

KYield

Yield Management of Knowledge™

NAVIGATING THE OBSTACLES TO KNOWLEDGE YIELD

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This paper contains portions of a larger document that discusses the general environment of digital knowledge systems, but does not include product information. If you are interested in receiving product information on KYield, please send an email to the address above with name, title, organization name, scope of responsibility, and nature of interest.

KYield is a comprehensive Web-based knowledge system that has been in research, development and testing in our independent lab near Prescott, Arizona for over five years. KYield is seeking partners and additional pilot customers.

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Genesis of KYield

Very few beliefs have survived intact throughout the tumultuous changing environment that is human evolution. One fundamental belief that still prospers is that those who have access to superior knowledge are then also in a superior position to apply it, provided that the knowledge is presented in an applicable form. This belief represents the fuel for the disciplined process referred to as knowledge management (KM).

The difference between the past and the present is of course that the digital revolution, unlike random Darwinian evolution, is an intentional development operating in a very complex environment. While this development may be an extension of natural evolution driven by an instinct for survival, and random acts do continue to play a role, the evolution of the digital revolution is primarily the result of human planning and manipulation.

Since we now have the potential to access not just the knowledge of our immediate community, but many others as well, the value to participate in the knowledge yield process is obvious, provided that specific barriers and disincentives have been removed, and conflicts mitigated.

The specific barriers to effective knowledge yield are numerous, found both internally within an organization and externally spanning across the spectrum of society. The challenge then for knowledge systems architects is first to fully understand each barrier, as well as their relationships with each other, and then to design strategies and tools that navigate around, or through, the complex obstacle course.

Technological barriers

Our research confirms that essential information rarely reaches the right people at the right time in a form necessary for intelligent decision making. It is therefore not surprising that critical errors have become common, but rather should be expected.

The great debate in knowledge management circles should not be whether value exists in converting information to knowledge, the necessity grows daily, but what percentage of potential value is being realized when defined by successful decision making.

Information Overload

It is estimated that humanity generates terabytes (10¹² or trillions of bytes) of material each day, yet only 10 percent of public information in print has been digitized and made available on the Internet. And we already have over 2 billion files on the public network with estimates that private networks are collectively much larger. Research varies considerably, but reports are common that between 8% to 40% of total person hours in organizations are spent in searching for information. Some organizations will soon store petabytes (10¹⁵ bytes) of digital content [1].

In addition, no search engine indexes more than about 16 percent of the publicly indexable World Wide Web, and this indexing is done selectively since search engines generally index sites that have more links to them [2]. Search agent technology and artificial intelligence tools are improving, in part because of meta searching, XML, and the emerging Semantic Web [3], but the volume of unstructured data within networks is growing at a much faster rate than technological innovation for intelligent processing. Adding to the challenge is that Web standards are voluntary, unenforceable, not universal, and a variety of techniques are employed to thwart agents, even on public sites.

However, even if search agents could search the entire Internet in real time, and artificial intelligence could predict some patterns of human behavior, for example a critical mass of editorials on a given topic worldwide, the results cannot compare with the human brain's deductive reasoning for accurate forecasting. Entrepreneurs, venture capitalists, CIOs, and intelligence agencies have been far too reliant on a technology cluster in chaos for information gathering and knowledge conversion.

Fishing in the Wake of Previous Revolutions

One of the great ironies of the digital revolution is that some of the technologies that provided the potential for dramatically increased knowledge yield have left significant obstacles in the wake of their legacies:

“Increased private research to overcome these barriers could accelerate the development of commercial learning technologies. However, the information technology industry is taking shape around a few business trends, including a campaign for platform dominance, media convergence, and telecommunications restructuring. Competitive pressures are distracting many firms from attending to, and achieving, the long-term potential of learning technologies. As a result, research is lagging in some important areas, and some users and niche markets are being virtually ignored.” [4]

This environment spawned innovations in dynamic object programming, middle ware, database management and distributed networking, providing pieces that were essential for the complex knowledge puzzle to be assembled in a manner that began to meet both the individual's needs as well as the organization.

While pieces of technology can now be integrated for more effective design structures, organizational culture and resistance to change have prevented many from enjoying the benefits the new tools are offering. In order to overcome these cultural barriers, it is necessary to imbed organizational change within the knowledge system design while still providing the flexibility necessary to respect individuality and product differentiation.

Needs of the Individual vs. the Organization

“Man is, at one and the same time, a solitary being and a social being. As a solitary being, he attempts to protect his own existence and that of those who are closest to him, to satisfy his personal desires, and to develop his innate abilities. As a social being, he seeks to gain the recognition and affection of his fellow human beings..... Only the existence of these varied, frequently conflicting strivings accounts for the special character of a man, and their specific combination determines the extent to which an individual can achieve an inner equilibrium and can contribute to the well-being of society.” -Albert Einstein [5]

It has been the bane of knowledge systems architects that the needs of individual knowledge workers and providers often conflict with that of organizations [6]. This unwavering reality must be taken into careful consideration when designing the functionality of interactive knowledge systems and communities of practice, and suggests why a piecemeal approach to knowledge management has failed so many in the past. Some knowledge systems architects are now experimenting with reward programs that attempt to provide an additional incentive for individuals to share knowledge and contribute to the organizational knowledge base. To date, the majority of financial incentive programs have been primitive efforts that fail to take in to consideration all of the contributing factors in the knowledge sharing process. One such example is a fortune 500 KM program that provides a maximum of a few hundred dollars as a financial reward for billion dollar issues, not much of a financial incentive for those who are presumably leading topical experts. Another executive in a global corporation claims that additional incentives are unnecessary because “knowledge sharing is part of their job description”.

The reality is that the knowledge workforce is an ever changing mosaic that does not provide the level of career security that encourages individuals to freely share their most valuable knowledge gained over a lifetime of learning investment, to what will likely be a temporary job.

Many private companies have employed stock options to help overcome this problem in the past decade, but the combination of biased award systems, tax consequences, and market volatility limits the usefulness of stock option programs.

Fortunately, through a combination of technology and organizational design, it is now possible to effectively track and fairly reward contributions of individual knowledge workers, providing an important psychological incentive for individuals to deliver more value to the organization, as well as increased credibility for the organization itself.

Organizations that have developed the most successful knowledge systems to date have integrated the learning philosophy throughout the organization, including human resources and systems that provide both financial incentives and psychological motivation.

Public Knowledge Networks

Among the many points of confusion in current KM practices is the misunderstanding of the differences between internal and external knowledge systems.

The contributing factors to this often-murky situation are more complex than the solution, but include the relative youth of the discipline, increasing free-agency-style of the knowledge workforce, software application design, Intranet navigation, cultural dynamics, and lack of progressive organizational policy.

Most organizations now have policies and procedures for Intranet publishing, use of the internal knowledge base, internal collaboration tools, and knowledge mapping, but the external relationships are as varied as the individuals within the organization. However, the internal knowledge

base pales in comparison to global knowledge in even the largest organizations, so knowledge workers must engage in communities of practice via the Internet, or be left behind in relative isolation.

Unfortunately, Internet communities are often a maze of conflicts, liability, copyright infringement, and with few exceptions, deliver poor knowledge yield. Examples are wide spread of leading communities that are owned by individuals or organizations who have conflicts of interest and/or abuse the power that the technology affords the owner. In addition, only networks that offer a comprehensive knowledge network can provide the necessary value to attract sufficient revenue that allows sustainable, professionally operated, and unbiased knowledge communities.

Public or multi-organizational knowledge networks need to address the reality in our system that opportunities to monetize the knowledge base rarely approach equality. For example, an analyst in a particular organization may well be a domain expert who contributes greatly to the knowledge base, only to see his/her contributions appear in the distribution channel of a competitor.

It is not surprising then that many private companies lacking dominant market power or access to capital markets have voiced their desire for a handicapping system by their lack of adoption and participation. This situation has enormous implications for IT related industries and the network economy as a whole, but is a barrier that has been conceptually overcome in a similar way to the internal reward systems for individuals. Early efforts to develop solutions have included on-line exchanges, where attempts have been made to provide efficient markets for the fair trade of intellectual property such as patents or copyrighted material. However, communities of practice have yet to be introduced to compensation rewards within a framework that provides an equitable exchange of value for knowledge between organizations.

Redefining Knowledge Management

One definition of Knowledge Management that is often cited originated at the [Gartner Group](#):

“A discipline that promotes an integrated approach to the creation, capture, organization, access and use of an enterprise’s information assets. These assets include structured databases, textual information such as policy and procedure documents, and most importantly, the tacit knowledge and expertise resident in the heads of individual employees.”

A significant barrier to KM that is often cited in case studies is the term itself, leading to a common suggestion by management: “Whatever you do, don’t call it KM”. The term not only fails to describe the actual process when successful, but is viewed by many to reflect a misunderstanding of how to increase knowledge development and capture in the workplace. The technology, process, and data can be managed, but the knowledge worker can only be motivated to contribute. Therefore, the term KM is an inappropriate description for the process that takes place when successfully executed.

The appropriate description should be one from the perspective of leadership, not management, and should describe the goal of the process: *Yield Management of Knowledge*, or KYield.

Conclusion

The technological barriers to self-sustaining and high-yielding knowledge systems include:

- Info overload combined with poor processing.
- Slow conversion of pre-existing systems to the network environment.
- Lack of enforcement for universal standards.
- Poor flexibility and adaptability in software systems.
- Lack of compatibility in software and communications.
- Failure to address comprehensive needs of knowledge workers and their organizations.

Many of the early adopters that tested implementation of a comprehensive KM system found the technology to be immature, difficult to integrate, and costly to administer. Of those few who succeeded in integrating the legacy infrastructure, only a small percentage found their pre-existing culture sufficiently progressive to provide an obvious ROI. However, the value for those few early adopters who achieved success has been so significant that the rest of the world is now following.

The solution is a holistic approach that combines a technology and cultural design that provides incentives for his/her personal needs as well as motivation for his/her social needs. Only then can a knowledge system begin to address the needs of an organization. The alternatives to a holistic strategy have shown that knowledge will either remain in the heads of individuals, or they may apply the knowledge in counter productive ways. As budgets and policies move towards progressive knowledge networks, the cost of the services will be insignificant to the value delivered.

At the macro level, society has yet to deal with the full implications of the digital revolution as is evidenced by the continued lack of a governing social, economic and legal framework that meets the challenge presented by the reality of the Internet Protocol and World Wide Web.

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