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Opinions In Depth

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Kick-starting Knowledge Infrastructure Projects

By Craig Roth

Knowledge Infrastructure is fighting for respect. It falls between the cracks of centralized IT (which doesn't have sufficient budget to fund it) and the business units (which, don't want to fund it alone or don't understand it). Like a vitamin deficiency it contributes to a consistent lack of performance, but without obvious symptoms. Its symptoms are only noticed by their absence when they are addressed. Many organizations have had difficulty getting their Knowledge Infrastructure (KI) initiatives moving forward due to Knowledge Management (KM) baggage, culture, lack of funding, and high costs that are difficult to justify. This is why KnowledgeForward was created – to help get Knowledge Infrastructure projects moving forward.

FROM KNOWLEDGE MANAGEMENT TO KNOWLEDGE INFRASTRUCTURE

Before jumping into how to kickstart Knowledge Infrastructure I will take a moment to define KI and its relationship to Knowledge Management (KM). If you haven't

Behind the Analysis

A view into the historical and market precedents that guide this analysis:

Don't Blame the Tool: Many technology implementation problems are really cultural, process, and organizational problems in disguise.

New Technology Requires Old Disciplines: Basic Knowledge Management disciplines, such as organizing information for easier retrieval, are essential but often overlooked in the rush to implement new technologies. There is nothing new about these disciplines, but applying them to new situations can be challenging.

Return of the Living Dead: Failed technologies or concepts from the past sometimes reappear when conditions for success develop. They are worth a fresh look.

heard it before, the Knowledge Management narrative goes something like this: information – about your customers, how to do things, manufacturing techniques, who to buy from, who to sell to – is an asset of an organization just like trucks, buildings and desks.

Therefore, these knowledge assets need to be managed just as physical assets are carefully monitored, measured, tracked, and fixed when broken. And since KM assets are not physical they can easily disappear – being forgotten, deleted from hard drives, or walking out the building when knowledgeable employees leave.

While PhDs trace KM back to tribal storytellers and the Library of Alexandria, MBAs concern themselves with improving the efficiency of organizations in the digital information age. As I fall into the latter camp, I'll start my story in the recent past.

Laurence Prusak of the IBM Institute for Knowledge Management has stated that the first KM conference was in 1993 in Boston. If that's true, it sure didn't take long for KM to have scorn heaped upon it. By the time I began covering portals at META Group in 2000, KM was already a "dirty word." In fact, like the "F" word, we were told never to use it in the presence of clients unless they used it first. KM had a reputation as a neverending quest created by systems integrators to beef up billable hours. That's probably accurate. And that is why *KnowledgeForward* concentrates on the practical aspects of KM; the ones that can be supported by actual products whose ultimate goal is enhancing the bottom line of the business. I call these products Knowledge Infrastructure.

Infrastructure is generally referred to as reusable building blocks, so Knowledge Infrastructure is the set of reusable services specifically related to the process of storing, organizing, and retrieving knowledge. The problem with that definition is that every system you have is a storehouse for information about your company and can be used to assist decision makers. Your accounting system contains your chart of accounts and supports many financial decisions. Your address book contains vital contacts that can be retained if you leave the company. An SAP operational system contains information about your operational processes.

Lowering the focus from KM ideals to practical KI, a technology-based implementation of them, may seem like abandoning the quest for the Holy Grail since you've found a really nice teacup. The true goal of KM, which is to improve the organization's ability to utilize its knowledge regardless of whether computers are involved, is worthy. But as this Opinion is targeted at IT strategy makers and those

<p>Knowledge Infrastructure: A cohesive, leveragable set of infrastructure components that support knowledge creation, storage, organization, retrieval, and application</p>

trying to understand what their IT people are telling them, KI is a practical place to start.

Thinking of content management, portals, and collaboration as infrastructure helps one to apply the processes and discipline associated with traditional infrastructure such as servers and networking. These assets are managed by a group that is leveraged by all teams that need them. They are purchased through an enterprise contract and then costs may be allocated based upon usage internally.

Organizations that view components of KI as infrastructure will be more likely to associate it with a general need rather than associating it with a particular project, system, or business unit. For example, consider a situation where a project manager is taking on a new portal project. In a company where employees correctly see a portal framework as infrastructure the project manager would be likely to set up a team site in the portal for members of the new project team just as they have seen with other projects. However, if employees in this company just view the portal as the “sales portal,” they would be unlikely to leverage it in a new non-sales project even if the technology would be useful and had no additional cost. In this example, a mindset of “portal as infrastructure” will result in a more leveraged investment than “portal as application.”

Benefits of treating KI as a whole rather than as separate products include:

1. Gap analysis at the component level is enabled
2. A common focus can be placed on the integration, cultural change management, and release management for all components
3. Efforts can be synchronized. Tasks such as executive buy-in and version control can be synchronized across all components and business units

I am not dogmatic about which tools to label as KI. Clearly there is a continuum from applications with a focused purpose to infrastructure that is highly leveraged. KI generally includes (see Figure 1) Content management (includes web content management, records management, digital

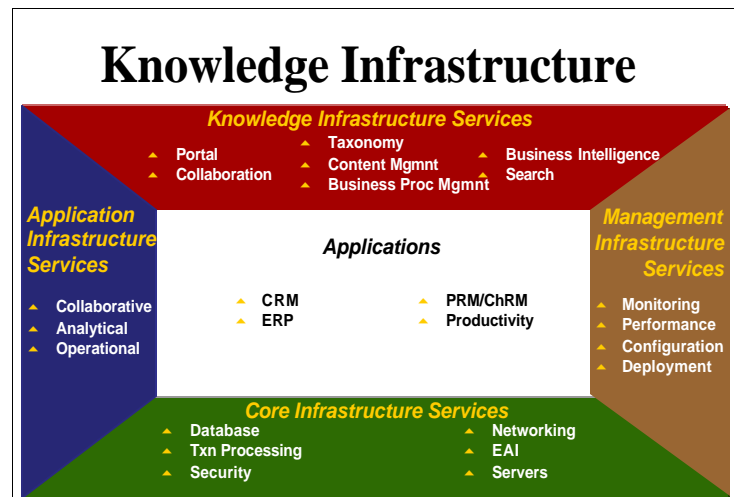


Figure 1 - With a move to services-oriented architecture and maximizing reuse/leverage, infrastructure now surrounds all sides of applications

asset management, and document management), Enterprise portals, Search/Taxonomy, Business Intelligence, Business Process Management, and Collaboration (particularly teamware, e-learning, and expertise location).

Many KI components can be used in a non-KI way. For example, some companies have an expensive, full-featured content management system that can do metatagging, store all the documents related to myriad projects, and handle sophisticated workflow. But all they are being used for is a couple of projects, by a few specialists, and for simple functions (i.e., checking in and out content to avoid change conflicts). This is a KI-type product, but the content management system is not a part of their KI because of how it is being used – it does not align with the goals of KM.

Likewise, I've seen non-KI products used to support KM goals. A simple website with static HTML pages can be used to centrally document processes or to categorize a customer list. Even manila folders in file cabinets can count as KM tools if used effectively. The owner of the KI must occasionally be able to switch hats to understand KM processes that do not leverage technology.

BARRIERS TO KI

I have had hundreds of discussions with organizations about Knowledge Infrastructure in the past five years. Granted, many of them did not know we were talking about KI – they thought we were just talking about the specific problem they were having with their intranet, their business unit's web content management processes, or some other specific problem. But after seeing the same devil in many disguises, I came to see them all as KI issues. Before describing how to kick-start KI, one must understand the barriers to it. It is easy to say "lack of executive sponsorship" is the predominant barrier to KI, but to do so simply begs the better question "why haven't the executives bought in to KI?" What follows is not a list of "common pitfalls" since I have seen many such lists already. These are problems that prevent KI from ever taking off rather than problems encountered while in flight. The early stage barriers are usually one of the following:

No process for central funding of knowledge-based initiatives

The majority of non-technology companies have no method to fund Knowledge Infrastructure that can be leveraged across all business units. In a study I did in late 2003, only 39% of organizations fully funded their Enterprise Portal efforts centrally. The only systems that are usually funded centrally are traditional "hard core"

infrastructure such as data centers, databases, security, and networking. Managers of those groups generally do not want to or are unable to expand their charters to include softer infrastructure such as portals and content management. Creating a new cost center in a competitive business environment is untenable to executives. Since no other centralized group exists, business units that need KI services must fund the entire cost themselves. Or they can invent a structure for sharing costs between units with varying needs and argue over allocations in the same manner as three friends arguing over how to split a restaurant check.

Lack of direct pain

The symptoms of poor KI (a poor decision made in the absence of key information, a period of poor performance after a key employee is moved or leaves, time wasted trying to find information, etc.) are often a few steps removed from the problem (lack of KI) and are easily attributable to other causes. Since this pain is indirect it is difficult for executives to recognize and respond to. Imagine an organization whose customers sometimes avoid its website since product information is scarce, hard to find, and sometimes out of date. If one were to map the causal links involved, it would be clear that there are many links in the chain between where the pain is felt (decreased sales) and the chance for KI underneath to help (streamlining the transfer of product information from the non-technical employees that know about the products to the website to improve detail, quality, timeliness, and targeting of product information). One could see these symptoms and interpret them as a need for a redesign, better products, or more IT staff to update the site with manual procedures. Opening the eyes of executives to the root causes of the symptoms, connecting seemingly disconnected problems to the same infrastructure solution, and recommending an infrastructure-based solution rather than a band-aid further up the causal chain can be very difficult.

The “Knowledge Management” Tag

KM got a bad rap in the '90s for vague, expensive projects that resulted in vague outcomes and, therefore, expensive failures. Still, KM is just a buzzword and one can understand it and internalize its concepts without having to actually use it in budget proposals. Anyone proposing a KM-type project should informally feel out how executives have responded to similar proposals in the past and tread lightly around using the actual term. For example, “organizational learning” is a buzzword that can be a great shortcut to understanding for receptive executives. But if that word is going to increase resistance, applying its precepts to a specific problem and

removing the buzzword is a better idea (i.e., "This intranet site with document management will help organize the XYZ process information so that the learning curve for new managers is shortened and attrition doesn't affect monthly performance figures as much").

High costs

KI incurs high license and implementation costs that homegrown alternatives do not. Who needs a taxonomy and careful application of metadata when you can dump files onto a shared drive and use file folders as a taxonomy? Teamware competes with email for team knowledge sharing. Hardcoded static websites, manually updated, compete with expensive web content management and portal software for dynamic websites. As expenses, these "skunkworks" fixes do not show up directly on the income statement.

And skunkworks projects can work. With high levels of discipline by employees and aggressive forethought I've seen amazing KM efforts with no KI investment. And likewise I've seen large monetary investments in KI that were sunk by poor change management, dueling KI projects, and implementation that yielded few benefits. Organizations should do what they can to instill discipline and make the best use of the tools they already have, but then evaluate true KI products to determine if their benefit would exceed their cost. In most instances it does.

Culture

The culture of many organizations rewards employees for hogging knowledge and making themselves invaluable. We've probably all seen examples of mediocre employees that are retained or promoted simply because they are the only ones that know about a critical process. How many employees are really willing to open up their way of doing things to process scrutiny? And who has time for documenting processes once they are already done and another deliverable looms ahead?

Incentives, reviews, P&L structures, deeply ingrained processes, and executive behavior must be examined and gradually, strategically changed if the KM goals that underlie KI are to be realized. This topic is beyond the scope of this "Kickstart" Opinion, but must eventually be faced by organizations looking for maximum leverage of KI assets.

COMMON KI KICKSTART STRATEGIES FOR LARGE ORGANIZATIONS

Over the years I have seen many approaches to getting KI initiatives moving in organizations. Some tend to work better than others. The key is finding the approach that best fits the situational and cultural factors at each company – the path of least resistance.

Create a Soft Business Case

If an organization's culture allows it, a "soft" business case (with backup of cost figures and estimates of some hard benefits) is the best approach to getting KI moving forward. The business case for KI is often indirect. Companies that use this approach focus on "enabling" benefits (decreasing reaction time, improving rate of change, increasing quality of decision making, disseminating information to decision makers) rather than hard or direct benefits (savings in production of monthly reporting to dealer network, decreased product development travel expense by enabling distributed teams). In this business case, KI is acting as a multiplier to other positive ROI projects rather than providing ROI itself. An example of indirect application of KI is a company that applies KI to a campaign that reduces customer defections. If 25% of customer defections each year are considered preventable, a campaign to quickly find and solve customer problems could have good ROI. A teamware system or business intelligence tool would not solve the problems itself, so hard benefits cannot be attributed to them, therefore their ROI remains fuzzy. KI could help the campaign's effectiveness, but one cannot scientifically determine what percentage of the savings is because of KI. Some technologies such as email or spreadsheet software have been accepted as necessary for business even though proof of exact cost savings is elusive, and KI is a similar type of end user infrastructure.

When to use: Management accepts an "enabling technology" argument and accepts that not all projects have hard numbers to support them

When not to use: When procedures for project approval explicitly spell out the need for a hard business case and they are strictly followed

Create a Hard Business Case

All organizations claim to be responsive to a hard business case – a financial model that shows KI has a favorable payback time, ROI, or NPV. Many organizations say

this is required of all projects. I have encountered few that actually meant it. The few companies I have seen that truly rely on hard business cases have these characteristics:

1. Standardized financial models that include planning assumptions (hourly rates, discount rates, timespan, internal rate of return), guidance on line items to include/exclude from costs and benefits
2. A process that applies these models to all new projects, not just ones that management can't figure out. For example, how did other infrastructure projects (email, applications servers, database upgrades) get approved? Probably not with a hard business case
3. A tracking process that includes benchmarking approved projects and verifying improvements and expenses against the promised estimates. Without this process, getting budget based on hard numbers is just an exercise in exaggeration

When to use: When it is required of projects. For companies that meet the three characteristics above

When to not use: When this approach would require too much guesstimation of employee time savings; When hard numbers are difficult to come by and require too much stretching

Find an Activist

Every organization has a few grass roots activists. They see a problem common to many business areas and, lacking formal authority to force a change, they decide to informally band these people together for a common cause. A common, successful version of this is the Webmaster's Guild that many organizations have, where the webmasters for websites across the company meet regularly to share R&D information, standardize look and feel, share information on products, and swap tips. However, a Webmaster's Guild requires no budget and very little involvement of management whereas KI requires significant expenditures and an executive stamp on process changes. In my experience, grass roots activism fails if aimed more than two organizational levels above the participants. As the activists feed each other's enthusiasm for KI, the self-validating nature of these groups can actually backfire by creating dissatisfaction among the activists if their agenda does not move closer to executive approval. In general, this approach does not often

work alone, but can be used as an incubator for KI before shifting efforts to another approach (i.e., Piloting).

When to use: In cases where cooperation - not funding - are desired; When the goal is awareness one level in the organization's hierarchy above the activists; Organizational cultures where grass roots activism has previously been successful and is appreciated by management

When not to use: When trying to affect change three or more levels above the activists; Organizations with a history of failed attempts at grass roots activism

Start a Small Pilot

Selecting a small, self-contained business area to apply KI can be a very effective way to introduce management to the effectiveness of KI. Business management may intellectually understand what KI technologies do, but until it is actually applied to familiar groups and processes they may not really "get it." Vendors often salivate at the thought of an enterprise installation at a large organization and therefore may offer free or discounted software and services for pilots if they deem the enterprise sale to be worth in excess of ten times what the pilot costs. They know that if a pilot goes well they have you on the hook.

When to use: When the business side does not grasp what KI is or how it could be useful; when hard benefits are requested but impossible to predict before doing a project

When not to use: When the cost of the software *and services* cannot be scaled down to fit a small pilot; Do not use for groups that have low visibility or processes that have low value to the business

Projectize the Infrastructure

The most common approach to kickstarting KI has been justifying the infrastructure based on a couple of specific problem areas and then letting the rest of the organization leverage it for free. Every company has big, stupid, inefficient processes which enable a KI technology to look like a white knight by cleaning it up. This "projectizes" a horizontal technology by applying it to a specific glaring problem. This differs from a pilot in that the technology is made available to the whole organization, but simply paid for by the group that benefits the most.

When to use: When the KI can be easily "projectized" by paying for it with a few troubled processes at hand

When not to use: When pointing out inefficiencies is not culturally acceptable; When more than two projects would be required to easily justify the cost

Have Techies Pitch KI to Senior Management

No one sits at the intersection of pain and need more than line-level knowledge workers and first level IT managers that need KI. They are most likely to be hurt by the heroic intervention, jury-rigged solutions, and late nights needed to change a website at the last minute, compile a compound document, or tweak a document approval process. And being technical, they have the most knowledge about KI technologies and how they could help.

This all seems to point to an effective approach. Unfortunately, proposals created by these knowledgeable employees generally fail. Most employees encounter hassles in their daily work, but they soldier on. The knowledge workers preparing this pitch to management must be able to re-classify this as a rationalized infrastructure investment rather than just removing a "hassle." Furthermore, pitches at this level generally avoid cost/benefit analysis and a portfolio management approach that rationalizes investments in KI relative to other places the money could be spent.

When to use: Pain due to KI inefficiency has been felt and already acknowledged by management

When to avoid: Avoid this approach in most cases; Knowledge workers should find a champion lower in the org chart

Calculate the Cost of Doing Nothing

When should management invest in a project that will cost \$1 million per year with no measurable benefits? When not investing in the project will result in a loss of \$5 million per year. Cost avoidance is the “Anti-ROI” – it admits that the project is a net loss, but is necessary to prevent further loss. KI becomes a necessary evil. This argument usually revolves around a recent change in the environment – a reason the company could survive without KI until now but will be sunk in the future if they do not act quickly. For example, one organization I worked with got approval for a web content management system for their intranet by showing a chart of how many pages were on their intranet over the past 5 years with a major recent spike.

When to use: When a hard number can be placed on the cost of not implementing KI

When to avoid: When the cost of doing nothing cannot be quantified; When a better approach that positions KI as something of value is available

SUMMARY: The infrastructure that supports Knowledge Management-type initiatives (even if the organization has not bought into the complete KM narrative) must be managed as a cohesive unit as well as separate products for targeted use. Integration, cultural change management, executive buy-in, and release synchronization are the key activities of managing KI as a cohesive, reusable set of services.

ENTERPRISE TAKEAWAY: When KI projects get stuck, there are many approaches to get them going again. The key is to select the path of least resistance based on the organization's culture, the costs and benefits present, and the historical success of the different approaches when used by similar projects.

VENDOR TAKEAWAY: Many vendors provide a single tool for proving the value of products, such as an ROI calculation tool. But providing several tools is needed due to different cultures and environments. Also provide an uber-tool to help determine which tool provides the path of least resistance.

KnowledgeForward

How KnowledgeForward can help with the issues addressed in this Opinion:

- **Knowledge Infrastructure Bootcamp:** Get business executives and IT strategy makers trying to present the business case for KI onto the same page. This two day, individualized workshop will cover:
 - Bridging from Knowledge Management to Knowledge Infrastructure
 - Understanding the KI business case
 - Components of KI
 - Approaches to getting started – select from best practices of other leading organizations
- **KI Business Case Creation**

Craig L. Roth KnowledgeForward provides assistance in planning and executing Knowledge Management and collaboration strategies and marketing programs. Mr. Roth is an alumnus of the META Group, where he covered enterprise portals, web site development and rich internet applications.

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