
 - Best practices
 - Lessons learned
 - Policies/procedures
 - Tools/techniques
 - Job aids/EPSS
 - Templates
 - *Example* documents
 - Etc.

Traditional ISD via ADDIE

A *traditional* **ADDIE**-type methodology can be used (with some adaptations) as a “framework” to incrementally define and develop knowledge products

- ▶ Determine the
 - *Terminal performance requirements*
 - *Enabling knowledge and skills*
- ▶ Design content *structure* and *presentation*



Nontraditional ISD

Nontraditional ISD methods also can be used to **holistically architect** the entire KMS product line for broad or narrow **target audiences**

This will facilitate reuse design strategies that traditional ADDIE models/methods don't address

- Use nontraditional ISD methodologies such as
 - CADDI's PACT Processes for T&D: Curriculum Architecture Design and Modular Curriculum Development methodologies
 - Other adapted ISD methodologies that go beyond the traditional ADDIE approach of one course/set of curricula at a time and have proven content chunking strategies

Ongoing Operations and Maintenance

- KMS systems are administered and Knowledge Products are deployed to *push* audiences and made accessible to *pull* audiences
- KMS content is maintained as needed
- KMS infrastructure is maintained as needed

Note: Not all potential content should be shared over the enterprise KMS, as it might make it much easier to find its way to the competition or violate various laws/regulations and internal policies

KMS WARNING !

If your KMS “capture-store-dissemination” systems and processes allow just **any and all types of content** into your KMS, you might end up with

- Diminished and unpredictable ROI
 - Uncontrolled first costs and life-cycle costs and questionable returns
 - A lot of “nice-to-know”/“low-hanging fruit” content
 - Redundant content and the expenses for redundant capture-storage-dissemination
 - Obsolete knowledge products negatively affecting enterprise process performance that is too expensive to properly administrate/maintain

**Do the math – push content to key targets and make it accessible for nonkey targets.
Don't serve EVERYONE'S needs. Your enterprise can't afford it!**

Session Close

Objectives review

- ▶ Describe a **performance-based KMS**
- ▶ Describe the **push-pull** orientation to performance-based KMS to better ensure shareholder ROI
- ▶ Describe the **use of performance-based ISD and HPT methodologies** to populate a KMS
- ▶ Describe the **organizational teams** and their roles to implement, operate, and maintain a performance-based KMS
- ▶ Describe the **four-stage implementation plan** for KMS

Thank you for your time, attention, and feedback