

**Knowledge Management and Scottsdale Institute
KM Benchmarking Study Report**

Produced for

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**Benchmarking Study Participants only were provided with member specific results*

Executive Summary

Knowledge Management as a global concept

Knowledge management (KM) is a business concept that emerged and gained strength in the 1990s. In their book “What’s the Big Idea?” (Harvard Business School Press, 2003) authors Tom Davenport and Larry Prusak provide a compact history of the emergence of the KM concept and where it is today. For example, they note that in 1994 Ernst & Young’s Center for Business Innovation offered the first public conference on KM and in 1995 the University of Texas business school offered the first course on KM, yet by 2000 there were more than 50 KM conferences offered throughout the world, and currently at least 3 research institutes are dedicated to better understanding knowledge, and courses on KM are now taught at more than 30 business schools worldwide. KM initiatives have been embraced by corporations, governmental agencies, and nongovernmental organizations such as the World Bank, the International Monetary Fund, and the United Nations. Different approaches are used but the primary common theme is the intentional use of people, process, and technology to transfer successful practices and simplify access to critical insights and knowledge to yield improved decisions and organizational performance.

KM in healthcare

More and more hospital systems and associations are focusing on ways to accelerate the adoption of successful practices, to yield improved clinical and operational performance, and to more readily embrace change and innovation. Transferring knowledge across geographic boundaries, even when there are no competitive issues, becomes a complex task, both technologically as well as socially. Acceptance and adoption of others’ ideas requires the provision of carefully orchestrated, context-sensitive, and trusted knowledge bases and collaboration structures.

Knowledge management in healthcare is "aligning people, processes, data and technologies to optimize information, collaboration, expertise, and experience in order to drive organizational performance and growth" according to a current KM special interest subgroup of the Healthcare Information & Management Systems Society (HIMSS), a multidisciplinary group of healthcare IT professionals, clinicians, managers, and consultants grappling with the application of the knowledge management discipline to the healthcare industry. The Scottsdale Institute was founded in 1993 as a not-for-profit corporation serving executive teams in leading healthcare systems, to assist members in understanding, deploying, and sharing successes in strategic initiatives involving information management and process improvement, thus KM is a natural outgrowth of this organization’s mission.

Scottsdale Institute KM Benchmarking Study

Ten Scottsdale Institute members elected to participate in the KM Benchmarking Study, although one participant, Parkview Health, chose not to be included in the final report. The participants were broadly distributed across the country, and also ranged from local to regional to national health systems. A description of each participant’s scope of operations is provided in this report.

This snapshot is much like a “freeze frame” in a movie, in that KM is a continually evolving concept in all of these organizations. The origins of KM in these SI members can be largely explained in either of two ways: (1) as a deliberate approach to “systemness”, often as a result of a merger, where the organization is trying to create a unified culture or way of doing things, resulting in an “intentional collaboration” effort; or (2) as an outgrowth of another strategic imperative, for example, embedding clinical knowledge into order sets or alerts in order to implement a clinical decision support system, organizing resources to yield improved clinical or business performance, or deliberately creating a catalyst to accelerate the adoption of innovative practices and technologies to dramatically advance the organization’s competitive position.

As a result, SI members tend to have made investments in KM by focusing on one or more of these three areas: Clinical Decision Support, Performance Improvement, and Multi-Site Collaboration Forums. The degree to which SI members have invested in these areas varies widely, as does the degree of overlap among the three focus areas.

In addition, the following patterns are also found:

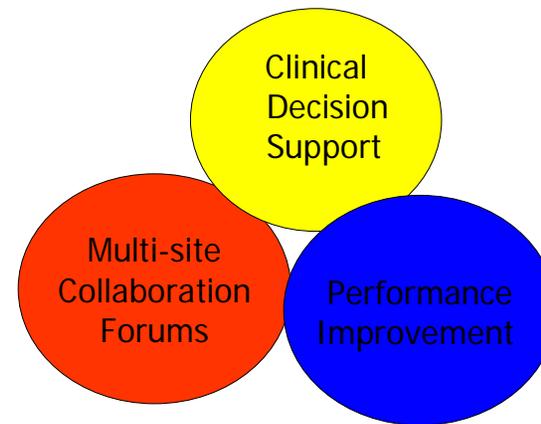
KM Organizational Fit: In most cases, KM seems to emanate from and is a part of a strategy tied to quality or performance improvement processes within the surveyed organizations.

KM Strategic Objectives: In most cases, KM strategy is linked to innovation, sharing of best practices, improving care, improved performance, or organizational change.

KM and IT Infrastructure: Most systems have fairly advanced IT infrastructure to support services like data warehouses, clinical information systems, electronic medical records (EMRs),



Major Areas of KM Focus Within SI



team web sites and collaboration sites. These systems are used to support KM activities, but many systems still struggle with maximizing the value of these systems from a KM perspective and face broad adoption issues among the target users.

KM Stage of Maturity: In general, most of the organizations view their KM maturity level as having developed preliminary goals and measures for KM with some formal organizational support (Stage 3), or as beginning to expand beyond initial pilots with promising results and an enterprise-wide focus (Stage 4). (Definitions of KM stages of maturity were derived from KM Benchmarking work developed by the American Productivity and Quality Center, whose work is described later in this report.)

Other study findings

Within this study group, SI members are beginning to define what knowledge they believe they must broadly disseminate among physicians and employees and even among trustees and consumers. Knowledge bases at member organizations tend to consist of these types of resources:

- Evidence-based – primarily shared through:
 - Clinical protocols, order sets, alerts
 - Business protocols, work flows
- Experience based – primarily shared through:
 - Lessons Learned debriefings
 - Facilitated collaboration forums
 - Connecting subject matter experts on demand
- Implementation based – primarily shared through:
 - Coaching, mentoring programs
 - eLearning infrastructure
 - Embedded in processes, e.g., IT systems, workflow redesign
 - Observation and modeling

SI members have also acknowledged these “lessons learned” based on their deployment of KM processes to date:

- IT has driven the standardization of processes in multi-site health systems
- Communications are key to creating a culture that embraces knowledge sharing
- KM linkages to organizational strategies are critical
- The concept of “best practices” is troublesome because “best” is only relevant in a specific context, and yet evidence based medical guidelines continue to fuel the debates about practice standards

- Web-based virtual collaboration tools can enhance - but are not substitutes for - cross-facility coordination and cooperation
- Clinical knowledge and business knowledge management efforts are sometimes but not generally related to one another.

Future considerations

The field of knowledge management is just beginning to take hold in the healthcare field. Although this study started with a focus on using technology to manage key organizational knowledge such as clinical care protocols, operational “best practices” and “lessons learned”, it is becoming better understood that social, cultural, and organizational factors have even more to do with whether a health care system is successful in embedding knowledge transfer in the way work gets done. Furthermore, accelerating the rate of adoption of innovations, evidence based medicine, and advances in medical technologies are certain to keep the topic in the forefront of any large and successful healthcare provider. Scottsdale Institute can play a critical role in modeling successful knowledge transfer and adoption in the way it engages its members in continued collaboration and knowledge exchange as it also continues to evolve and provide leadership to the field.

Introduction and Definitions

What is meant by *Knowledge Management*?

Knowledge Management (KM) as a management discipline emerged in the early 1990s as a deliberate business strategy to respond to the changing business environment that most global companies are now facing. According to Peter Drucker, (www.peter-drucker.com) “land, labor, and capital now pale in comparison to knowledge as the critical asset to be managed in today’s knowledge economy.”

Knowledge management is a contemporary business philosophy that represents the logical extension of three basic trends:

- the increasing amount of digitized information—text, pictures, audio, video—and the internet’s ubiquitous presence that makes this information readily available “24X7”;
- the globalization of business such that production can occur anywhere in the world and it is the knowledge of how to make products “better, cheaper, faster” that is the true source of competitive advantage; and
- the growing complexity of modern business that requires new business processes to deliver “the right information at the right time” in order to ensure accountability and reduce the risk of mistakes.

In other words, there is more “stuff” out there to process; our ability to process mass quantities of information efficiently is what defines success; and processing information correctly requires that the context be considered in addition to the information so that we make appropriate judgments in our work.

Where is KM prevalent?

If you type “knowledge management” into Google, you will get over 25,400,000 hits! On Amazon.com there are currently over 2,090 books pertaining to the topic. So who are these companies using knowledge management approaches, and what have they learned to date? According to the American Productivity and Quality Center (www.apqc.org) , “Since 1995, APQC has led 17 consortium studies involving almost 400 organizations from around the world, to discover and learn best practices in KM. Over 80% of global companies now have some type of knowledge management focus in their operations. KM has become an established management concept and competency, and organizations around the world are using KM tools and principles to enhance bottom-line gains... that range from \$7 million to \$200 million annually with a median impact of \$15 million per year.”

Organizations such as the World Bank, the Pentagon, all of the branches of the armed forces, and many government agencies are using KM techniques and approaches (see www.km.gov for resources and additional references). Companies such as Halliburton, Ford, British Petroleum, Pillsbury, Texas Instruments, IBM, Caterpillar, and Xerox have seen significant results from utilizing a KM

strategy. There are different approaches used but the primary common theme is the intentional use of people, process, and technology to transfer successful practices and simplify access to critical insights and knowledge to yield improved decisions and organizational performance.

Why is KM relevant to healthcare?

Healthcare is not immune to these same pressures of increasingly digitized information, the need to access critical information generated across the country and even across the globe, and the sense of urgency about using the right information at the right time.

- *More stuff*--Jeff Goldsmith, the most prominent “futurist” and opinion leader in the healthcare industry (www.healthfutures.net), in his book, *Digital Medicine*, has declared that capturing, cataloguing, and retrieving clinical information affecting patient care decision making is the most critical issue facing most healthcare providers today.
- *Globalization*--Healthcare is delivered locally but national standards of “evidence-based medicine” are emerging and healthcare providers are increasingly expected to report on how they are performing compared to national standards of quality of patient care, and in response to globally available results of clinical trials and practice protocols.
- *More accountability*--The Institute of Medicine (www.iom.edu), in its landmark report, “Crossing the Chasm” called for reform of the healthcare delivery system by drawing attention to the alarming rate of medical errors in hospitals, where mistakes are made because of inadequate processing of critical knowledge at the point of care.

More and more hospital systems and associations are focusing on ways to accelerate the adoption of successful practices, to yield improved clinical and operational performance, and to more readily embrace change and innovation. Transferring knowledge across geographic boundaries, even when there are no competitive issues, becomes a complex task, both technologically as well as socially. Acceptance and adoption of others’ ideas requires the provision of carefully orchestrated, context-sensitive, and trusted knowledge bases and collaboration structures.

Context for KM for Scottsdale Institute

Knowledge management in healthcare is "aligning people, processes, data and technologies to optimize information, collaboration, expertise, and experience in order to drive organizational performance and growth" according to a current KM special interest subgroup of the Healthcare Information & Management Systems Society (www.HIMSS.org), a multidisciplinary group of healthcare IT professionals, clinicians, managers, and consultants grappling with the application of the knowledge management discipline to the healthcare industry.

Knowledge management is a topic of particular importance to healthcare IT leaders and therefore to the membership of Scottsdale Institute (SI). Healthcare information technology is now widely recognized as a strategic investment, not just the automation of existing work processes. As such, information management is progressing towards knowledge management, as it becomes clear that decision making is enhanced through improved access to data, information, and knowledge.

SI members routinely meet to exchange ideas, lessons learned, and other insights regarding the strategic deployment of information technology in their respective organizations. As such, SI is a KM vehicle, a forum for collaboration, a trusted source for the exchange of knowledge on IT issues and a potential platform for accelerating adoption of innovations and successful practices. As SI members individually explore where KM fits into an IT strategy, so might SI explore how KM techniques could be employed as part of how the organization functions, to play an even more proactive role in facilitating adoption of new ideas and practices.

In planning for the Spring Conference held in April 2004, several SI members requested that the topic of KM get discussed at a roundtable. An article in SI's newsletter, *The Information Edge*, expanded on the topic and highlighted what several SI members were doing to further how knowledge was captured, organized, and disseminated in their organizations ("Knowledge Management: Leveraging IT to Support Best Practices," March 2004, Volume 10, Number 3). Subsequently, a group of SI members agreed to participate in a KM Benchmarking Study, the first phase of which was to develop an inventory of what SI members were doing that could be called knowledge management. Interviews were conducted, and this report is the result of those interviews as well as additional informal conversations on the topic at the Spring Conference in April 2005.

Additional outcomes of the SI Benchmarking Study are intended to include a teleconference of participants to share and discuss findings and frameworks, and ongoing discussions within SI as to how KM techniques might be employed in the way SI supports its members.

Observations and Implications

Knowledge management outside of healthcare is increasingly defined in terms of “facilitated knowledge transfer” techniques designed to accelerate adoption of “best practices” across geographic sites to yield improved organizational performance. Within healthcare systems, this is also increasingly the focus, as hospitals seek to accelerate the adoption of successful or proven care processes and business protocols in order to consistently yield the best possible outcomes at the most appropriate cost. In some organizations, this focus on knowledge transfer is also being applied to the topic of “innovation diffusion” including technology adoption, as hospitals seek to rapidly evaluate and embrace medical and information technologies that are changing the way care is delivered and operations are managed.

Within this study group, SI members are beginning to define what knowledge they believe they must broadly disseminate among physicians and employees and even among trustees and consumers. The following patterns are evident among the SI members studied:

Types of Knowledge Shared:

- Evidence-based – primarily shared through:
 - Clinical protocols, order sets, alerts
 - Business protocols, work flows
- Experience based – primarily shared through:
 - Lessons Learned debriefings
 - Facilitated collaboration forums
 - Connecting subject matter experts on demand
- Implementation based – primarily shared through:
 - Coaching, mentoring programs
 - eLearning infrastructure
 - Embedded in processes, e.g., IT systems, workflow redesign
 - Observation and modeling

Other KM Activities and Common Themes

Other common themes that can be observed regarding SI member investments in KM activities include:

1. *Evidence-based medicine (EBM) guidelines are becoming embedded in information systems wherever possible.* Nearly all SI members are focused on clinical decision support systems with links to clinical knowledge repositories and embedded order sets and alerts.
2. *How to get an organization to comply with EBM guidelines is challenging.* Typically SI members acknowledge that it requires multiple channels for changing behavior, including:
 - Embed in information systems
 - Embed in equipment design
 - Create new team processes
 - Charter process improvement projects
 - Incorporate into educational curriculum
 - Provide rewards and incentives based on scorecards
3. *Communities of practice are more common among business managers than among clinicians.* The value of these ongoing collaborative forums can be understood as:
 - Trust building to encourage change
 - Learning through dialogue
 - Translation of ideas into facility-specific contexts
4. *At the core is the realization that the real challenge is organizational change management.* Accelerating adoption of successful practices, evidence-based guidelines, or innovative technologies is inherently a social process requiring intentional collaboration in order to yield changed behavior. Information systems tools and processes can facilitate this collaboration and access to knowledge but ultimately the success of a KM effort hinges upon executive level engagement in systematic cultural change.

SI members have also acknowledged these “lessons learned” based on their deployment of KM processes to date:

- **IT has driven standardization**
 - Formal processes have been developed to implement enterprise-wide solutions, systems, and processes
 - These processes are now being harnessed to address other enterprise-wide issues
- **Communications are key**
 - All affected by goals, standards, and guidelines need to be involved in shaping them

- **Link to organizational strategies is critical**
 - Knowledge exchange must be measurable and must result in attainment of strategic initiatives
 - It has been difficult to prove that improved knowledge sharing has improved results and outcomes but if knowledge transfer is focused on specific strategies it is easier to document its impact
 - Even with a strategic context it is difficult to determine accountability for compliance, as well as identifying the process for linking practice standards to targeted results
- **The concept of “best practices” is troublesome**
 - The designation of “best” is inherently context-specific, but sharing of “success” stories is essential to driving change
- **Web-based virtual collaboration tools can enhance** - but are not substitutes for - cross-facility coordination and cooperation
- **Clinical knowledge and business knowledge management efforts** are sometimes but not generally related to one another
- **KM initiatives are likely to be disjointed** because the concept is not well understood particularly across “silos” in the organization

Next Steps

SI members participating in the inventory of KM tools and processes can be profiled in two primary dimensions: the degree to which they are focused on clinical versus business knowledge exchange processes, and the extent to which they are focused on improving access to knowledge, linking knowledge access to performance, or making the knowledge actionable.

Improving Access to Knowledge

Initial KM efforts tend to focus on improving access to knowledge. The goal is to assemble knowledge in such a way that individuals can access stored knowledge in a manner that is context-sensitive, in that it is easy to search for information relevant in a particular situation or pertinent to a particular decision, and that critical and relevant knowledge is available at the time that a decision using such knowledge is being made.

In a clinical context, examples of tools used in this stage include:

- Clinical decision support systems (CDSS)
- Computerized physician order entry (CPOE) information systems
- Electronic health or medical records (EHR/EMR)
- Clinical data warehouse of historical patient files
- Evidence based medicine (EBM) guidelines and resources

In a business context, examples of tools used in this stage include:

- Learning management systems
- Policies and procedures on a corporate intranet
- Subject matter expert directories
- “Best practice” libraries
- Research “cybrarians” to respond to user requests

Linking Knowledge to Performance

As organizations evolve their commitment to KM infrastructure, they realize that it is not enough to collect the knowledge but they must encourage their members to access and use the knowledge – they must focus less on creating the supply of knowledge and more on creating the demand for knowledge. In many healthcare systems, this takes the form of measuring outcomes or results and setting targets for improved performance. By linking performance results to knowledge resources, this can generate “demand” for relevant knowledge.

In a clinical context, examples of tools used in this stage include:

- Adverse drug event reporting
- Sentinel events tracking
- Quality indicators benchmarking

In a business context, examples of tools used in this stage include:

- Financial reporting
- Operational benchmarking
- Compliance tracking
- Balanced scorecards

Making Knowledge Actionable

The goal of an effective KM program is to encourage knowledge to be used and reused, applied and enhanced. It is at this point that the KM program shifts from collecting knowledge to re-using knowledge. Often this requires dedicated resources to connect people, ideas, and resources, as well as to translate knowledge into toolkits and processes to make it easier for the knowledge to be re-used. It is evidenced by teams and individuals taking the initiative to ask others for their knowledge, re-using that knowledge, and then sharing back the new insights gained from applying the knowledge.

In a clinical context, examples of tools used in this stage include:

- Root cause analysis
- Care process redesign
- Pilot sites of examples of effective care models

In a business context, examples of tools used in this stage include:

- Communities of practice, such as performance improvement teams or work groups
- “Sensemaking” sessions such as post-project review meetings or “lessons learned” summaries
- Toolkits to facilitate widespread adoption of successful practices

Moving Forward – Additional Phases?

This initial Phase 1 has focused on developing an inventory of KM initiatives, tools, and processes in place at participating SI members. It is clear that KM is just beginning to become incorporated into members' strategies and operations. All are struggling with how to integrate the use of KM tools and approaches across the various dimensions of clinical decision support tools, process improvement initiatives, and collaboration networks. No clear leader has emerged as a role model for others on how to incorporate KM across all dimensions and accelerate organizational learning, knowledge transfer, and innovation adoption.

Individual conference calls were held with each participating organization to solicit feedback on this report from all study participants and to discuss mutual interest in continuing to explore KM applications and core processes. Options for further collaboration included the following:

- Phase 2 – Options
 - Periodically highlight a KM-related topic to explore via teleconferences and site visits, for example to share approaches and learnings regarding knowledge transfer and use.
 - Incorporate a “peer assist” format into each annual meeting, where a member presents a strategic initiative and invites peer feedback in real time based on participant experience – consider adding KM as a track to a future annual meeting to explore the concept further.
 - Create ongoing networking groups to share expertise and experiences in the three major areas identified in this report, clinical decision support, process improvement, and multi-site collaboration – and possibly launch new communities around job titles such as the Chief Medical Informatics Officer role.
 - Enhance the SI website to make it more interactive, so that members can post their own resources, share lessons learned, and find experts at other organizations based on topics or issues they are investigating.
 - Continue to accumulate insight on how KM is being implemented within SI and other healthcare organizations, and what lessons can be learned from outside of the healthcare field to enhance SI members' use of KM techniques.

The overriding conclusion was that KM is too broad of a topic for meaningful continued dialogue. However, there was overwhelming support for expanding the role that Scottsdale Institute has played in this discussion, which is to bring similar healthcare systems together to share what they have learned in implementing these various aspects of knowledge management in their organizations. Scottsdale Institute will want to explore with its membership at large additional ways of embedding knowledge management tools, processes, and techniques into the role they play as a knowledge transfer vehicle for their membership. For example, SI could expand its website so that it includes tools such as expertise location, discussion boards, ad hoc search for resources provided by members, and archival of case studies, tools and templates. Members find a great deal of value in the regular

teleconferences that are hosted by SI, and suggested that additional resources could be accumulated on these topics, such as organizing member surveys related to the topics, moderating discussion boards by topic, and providing links to additional external resources related to the topic.