People constantly exchange information, the raw material of knowledge, with co-workers, business partners and customers... but they do it using personal, unstructured tools such as email. Wouldn’t it be nice if companies could benefit from their own collective intelligence? That has long been the idea behind knowledge management (KM), but years of implementations have produced mixed results.

KM deserves a fresh look. The source for optimism lies in a different approach, not in the incremental models current KM vendors trumpet such as enterprise information portals, advanced clustering algorithms or e-learning. KM suffers from the hubris of modernism: the belief that we can discover ultimate truths and organize the world according to rational principles using clever code. It’s time for postmodern knowledge management.

Postmodern KM avoids the deterministic view of knowledge that worked at cross-purposes with human nature. Instead, it operates within and on the basis of existing behavior patterns, mining conversation streams and relationships automatically to incorporate structure and context into the information human users already manipulate. It fosters human intelligence and interaction rather than trying to replace them, just as artificial intelligence vendors eventually learned it was better (and more realistic) to call their tools “assistants” rather than “experts.”

Ever since KM first gained notice in the early 1990s, it has been promoted as a huge opportunity and derided as an empty fad. The phrase “knowledge management” was probably a mistake, because management implies control and knowledge cannot be controlled.
Trying to manage knowledge is like trying to predict the future by studying the paths of subatomic particles. In science, quantum mechanics and chaos theory put to rest the notion of understanding complex systems by analyzing their constituent parts. Yet that classical model of the world lives on in the typical approaches to knowledge in organizations.

KM gets into trouble when it tries to live up to its name. Conversely, it succeeds when it takes on real-world problems and makes workers more effective. Shortening cycle time in product development or other functions, avoiding duplication of effort and raising the bar of organization-wide competency are all real benefits that bring real economic returns. Getting there is the hard part.

“Simply giving people collaboration tools isn’t going to cut it,” argues Tacit Knowledge CEO David Gilmour (see page 18), “because the problem isn’t how to collaborate . . . it’s getting people to understand that they must collaborate on a particular project.” This task involves organizational culture, but having the right tools also matters. People don’t work by dumping everything they know into a central repository at the end of each day; they interact through overlapping teams and social networks. That’s the behavior KM software should assume – and rely on.

In this issue we discuss several companies taking this postmodern approach to KM (though for the most part they use neither term themselves). Abridge, EcoCap, Tacit Knowledge, Neomeo, Krypteian and Lotus automatically parse email messages and other internal content to draw out useful context and associations. Newknow identifies useful information based on content mining and user recommendations, while Zaplet adds workflow directly into email messages. Recipio derives patterns from open-ended online customer feedback. Onclave and derivatives of Slashdot such as Automatic Media build on blogs (see Release 1.0, May 2001) as a powerful Web-native tool for knowledge sharing.1

1This is an area near and dear to our hearts... and consequently, in some cases, our wallets. Relationships between several of these companies and Esther Dyson or Kevin Werbach are disclosed in the company info boxes or writeups below.
An Idea With a Bright Future Behind It

I KM, I saw, I conquered?
The basic ideas fueling KM are hard to dispute. Knowledge is the engine of the information-driven economy. As computers automate routine tasks and barriers fall, the world more and more divides into two things: commodities, where scale and price dominate, and value-added goods and services, where human ingenuity is the fundamental competitive differentiator. Says Zaplet co-founder David Roberts (who previously worked for the US Central Intelligence Agency, an organization devoted to the collection – and careful control – of information and knowledge): “Now knowledge is the product. Value gets added in the movement of the knowledge and the enhancement of the knowledge as it moves through processes.”

The Internet has only increased the importance of knowledge. Jobs are increasingly fluid, in terms of the projects a person works on and the tasks she does, the relationships within a company, the relationships between employees of different companies, and the number of companies a worker is likely to call home during a career, simultaneously or in sequence. Business is moving faster than ever, putting a premium on rapid acquisition of skills, thoughtful decision-making and intelligence at every level of the organization.

Above all, there is ever more information inside, between and outside organizations. The animating and unassailable goal of KM is to make sense of and re-use that material, by filtering what isn’t relevant or by putting context and structure around what is. A 1998 survey of North American senior executives, reports the McKinsey Quarterly, found that 77 percent rated “improving the development, sharing and use of knowledge throughout the business” as “very” or “extremely” important. Eighty percent of the largest corporations have what they call KM projects, according to Larry Prusak, executive director of IBM’s Institute for Knowledge Management.

Sounds great . . . but that and $12 will get you a martini in Manhattan. In the real world it has proven difficult to achieve these goals. More than half of KM deployments fail, Prusak writes.

We’re all KM vendors now
In practice KM has meant creating knowledgebases so that knowledge can be organized and re-used. Getting employees to add to and annotate those knowledgebases has proven difficult. Furthermore, the business justification for companies to buy
KM solutions has often been weak. As KM skeptics have argued, isn’t nurturing and making use of employees’ knowledge what good managers are supposed to be doing all the time? And it’s nearly impossible to quantify the benefits of KM implementations, making them difficult to get funded during times when ROI is everything.

KM today is ill-defined. Because no one can agree on what KM is, it has become pretty much anything some vendor wants to associate with the term: collaboration, data mining, business intelligence dashboards, enterprise portals, e-learning, information discovery, groupware, document management, customer support. This KM gigantism arises partly because KM products are often technologies (frequently derived from AI research) in search of problems, which leads vendors to throw them against any not-yet-solved problem they can find in the hope something sticks.

Because real KM is hard to conceptualize and harder to do, most companies fall back on goals they (and their customers) have an easier time understanding. For example, Microsoft’s January 2001 KM white paper declares: “Knowledge management allows systematic access to business data, competitive information, and market demographics that support the decision-making process.” Those are good things... but one could easily substitute “the Web” (or Oracle!) for KM and the sentence would make just as much sense.

Because KM is so slippery, analysts play up the areas that generate substantial revenue, no matter how tenuous the connection. Employee-facing enterprise portals, for example (see Release 1.0, February 1999), are doing big business. In addition to vendors such as Plumtree, Autonomy, Epicentric and Viador, most big players in the software industry such as Oracle, HP, Sybase, SAP, PeopleSoft, IBM and Microsoft are active in the enterprise portal game, plus Yahoo! and the Big 5 consulting firms.

The success of enterprise portals helps jack up statistics about the size of the KM market. And it lets many more vendors put a KM gloss on their products. For example, Microsoft’s KM product, SharePoint, is primarily a portal server which ties into collaboration tools (see page 12).
Enterprise portals do something useful: They organize information from external and internal sources into a coherent Web-based interface. But that's only knowledge management in a bastardized sense. If KM stands for anything, it's that knowledge is more than information and that management is more than organization. Enterprise portals are designed to organize information, so treating them as the core of a vibrant knowledge management sector is a bit of an oxymoron.

So is KM a charade? We think not. While pundits and marketers debate the importance of KM based on outdated definitions, something else is happening: New tools are emerging to help knowledge manage itself.

What caring and sharing are all about
Knowledge exists in the whitespace between individuals, between information and between applications. The task of knowledge management is to make the whole greater than the sum of the parts.

How can a series of customer interactions – by service reps, salespeople and others – tell an executive about a customer’s mindset? How can a research team at a pharmaceutical company doing a drug assay benefit from the related laboratory setup work a different team did halfway around the world? Call it knowledge sharing, knowledge development, or sense-making, but the objective is the same: not to control and organize knowledge, but to tag, manipulate, magnify and disseminate it – without necessarily “understanding” it.

Humans aren’t naturally altruistic. Tell Al, a star salesman, to share with Ethel (a new hire) his best techniques for closing a prospect, and chances are the results won’t be that great... especially if the salespeople compete to earn commissions. Tell an employee to enter in metadata for every document placed on the corporate network, so that others can find it, and you can be sure the results will disappoint.

The same problem may bedevil what World Wide Web creator Tim Berners-Lee calls the semantic Web. Adding metadata to resources on the Web using protocols such as XML and RDF would bring many benefits. However, getting users and developers to code in such metadata is harder than it seems, as we’ve discussed in connection with content filtering (see Release 1.0, May 1998).

Furthermore, putting information out for all to see, especially when it concerns your own areas of expertise, conflicts with people’s natural desire to control what they
share with whom. This is a fundamental problem with the idea of KM as a means to transfer knowledge from one head to another, says Gilmour: “People who have that view want to pretend that there is not a political dimension to sharing. The answer you give depends on who is asking the question.”

Share and share alike

There is a ray of hope. Sharing is not always motivated by altruism. Napster users share personal music files with great gusto, to the point where only a successful lawsuit slowed them down. People enthusiastically uploaded song title information to the CDDB (now Gracenote) database so that they and others could pull in such information automatically when downloading music. The Web is filled with vast quantities of high-quality content that has been put there with no expectation of payment or reciprocity. Thousands of developers contribute freely to open source projects such as Linux and Apache. What distinguishes these “gift economies” from the failed knowledge-sharing efforts?

First, participants in successful gift economies don’t see themselves as altruists. They feel they are getting something in return, whether it be fame, a quality piece of software they can use or free music. Second, the mechanisms for sharing minimize the burden of doing so. Not only is the effort required minimal, but the distance from contributing to receiving is short, even imperceptible. This is what makes P2P services such as Napster effective (SEE RELEASE 1.0, NOVEMBER 2000).

For KM, this means using automation wherever possible to reduce the burden on users. Tacit, Lotus, Krypteian, Neomeo and Abridge, for example (SEE PAGES 15-25), mine the content of email messages to identify relationships and generate metadata automatically, instead of asking users to do so.

Technology is only part of the solution (though admittedly the part we focus on). “What we’ve learned over time is that a lot of the tacit knowledge in an organization gets passed around in communities and small groups,” says Chris Newell, chief knowledge officer (cko) at Viant and co-founder of the Institute for Knowledge Management. He continues: “A lot of the folks in thecko world came out of IT, so they don’t have the orientation around organizational development and group dynamics.” Corporate culture and practices are essential to effective learning and knowledge sharing (SEE RELEASE 1.0, MAY 1997); great automated tools are a supplement rather than a substitute for efforts to get employees to talk to one another through formal and informal activities.
Groupware II: Revenge of Groupware

The KM field as we’ve described it sounds an awful lot like groupware (see release 1.0, August 1992; November 1990; June 1988). Groupware was hot a few years ago, but the term appears less frequently in technology trade pubs these days. That’s a reflection of groupware’s success rather than its failure. Today, all business software companies are groupware vendors, because virtually every piece of software connects to the Internet and allows groups of users to work on its products.

Every company engages in group activity; even one-person consulting operations participate in projects with their clients. Therefore, any software that helps companies do business more effectively must take groups into account. Thanks to the pervasiveness of LANs and the Internet, at least in the US and most industrialized countries, vendors have no excuse for not linking business groups together over the network. Even desktop productivity applications such as Word and Excel, the epitome of single-ware, are becoming network- (and group-) enabled. Microsoft’s forthcoming Office XP includes “smart tags” that can pull information directly from the network into local documents.

Two years ago we wrote about one consequence of pervasive networking for software: so-called “post-groupware” applications that help individuals manage their online lives through network-connected tools (see release 1.0, June 1999). Knowledge management software is groupware, not post-groupware, because knowledge is meaningless in isolation. Whatever knowledge I have is useful to me, whether I can articulate it or not. But my tacit knowledge may have little effect on others I work with, and vice versa. It must be brought to the surface. That inherently collaborative surfacing process is a task for groupware, but it illustrates how groupware has evolved over the years.

Lotus has not surprisingly taken a keen interest in KM. While Notes is a mature, successful platform that works well in the close-knit environment of a workgroup, it’s not ideal for the fluid, boundary-spanning identification of knowledge wherever it lies in an organization. That requires more sophisticated search mechanisms, especially for material not stored in Notes databases. To address this, Lotus released its Knowledge Discovery System earlier this year.

Lotus is not alone in pushing the boundaries of groupware. Last fall, Notes creator Ray Ozzie, unveiled his new company, Groove Networks (see release 1.0, March 2001 and November 2000), which uses a decentralized architecture. Others leverage explicit
WHAT IS KNOWLEDGE? (AKA I KNOW IT WHEN I KNOW IT)

To talk about knowledge management it would be helpful to have a definition of what constitutes knowledge. Unfortunately, this is no easy task. An entire branch of philosophy, epistemology, has been devoted to this question for about 2,500 years. Though we don’t mean to intrude on such august debates, ignoring the definition of knowledge is also dangerous.

The fuzzy, incoherent definition of knowledge most people have in their heads is information plus some organization or context that forms the basis for action. KM theorists often use a hierarchy of increasing context: data – information – knowledge – wisdom. The trouble with this model is that everything in digital form is data, almost all software turns data into information. So if KM is just information plus some automated means of organization, then virtually every type of user-facing business software is a KM tool. That may be great for the consultants and vendors, but it doesn’t help customers.

The second mistake often made when defining knowledge is to think about it deterministically: Knowledge is a thing... that resides in people’s heads. Or by process of subtraction, knowledge is the “stuff” of a business process or activity not captured by traditional tools. This view ties into the notion of tacit vs. explicit knowledge: the good stuff is that which is not normally written down. Tacit knowledge is a useful construct, but this mode of thinking easily runs into trouble. As Cluetrain Manifesto co-author and KM consultant David Weinberger has observed, knowing a list of facts is not nearly as useful as knowing how to answer questions and solve problems.

True tacit knowledge is know-how, not “know-that.” In other words, it gives you what you need to take action in the real world. John Seely Brown and Paul Duguid’s book THE SOCIAL LIFE OF INFORMATION (SEE RESOURCES), some of which originally appeared in RELEASE 1.0, offers a good exploration of this distinction. It’s the difference between the cases reproduced in a law school textbook and the expertise that makes an effective trial lawyer... or the part of being a good writer that you can’t find in Strunk & White. If you extract tacit knowledge from its practitioners and try to display it as a formal set of rules, it becomes brittle and loses most of its value.

Bob Bauer of Xerox PARC puts forth a more useful definition when he says that, “knowledge is information put to productive use by people.” What’s essential about that sentence is the last word, the one often left out of the equation. An abbreviated version of the definition would be that, like soylent green, knowledge is people.

People matter because people’s minds are inherently synthetic and relational. We’re always operating in groups and making sense of the world around ourselves. Knowledge makes no sense without the contingencies of its creation and dissemination, the social networks through which it passes and the context of its use. Or as Newknow ceo Juan Morán (SEE PAGE 12) says, “A sheet of paper explaining how to make a fire without tools is information until you are lost in a forest in winter and your goal is to survive. Then it becomes real knowledge for you.”

Because people are so central to knowledge, one of the most effective uses of KM tools is finding experts workers can turn to for advice or assistance. Tacit and Krypteian, discussed below, address this need, and SAP plans to launch a people-finder tool next year. As Groove director of strategic marketing Andrew Mahon points out, “Hardly anyone ever reads the ‘knowledge asset’. They just want to talk to someone who has the knowledge.”

Several of the companies discussed below make this expertise automation function some or all of their objective. However, finding experts must be something more than matching a predetermined, top-down list of skillsets, or we’re right back where we started. KM tools must treat fixed information, whether in the form of documents, facts or explicit pointers, as means to an end. If you can describe what you’re found, you haven’t found knowledge. The objective is always to be able to do something useful, even if you can’t explain how you got there.

and implicit user feedback, including Newknow, a Spanish startup described below, and Automatic Media (SEE RELEASE 1.0, MARCH 2001), which hopes to sell its collaborative publishing software based on the Slashdot recommendation-driven engine. (DISCLOSURE: ESTHER DYSON IS AN INVESTOR IN AUTOMATIC MEDIA.)
Lotus: quoth the raven, knowledge evermore
Knowledge Discovery System, Lotus' KM platform, consists of two parts: K-station (an enterprise portal environment) and Lotus Discovery Server (LDS), previously code-named Raven. LDS is where Lotus has taken advantage of both its deep groupware roots and its newer relationships with its acquisitions (real-time collaboration vendors Ubique and DataBeam) and its parent (IBM).

LDS was developed by Iris Associates, the Lotus subsidiary that created Notes (see release 1.0, August 1992). LDS doesn’t require Notes, though most customers will likely be Notes shops looking to extend their investment. The system runs on Windows, with Unix support planned, and uses IBM’s DB2 database on the back end. LDS searches documents, email messages, Web pages, LDAP directories and databases on a company intranet and assembles a personalized Web-based interface called a K-map (see below). The K-map provides a unified environment for finding relevant information. What’s novel is that in addition to documents, it also returns lists of people with expertise on the topic, as well as relevant “places” (topic-based virtual workspaces and discussion areas).

There are many enterprise portals that allow Web-based searching for information across many data sources. What’s unique about LDS is how it does what it does. The starting point for LDS, as with most KM solutions, is a taxonomy or catalog of concepts relevant to the organization. “A catalog allows you to explore within some context, which is one thing missing from the Web in general,” says LDS lead developer Dave Newbold. Instead of relying on human editors to build the taxonomy (like Yahoo!) then using algorithms to assign documents to nodes, Lotus believes it can automate much of the taxonomy creation and revision process. Editors or librarians can tweak the taxonomy, but the bulk of management happens automatically.

Finding relationships
LDS takes advantage of various search technologies to find relationships between people, concepts and documents. For example, it uses the hyperlink analysis techniques from the CLEVER project from IBM’s Almaden Laboratory (see release 1.0, January 1999) to help rank search results, and Almaden’s SABIO algorithm for clustering. For classification, LDS uses a support vector machine (SVM) engine based on public-domain algorithms refined at Microsoft and cross-licensed by IBM. The metrics engine that ties all this together is an in-house Lotus creation developed by James Goodwin and the LDS team.
Because the LDS algorithms focus on relationships, they can manage hierarchies among taxonomy concepts. Also, unlike keyword-based approaches, which have trouble with new words used to describe old concepts, LDS represents each topic node with hundreds or thousands of "tokens." Documents are compared against "fingerprints" of those tokens rather than against a simple keyword.

Hand in hand with the taxonomy is a metrics engine that scores every document in the system to determine its relevance to queries. Like Google, the metrics engine heavily weights elements such as links in and out of a document, and it also includes factors such as responses to a document, times the document has been opened through the K-map and how recently the document has been opened. This allows LDS to return documents that match the fuzzy context around documents instead of just simple keywords. Because the relationship and relevance of information changes over time, KDS uses agents that regularly re-scan data sources and reassess their metrics and revise the K-map taxonomy.

LDS doesn’t just map concepts to documents. Topics in LDS map to places, which allow users to invite co-workers with expertise into topical discussions or a virtual meeting using Lotus’ Quickplace and Sametime tools. The same metrics engine also evaluates people, which are central to the design of the product, says Newbold: “When you find the expert who’s willing to answer your question, you’ve hit a home run.” LDS analyzes users with factors such as authoring, editing, linking to, responding to or reading documents in a category.

The system can, if users agree, parse a user’s email stream and use the contents to calculate “affinities” between users and concepts. Users are notified when a new affinity is established, and they can decide whether or not to allow it to be published into the group K-map. (Javascript expertise yes; Britney Spears no.) Lotus refined the affinities feature by anonymously mining the 54,000 Notes databases within the company, finding the matching process surprisingly easy. Because employees are densely interconnected, says Newbold, on average it’s possible to gather affinities for an entire organization by mining the contributions of only two percent of them.
The LDS affinities feature differs from Tacit Knowledge's expertise automation product (see page 18) primarily in its use of a taxonomy and its integration with other elements such as real-time collaboration. Though creating the K-map requires up-front effort, says Newbold, users spend less time vetting proposed affinities on an ongoing basis, because LDS proposes a limited number of concepts compared to Tacit's more keyword-based approach.

Groove and decentralized KM
Down the road from Lotus in the Boston suburbs, Groove Networks is building upon the legacy of Notes in a different direction. Groove is a platform rather than a particular application. Like Notes it can be incorporated into KM deployments, but out of the box it doesn’t include the specialized tools LDS offers. (Some potential customers are actually thinking about integrating Groove and LDS.) What Groove does offer is a novel and powerful approach to collaborative work: decentralization. It puts the bulk of the intelligence and autonomy into the end-user application rather than central servers.

Traditionally, explains Groove founder and CEO Ray Ozzie, “When you conceptualized ‘your knowledge workers’, they pretty much lived within the boundaries of your enterprise. The reason Groove Networks as a company exists is that there is a decided movement from a centralized business model to a decentralized model.” If the expertise you’re looking for lies outside your business unit or company, but within an informal business network, a central repository won’t help you make use of it.

Groove seeks to address the disconnect between the way people actually work (peer-to-peer, in shifting cross-organizational teams, with several activities going on at once) and centralized information systems. Central repositories are useful for some KM functions, such as storing enterprise-wide best practices. At the same time, “knowledge gets created and discovered on the edges of networks,” observes director of strategic marketing Andrew Mahon, who worked in the KM group at Lotus before joining Groove.

The bits and pieces of content most useful for a KM system aren’t necessarily the finished documents sitting in your Notes database or intranet Web server. They are the files, email messages, drafts, annotations and the like scattered around end-user machines, often spanning organizational boundaries. It’s hard to pull those crumbs of information together into valuable knowledge if you can’t communicate with your colleagues except through a central server, logically even more than physically.
MEANWHILE, AT A SMALL SOFTWARE COMPANY IN REDMOND . . .

Microsoft isn’t ignoring knowledge management, but it comes at it from a different perspective from Lotus and most of the companies we describe in this issue. “We’re a technology company,” notes Jeff Teper, general manager of Microsoft’s Sharepoint Portal Server.

Customers in recent years have moved away from KM as an abstraction to more concrete problems, he says: “Our comfort zone is selling productivity, collaboration and portal products as companies define more specific goals.”

With SharePoint, introduced at the beginning of this year, Microsoft hopes to achieve the same success in collaborative groupware as it has enjoyed with the more infrastructure-oriented Exchange product line. Though SharePoint, which includes an enterprise portal server and team collaboration tools, is a standalone offering, it is designed to integrate with Microsoft’s established Office and BackOffice suites. SharePoint Team Services will be bundled with the forthcoming Windows XP server, which Teper believes will significantly increase its adoption: “We’re basically taking file servers and making them into collaboration servers.”

SharePoint today can crawl different data repositories to help organizations find information, but Teper says more robust tools for searching people and projects are planned for the next release in 2002. He also sees SharePoint benefiting from Microsoft’s .Net Web services initiative. “The big win for us is getting the ad hoc schema from these team sites running on Windows, and getting the business schema from Web services running on XML, to synthesize and organize knowledge,” he explains.

Groove was designed to be a good place to get work done, but also to make it easier to share and re-use the knowledge that comes out of those work activities. If a company handles a customer support process in Groove, for example, that shared space can be serialized as an XML file and stored with appropriate metadata in a centralized database or KM repository such as LDS. If someone else has a similar issue, they can see not just the resolution of the previous problem, but the entire process history of the earlier shared space if they so desire.

Newknow: finding the right click
“What you need is just one click away; the problem is which is the right click,” says Newknow managing partner for marketing Javier Cabrerizo. In other words, how do you leverage the collective intelligence of workers in an enterprise to make it easier for any user to find and automatically receive the right information when they need it? Web publishing platforms such as Slashdot and recommendation services such as Epinions (see Release 1.0, March 2001) achieve such dynamic filtering by integrating user feedback deeply into the flow of public information. Newknow seeks to do the same within organizations.

Newknow was started by Juan Morán, who previously founded European human resources systems vendor Meta4. It has created a system for automatically classifying and displaying useful information, based on several different tools and techniques. Newknow concentrates not simply on relevance (or similarity) of documents, but on peers’ opinions about content.
The company has deep expertise in artificial intelligence, and is building relationships with universities and research organizations throughout Europe to augment its internal resources. Newknow is very catholic when it comes to AI approaches, relying on a combination of machine learning and human judgement; Cabrerizo says the company evaluated 200 different algorithms for finding useful information and incorporates at least six into its product today. The system weighs the results from the different algorithms and uses a meta-algorithm to determine which one gives the most germane relationship in a particular case.

Newknow displays a small toolbar that is active as users browse the Web, the company intranet or Microsoft Office documents. Users can rate documents from one to five stars; the system also captures implicit information such as how long a person stays on a page and where they click. Users can recommend a document to others in the organization by emailing it directly or sending the recommendation to an enterprise portal, where its usefulness to the recipient is calculated using a set of algorithms. The system supports specific-content “channels,” such as “competitor information,” and allows users to tune the classifiers for those channels incrementally by specifying individual documents as good or bad examples of the channel topic.

What distinguishes Newknow from classification engines such as Autonomy, says Cabrerizo, is its heavy use of human factors alongside statistical methods such as Bayesian clustering. Newknow seeks to understand not just how a document relates to a concept, but how it relates to a user’s cognitive path through a task. Also, Newknow factors in how other users respond to a document. If Al and Ethel both like the same document, an engine may be able to infer something about Ethel’s preferences by examining Al’s. In a laboratory trial for one European portal, Newknow drove up clickthrough rates from 20 to 40 percent by displaying headlines better tuned to the readers’ interests.

Newknow is working to add a new level of interactivity to its product by allowing users to submit requests. The system will return documents related to the question, as well as previous questions and answers on similar topics. Questions can be routed to the experts determined to be most competent to answer them, and the system can also serve as a demand collection mechanism. When someone submits a request, such as a salesman seeking a competitive positioning analysis, that request can be routed to others the system considers likely to be interested, and those other users
Customer relationship management (CRM) suffers from many of the same metaphysical difficulties as KM. The term can apply to just about anything that involves a customer relationship. Unlike KM, though CRM has at least one killer app: self-service. Answering a question automatically online saves hard dollars compared to a human being in a call center (see release 1.0, september 1998). CRM also offers a direct pipeline to revenue-boosting targeting, cross-selling and up-selling, making it an easier sell than the more nebulous KM.

The bottom-up KM techniques described in this issue are just as relevant in customer-facing situations. Think of it as external-facing knowledge diffusion, taking what the organization knows and using it to enrich customers. The line between this activity and CRM is the one Esther Dyson identified in her early writings on groupware (see release 1.0, june 1998): passive information sharing vs. active transaction-oriented workflow. CRM facilitates transactions such as a support call or the transformation of a lead into a prospect according to specified criteria. CKM is a form of information organization and exchange. (We admit CKM is a worse term than KM, because it implies managing not only your employees’ knowledge, but that of your customers as well!)

One of the more interesting players in this area is Recipio, based in San Mateo, CA, and founded by industry veteran and former Intelllicorp ceo Tom Kehler. Recipio helps companies gather input from their customers over the Web. Large companies are swamped with inbound email, and while there are several companies such as Kana and eGain (see release 1.0, september 1998, march 1998) that help them respond to those messages, there aren’t many effective ways to take advantage of that potentially knowledge-rich inbound channel as a rich tool for market research. Online surveys are useful for measuring customer satisfaction (see release 1.0, january 2000), but they generally require users to select from a defined list of answers.

Recipio supports open-ended customer feedback, using adaptive sampling techniques to gain understanding of what’s important to the customer group. For example, NBC uses Recipio to allow viewers to comment on its shows. A viewer types in a comment (“The show rocks, but I wish you got rid of that Gina character”) and gets the opportunity to indicate whether he or she agrees with comments posted by others.

Using algorithms to converge the comments around the areas of greatest interest, Recipio is able to generate statistically valid results without starting from any predetermined set of possible responses. Recipio also uses natural language processing to match similar comments and to gain some understanding of the content of the submissions. The company aggregates the information gleaned from its research into a knowledgebase and can generate reports to summarize responses and trends.

The service typically costs $15,000 to $25,000 per month, depending on the number of interactions involved. Recipio raised initial financing from Technology Partners, J P Morgan, TechFund, Omnicom, NBC and Mitsubishi, and is currently raising a second round.

Looking to the future, Newknow is linking its work to the W3C-promoted semantic Web effort, by understanding RDF metadata and ontologies from external sources. It will also support “typed hyperlinks” allowing users to specify only links related in a certain way, such as overview, introduction or summary.

Knowledge communities
A key dividing line between the theory and practice of KM is community. Knowledge emerges from communities of interest and communities of practice, not...
in isolation. Workers chat with colleagues at the water cooler and with co-workers on the same job.

Software, even groupware, has traditionally had a thin concept of community. Community typically means association with a keyword – “everyone interested in Java” – or a formal category – women or customer service reps. Real communities are more nuanced. They follow interests and roles, but in ways that only become apparent by watching the ways people interact. Some community elements, such as names and roles stored in corporate directories, are external to the KM tools. Others, such as links between documents and threaded discussions, take place inside those tools but must be mapped to the larger community context of the organization.

All the KM-oriented groupware tools face the challenge of integrating better with latent communities in organizations. The other side of this problem is bringing structure and rich metadata – what groupware has in spades – to the environment where most of these communities reside today. That’s the subject of the next section.

Email Miners

The Net’s killer app
A pillar of postmodern KM is to go to where users are, rather than forcing them into a new environment. And that means email.

Email is the Net’s killer app, more pervasive than even the Web. It’s the way business people communicate all the time, because it’s so delightfully flexible. Sure, you can send the same information in a structured collaboration environment, but why bother? Especially when email works online or off; gives you infinite possibilities for organizing information; takes virtually no time to create; pops into your inbox without any action on your part; straddles the line between real-time communication and one-way transmission; and works across corporate and application boundaries. Dan Gruen of Lotus sums up the current situation well: “Email is increasingly being used not just as a way to talk about work, but as the work itself.”

Yet email has plenty of problems as a business tool. “Email is wonderfully spontaneous and in your control, but is a horrible work environment,” notes Ray Ozzie, who says he created Groove to give workers a spontaneous work environment that transcended the limitations of email. Anyone who has tried to reconstruct a project
conversation from a choppy mess of nested angle brackets and missing file attachments knows what he means.

It gets worse. You can organize your own folders, but that gives you only a limited sense of the context of a message or group of messages. Each message is stored as an atomic unit, though it’s usually part of an ongoing group process and provides some information about your usage patterns and relationships to others. Once you file away an email message it’s effectively gone, unless you navigate around to find it again. The information you really want may be in a message you sent or received weeks ago, but the tools for extracting it are limited.

“The inbox has become this rich and diverse database that’s as challenging to manage as any other kind of resource in the company,” says Lotus director of research (and computer-supported cooperative work expert) Irene Greif.

Email, though it’s quintessential groupware, is generally implemented through single-user clients. What’s in my inbox is useful to me, but not to everyone else in my organization. Even if I share my messages with others there’s no way to pull out the knowledge that lives between messages sent by many people in an organization. For example, knowledge about who has expertise on a topic of interest is best gleaned not from one person’s messages but from an entire group of users, as they constantly reference and respond to one another.

Not to mention that, as recent virus outbreaks have shown, email clients are hardly secure. Despite the existence of virtual private networks and encryption technologies, most email is still sent over the Internet in the clear. That’s a big problem for some organizations. According to EcoCap ceo John Clippinger, the US Department of Defense found that 98 percent of internal inquiries regarding the bombing of the USS Cole in Yemen last year went through unprotected email or similarly unsecure channels such as phone or fax.

A number of startups have caught on to the power of email, with the success of Research in Motion’s Blackberry wireless email devices being perhaps the best example. On the software side, Speedle leverages the common practice of emailing links to interesting Web pages to friends and colleges; Roamable uses email as a channel for dynamic communications with consumer brands or enterprise applications; and Godspeed is rethinking the architecture of email servers to make them vastly more scalable. And these are just a few examples. Below we offer several more, specifically relating to email as a productivity or KM tool in organizations.
Abridge: spanning the gap between email and knowledge

Abridge president and founder Susan Hunt Stevens (previously head of marketing at New York Times Digital) traces the need for her company’s product to the growth in both the volume of communications a typical knowledge worker engages in and the number of tools (phone, email, fax, instant messaging, etc.) involved. “Individuals started using their inbox as the company filing system. However, email is very user-centric so critical information about the business is increasingly inaccessible, distributed and unorganized,” she explains.

To address these limitations, Abridge built tools to automatically capture and organize email traffic in a Web-based group repository. The system then automatically organizes messages and corresponding documents in the repository along several attributes using natural language processing and other algorithms. “We wanted to help businesses generate value out of the assets flowing in the day-to-day communications with customers, partners, and employees,” Stevens says.

The company piloted the technology with 20 companies, including Sharp Labs, Reuters and several ad agencies in the Interpublic group. It learned that so much material flows through email that, while companies greatly valued access to shared messages, simple organization and categorization didn’t distill the information enough. The real benefits come from giving users insight into the patterns of activity and discussion their email traffic reveals.

Abridge hopes to be (as the name implies) a bridge between the two faces of email: an individual-facing desktop application and a communications mechanism that involves many people inside and outside a company. Email is the conduit for a great deal of the interactions in any information-oriented business, but there’s no simple way to look at those email interactions across departments and companies. A sales rep would like to know that a customer has had several recent testy interactions with customer service, but unless everyone takes care to enter everything into a CRM system, that information is unlikely to jump the organizational boundary.
Says coo Jason Bluming, previously a vp at Web-services platform vendor Bowstreet: “An organization is a loosely coupled federation of employees working with a shared goal. We’re providing the unifying scope, the weather map of the organization, if you will, to show you what’s hot, what are people concerned about, what’s occupying the time of the organization and when is it wasting time.”

Bluming describes the company’s solution as second-generation business intelligence, mining organic communications as opposed to dead documents. Abridge’s Contextual Vector Analysis identifies over 25 attributes, including conversational content, audience and intensity, giving users insight into the flow of conversations. Users can apply lenses to slice and dice the resulting knowledge store. “The nature of email and messaging is that each document may not contain all of the data, but the collective understanding of a concept may,” says Bluming. He draws an analogy to bringing a change-sorter or a metal-detector to the beach to look for treasure. The change-sorter handles coins well but presupposes that’s what you’ll find; the metal-detector may find things (a ring or a gold charm) you didn’t know to look for.

To address privacy concerns, Abridge allows users to opt out of the system entirely or for specific messages or types of messages. The system can also extract and display trend information without showing anyone else the contents of individual messages. Abridge originally considered offering an outsourced service, but customers, especially in regulated fields such as financial services, were concerned about allowing their message traffic outside the firewall. So Abridge now sells software licenses at approximately $50,000 to $150,000 for a business unit, plus professional services.

Tacit Knowledge: you are what you write

Tacit Knowledge Systems mines corporate email streams, or other data repositories a company depends on (including customer service case records and document management systems) to automate the process of finding experts on particular topics. The key difference between Tacit and traditional KM vendors, says ceo David Gilmour, is that instead of trying to get employees to spread knowledge by publishing it, Tacit works bottom-up and runs in the background. “It cuts out the whole publishing process and the whole KM quagmire,” says Gilmour.

Tacit receives copies of outbound email messages or other documents looks for clusters of concepts around individuals in the company. “Unlike search engine we have a strong concept of time,” says Gilmour. “We’re looking for clusters of intensity of focus.” You’re less likely to be an expert about something you discussed six months
ago but haven’t mentioned since. However, that’s not always the case. You’re unlikely to remember a particular remark made in a phone conversation a month later, but if the person on the other end of the line tells you he just witnessed a plane crash, you may remember the call the rest of your life. So Tacit includes a retention algorithm that weights historical associations based on the original intensity of focus.

Expertise automation is a highbrow term for something that happens all the time in people-centric organizations. Take an example from a large West Coast law firm that is a Tacit customer: A new judge was assigned to a case, and the firm had half an hour to find the lawyer in the firm who had the most experience with the new judge. Matching expertise is also important for outbound communications. Texaco uses Tacit in the oil exploration and drilling organization to help distribute safety or accident reports from its facilities; instead of sending every report to every oil rig manager, the company can target information to recipients for whom the specific conditions in the accident report are relevant.

Increasing speed, complexity and importance of human expertise are the key driver’s of Tacit’s business, as with all KM solutions. “Until the Internet happened, everyone was trying to automate processes by baking intentional business processes into software,” explains Gilmour. However, he continues, “In high-change environments, re-engineering and process automation have nothing to say or add. You can’t imagine trying to run an entire pharmaceutical drug-development operation on a project management application or SAP because things change so fast.” Tacit gets around this problem by baking expertise identification directly into the tools employees use, changing the focus from publishing knowledge to brokering it.

Expertise to Tacit is not the same as being an expert. What’s important is whether someone can answer a question – “Does anyone have a good contact at Oracle?” As Gilmour explains, “We don’t actually measure proficiency; we measure focus.”

Unlike the affinities mechanism in Lotus Discovery Server (see page 9), Tacit doesn’t require any formal ontology to begin its expertise mapping. “This kind of technology should be used to inform ontology development; it shouldn’t be primarily a consumer of ontologies,” says Gilmour. Though Lotus partially automates the ontology-development process, it still relies on an explicit taxonomy, which Gilmour argues limits its effectiveness because taxonomies are difficult to scale and cumbersome to change. With a taxonomy, he says, you wind up finding things because you
expected to see them, not because they reflect the actual patterns of organic activity in an organization.

Privacy is a serious concern with any system that automatically reads people’s email. Legally, employees in the US have virtually no formal right to privacy of their work email messages, but they still may resent or resist a system they feel is an invasion of their personal messages. Gilmour says Tacit has learned over time the subtleties of addressing the privacy issue, such as how to word the initial message to users announcing the system. Tacit doesn’t store or display the contents of messages, just weighted phrases characterizing the sender, and it gives users control over what gets displayed. It doesn’t add anything to the expertise profile visible to others without review by the user, and has a brokering mechanism so that searchers can email experts without disclosing their identity, or without knowing who the expert is ahead of time if the expert wants to keep that information private.

Tacit has built its technology into several product offerings, and it can also integrate with enterprise portals including Plumtree and Lotus’ K-station.

Krypteian Systems: the people search engine
Krypteian ceo Jonathan Winer has a succinct description for his company’s technology: “Our system is a people search engine. You enter in criteria, and it returns a rank ordered list of individuals, along with information about those individuals.” The startup was founded last year by eight recent graduates of Harvard, Yale and MIT, who developed algorithms to capture social networks and contextual information in email streams.

Similar to Tacit Knowledge, Krypteian lets users search for and contact experts on particular topics, by mining the email traffic already flowing within and between organizations. Says Winer: “Of all the documentation in the enterprise, email is the only one that updates itself automatically. People are sending email anyway as apart of business functions. It’s a constantly up-to-date store of not just the knowledge people put into documents, but their entire body of knowledge.”

What makes semantic parsing of email difficult, Winer says, is that email messages tend to be short and informal, providing few of the linguistic clues natural language processing engines depend on. However, email has contextualizing elements such as the author,
subject and how quickly someone responds to a message. The hard part is figuring out how to weight those different factors. Krypteian built a neural network and ran large volumes of email through it to tune the algorithms. Because it uses a neural network instead of natural language processing and keyword matching, Winer says, Krypteian’s system doesn’t require companies to set up explicit taxonomies ahead of time and modify them as terms change.

Krypteian believes its technology allows not just more accurate matches than other expertise systems such as Tacit Knowledge and Lotus’ affinities, but also more granular information. For example, if you search for Oracle knowledge, Krypteian will tell you whether the people it suggests are Oracle developers or analysts of Oracle’s financial performance. Krypteian also analyzes social networks, and can determine the degree of separation between you and the expert. This helps for finding the best means to reach that person if you don’t have a direct relationship.

Krypteian offers various mechanisms customers can configure to meet their comfort level about privacy. For examples, users can opt out entirely or opt out from individual messages, and the system has a built-in filter to screen queries that might be viewed as inappropriate. Organizations can define role-based permissions so that certain types of employees aren’t able to identify and contact others.

Monitor Group, a management consulting firm, is beta-testing Krypteian’s system and is also an investor in the company. Krypteian also has a pilot with a major law firm, and in addition to seeking out customers the company is looking for its first round of institutional financing.

EcoCap: from interactions to transactions
EcoCap founder John Clippinger knows a thing or two about knowledge management, having led development of Coopers & Lybrand’s pioneering KM intranet in 1995. Following his stint with natural language search technology vendor LingoMotors (formerly Lexeme; see Release 1.0, March 2000), Clippinger started EcoCap to build tools for enhancing productivity of knowledge workers.

“Knowledge exists in relationships between people, not in a repository. You turn to people you trust,” Clippinger explains. Thus EcoCap is built around social networks rather than dry central knowledgebases. People interact on the basis of roles and bound-
aries they don’t want to see violated, notes Clippinger. Software that isn’t sensitive to these subtle influences gets in the way rather than facilitating richer interactions. On the other hand, he explains, “If you agree to certain conventions about conversation, you can follow processes.”

Communication between unfamiliar groups generally starts with a lightweight protocol for information exchange, which becomes the basis for deeper layers of interaction. EcoCap follows the same method. It provides a small Outlook plug-in that lets users assign categories to email. The goal is to make the service as lightweight as possible, avoiding the mistakes of over-engineered KM products. A small number of primitives such as invitation, offer and request can describe a surprisingly rich variety of interactions, Clippinger claims. Groups can also create their own categories.

As users frame the intent and context of their messages, that information is collected and organized by an EcoCap server, which generates metrics about personal or group performance (but not about how other individuals in your group perform). With traditional email, users only see their direct interactions with others, even though interactions among other team members are part of the same group process. EcoCap enhances email by layering useful metadata into the inbox itself, as well as through a Web portal interface that displays metrics about individuals and the groups they are part of.

For example, users can see how much time they are spending on a project, how quickly they (or others) respond to colleagues, whether a request they sent is still pending in the recipient’s inbox, or how central they are to the web of interactions in a particular group.

Clippinger, who published a book in 1999 called THE BIOLOGY OF BUSINESS, sees such metrics fostering self-organization. “The governing principle is that if work processes are made transparent, accountability and performance increase,” he explains. He compares them to price signals in a market, which allow self-interested individuals to interact in massive, largely self-regulating economies. By generating metrics that feed back to the users themselves, rather than simply giving a top-down view to managers, EcoCap believes it can help workers be more efficient.

In addition to Clippinger, EcoCap’s management team includes ceo Karen Weltchek (former ceo of Atex Media Solutions) and cto Paul Trevithick (previously with the MIT Media Lab). The company is in early beta tests with potential customers, and plans a commercial release for August.
Neomeo: changing email from the inside out
Email is a de facto productivity tool in virtually every business, yet email was designed for simple person-to-person messaging, not to get work done. Yet email has become a de facto productivity tool. “In the 80s it was the desktop; in the 90s it was the Webtop; in 00s it will be the mailtop. People will do more and more work inside e-mail,” says Neomeo CEO Amir Bakhtiar. Recognizing this, Neomeo is focused on infrastructure for delivering applications in and around email.

The difficulty is that the existing email infrastructure isn’t changing any time soon. The server protocols are so ubiquitous that even if they do evolve, it will take years — witness the slow adoption of IMAP (which allows more sophisticated communications between email clients and servers) and HTML email. And on the client side, a few large companies have locked up the vast majority of users. Competing against the installed base of Lotus Notes and Microsoft Outlook/Outlook Express users is like taking on Microsoft and Netscape with a competing browser: an almost impossible strategy for a commercial software vendor.

Neomeo’s answer is to change email from the inside out, with software that sits between a company’s mail server and its users. The Neomeo platform is in effect an email application server, adding dynamic content and database-driven features to email the same way Web application servers such as BEA Weblogic and Cold Fusion do for Web pages. Users keep their existing email clients; the only requirement is that they support HTML email, which recent versions of every major package do.

Bakhtiar believes one reason no one has built a platform to enhance email productivity is that companies typically view the email systems as separate from their enterprise applications. Bakhtiar spent eight years at Morgan Stanley, where he found that, as with many companies, “the people who ran email also ran the phone system.” Messaging and communication, in other words, are usually seen as distinct from dynamic transaction-oriented business functions.

As with many Internet startups, Neomeo initially envisioned consumer applications for its technology (pulling order numbers from e-commerce confirmation messages, for example), but it refocused around enterprise productivity when it became clear that was where the potential customers were (at least those willing to pay). Bakhtiar knows both sides of the corporate/consumer divide. In addition to his Morgan
Given its popularity and age, email has been a remarkably stable communications mechanism over the years. Part of that is the least-common-denominator nature of the Internet’s email protocols, POP and SMTP. Internet mail servers are so ubiquitous that upgrading them is a many-year process, as with the Web’s HTTP.

Many companies layer “special delivery” features on top of Internet email, such as security, guaranteed delivery, timestamping, notification and retraction capability (SEE DOCSPACE IN RELEASE 1.0, JUNE 1999; POSTX IN RELEASE 1.0, MARCH 1998). Yet so far these functions have not caught on, in part because they require jumping out of your email application to a Web page, or at best installing special plug-ins to your email program.

Email has also remained relatively unchanged because it was “the app that time forgot” in the competitive battles on the desktop and the Web. Microsoft battled WordPerfect and Novell in office productivity apps, Lotus in groupware and Netscape in Web browsers. In every case the periods of intense competition before Microsoft became the dominant vendor led to innovation and introduction of new features.

Email was always an afterthought, partly because it was historically just a feature of online services such as AOL, browsers and enterprise groupware packages such as Notes. Eudora, the leading Internet email application for many years, was acquired by Qualcomm and hardly improved over an extended period of time.

What comes next for email? Researchers and developers are finally devoting attention to the question. Microsoft is making up for lost time adding functionality to its email client, especially in integration with other applications such as Web, calendars and address books. (Then again, Microsoft’s support for calling Outlook functions through executable code in HTML email brought us the Melissa virus and its many descendents. The latest version of Eudora adds usage statistics, “moodwatch” algorithms that flag potentially offensive messages and a peer-to-peer file sharing protocol.

The recognition of email’s importance as a productivity tool, and its link to KM, is also spurring innovation. Irene Greif’s research group at Lotus is exploring what email has become – and what it could be – through observational studies and prototypes of tools and interfaces. Focus groups have indicated that users feel overwhelmed by the volume of email: They can’t process it; useful information falls through the cracks or can’t be found when they need it; and they can’t meet expectations about responsiveness to high-priority messages.

One response is to make it easier to visualize messages in the context of ongoing threads, just as our brains manage huge volumes of information by chunking smaller concepts into larger ones. “A lot of the tools treat individual message as individual items; we want to go further and reflect the activities that these messages are part of,” explains Lotus’ Dan Gruen. Or as his colleague Paul Moody puts it, “threads sew together tasks.”

Lotus is prototyping tools for visualizing email threads and for clustering similar types of messages into “piles” that can be reviewed separately just as people manage piles of paper on their desks. As Greif notes, a complicating factor is that people use email for different purposes at different times. It’s not easy to switch between user interfaces, even if each one works for the specific task you’re engaged in.

The Lotus group is looking at ways to gain knowledge from the contents already in an inbox. If I exchange three messages a day with Al in my workgroup, why not auto-fill that Al’s email address when I type “a” in the “To:” header instead of the most recent Al I wrote to? If I get a message from Ethel, who hasn’t written to me in three years, the previous emails we exchanged might be useful to display in case I want to refresh my memory. The structure and context lurking in inboxes can also enhance automatic summarization tools that make it easy to scan message streams quickly. Traditional information retrieval techniques were designed for documents, not email messages, and therefore don’t work as well as they could.

As one would expect given its groupware expertise, Lotus is also thinking about collaborative email inboxes. Many executives have assistants who filter their incoming email, but email applications have no tools to support such relationships. In this and other cases, an email may be sent to a single recipient and generate a single response, but pass through a collaborative process of annotation and discussion.

It’s not yet clear whether or how any of these ideas will make their way into commercial products. As Greif observes, users take email for granted so fully that they don’t think about how it could be changed. Most improvements must therefore come from vendors rather than from customer demand.
Stanley experience, he co-founded Throw (see Release 1.0, March 1997), an online community platform acquired by Excite.

Unlike email mining applications such as Tacit Knowledge and Abridge that identify patterns from email traffic but don’t change the content of message, Neomeo sits directly in the email stream. It parses every message that pass through to understand context such as whether a string of text is a phone number or a stock name. Neomeo has built several applications on its platform that add information to email messages or extract information into Web-based repositories.

Neomeo Activator embeds relevant information based on the content or headers of a message. For example, a brokerage firm could use it to display stock quotes, charts and research reports automatically whenever a company name is mentioned in an email. The additional content shows up as HTML alongside the original message content, without requiring a jump to the Web or to another application.

Neomeo Clipper automatically strips off attachment files and stores them in a shared repository, which is accessible from a hyperlink inserted into the message. This cuts down on duplicate attachments cluttering up file servers, and allows such documents to be opened directly, processed or sent into an existing KM or document management system.

Finally, Neomeo has created a Web-based interface called Archivist for searching and navigating content originated in email. Using relatively simple pattern matching, the system extracts structured information such as phone numbers, company names, locations and order numbers and allows users to search or sort on just those elements (or on existing headers such as recipients and subjects).

Archivist can also relate dates mentioned in email to their actual date on a calendar. For example, if you write “let’s meet at Starbucks across the street next Monday at 8:00 am,” the system is smart enough to display the appointment next Monday instead of when you sent the message. (Remember Lotus Agenda?) Finally, Archivist incorporates a full-text search engine tuned specifically for searching email, making it much faster than the search feature in existing email applications such as Outlook.

Neomeo is talking with potential customers, primarily in financial services, looking to sign its first marquee deal. It plans to make its services available to enterprises for approximately $250 per user, plus up-front professional services and ongoing maintenance fees. It plans to reach mid-market customers via channel partners.
The Postmodern Approach To KM

The old way to look at KM was top-down. The knowledge manager was like a cowboy herding cows in order to bring them to market. (Only most of the time it felt more like herding cats, as in the EDS commercials during the 2000 Superbowl . . . .) Postmodern knowledge management is bottom-up. Instead of herding farm animals it's like nurturing a garden. There is a high-level goal – keep the ecosystem thriving – just as in business there are high-level goals such as improving efficiency, reducing time-to-market and spurring innovation. But at the operational level there is not a simple set of linear steps to get from here to there.

Keeping the cows from wandering off so that they make it to the slaughterhouse is a simple task. But getting a variety of plants to thrive is not so easy. Knowing what to prune and what to leave alone, what to water and what to transplant, isn't always straightforward. You can read a book about what to do, but you'll only be effective if you watch your own garden and understand what it tells you. In other words, you need knowledge!

The freeplay of the signifier

A fundamental tenet of postmodernism is that there are no fundamental tenets. There is no objective reality because everything is colored by the lens of individual subjectivity. Instead of truth or morality, we are left with what Jacques Derrida called "the freeplay of the signifier."

Postmodernism gave us clever-sounding terms like discursive and hermeneutics, but what does it teach us about knowledge management? Early KM efforts were fundamentally and sometimes disastrously modernist in orientation. They approached the problem as a rationalist exercise of capturing and organizing bits of knowledge, focused on information for its own sake. The people involved were relevant only as donors to the common ontology, or as empty vessels into which that knowledge could be poured.

But life - and business - doesn't work that way. It's messy, complex and subjective. People know what they know, in the sense of being able to accomplish tasks, but they don't know what they know, in
the sense of being able to articulate how they got there. You can’t manage knowledge by forcing workers to contribute metadata into a shared pool, and you can’t start with a universal information taxonomy divorced from the subjective experience of those who use or generate that information.

Postmodern knowledge management isn’t about management at all, because management implies external control. The goal of postmodern KM is simpler yet deeper: leveraging people. KM perhaps should stand for knowledge magnification. It should take the most vital and scarce resource in any organization – people – and give them tools to serve organizational objectives. That’s it. Anything else is either window dressing or tactical freestyle to help individual signifiers make use of knowledge.

KM is changing in part because the world has changed. Networking is becoming pervasive, and with its tools such as email and shared calendars are becoming ubiquitous. Only five years ago KM might be a reason to deploy an intranet; today it’s a function you might think about adding to the intranet you already have.

Moreover, organizational boundaries are blurring. The convergence of LANs and WANs onto one protocol, IP, makes it possible to support group activities that transcend company borders. Teams often include members outside the firewall, whether representing partners, clients or some other group. As a result, tools designed to face
outward (customer relationship management tools and extranets) are bumping into those created originally for internal functions (KM and groupware).

Postmodern KM starts with the concept that knowledge is best understood bottom-up rather than top-down. Knowledge is not a thing that can be gleaned from mining data for patterns or that can be extracted whole from live individuals like wisdom teeth (knowledge molars?). Instead, knowledge emerges from relationships and processes, which are themselves highly dependent on roles and situations.

“The world is dynamic and therefore the organization of knowledge has to be dynamic,” says Abridge coo Jason Bluming (see page 17). Or as David Weinberger notes, “The systems that are doing interesting things tend to be messier than the ‘management’ part of KM would lead you to believe, and they have very little to do with hard-coded objects that you call knowledge.”

The Future Of Knowledge Management

Blogging for knowledge

Where do we go from here? KM products (and other business applications) already do a good job organizing and categorizing information from multiple sources. But that’s predominantly explicit knowledge, the “know-that” that only addresses part of what’s needed. The know-how that resides in tacit knowledge can best be conveyed by doing, by watching an expert in action and listening to his or her narratives.
Those narratives are otherwise known as stories. Stories are how we make sense of the world, but they are foreign to the rigid structures of classical computer science.

Fortunately, there is now a pretty darn good ubiquitous global platform for storytelling: it’s called the Web. And there is now a pretty good mechanism for storytelling on the Web. A hint: we wrote about it last month. It’s the Weblog.

Weblogs make it easy for individuals to distribute personal information lenses, and for audiences to benefit from the collective filtering of many idiosyncratic voices. They channel individual passions. As David Weinberger notes, “That’s what makes knowledge important; it’s something people feel passionate about. That’s also what makes it hard to handle through traditional information management techniques.”

Among those we quoted in our article about Weblogs was Linux Journal senior editor and technology marketing veteran Doc Searls. Searls did what any good Weblogger would – he commented about the RELEASE 1.0 piece in his Weblog. His conclusion? “[Weblogs] are about sharing and growing what we know and what we can tell. I also believe they will succeed where ‘knowledge management’ (and every other kind of management) has failed. It’s the same reason online bazaars like eBay are succeeding where every business intermediary with a 2 in the middle of its acronym is struggling. They’re about us.”

Weblogs and KM aren’t necessarily opposed. Ray Ozzie, for example, sees Groove and Weblogs as naturally complementary: “Groove is a great place to do work but it doesn’t have a shell around it of relationships of people.” Weblogs are the megaphones of social networks. They allow the heavily networked information reflectors in any company to tools to keep everyone else up to speed on “what’s going on.”

Tools to do this have been around for a long time, going back to Unix finger files. And there are other mechanisms for personal information filtering and dissemination, such as the “email this page” functionality that Speedle offers as the basis of its service. What’s important is the general point: KM fails when it loses sight of the nature of tacit knowledge. The best tools for KM are, like Weblogs, inherently social, user-defined and flexible. KM that goes too far toward M will continue to struggle, but if the discipline can remain focused on the K, it may yet reach its potential.
Resources & Contact Information

Susan Hunt Stevens, Jason Bluming, Abridge, 1(212) 924-9814; susan@abridge.net, jason@abridge.com
John Clippinger, EcoCap, 1(617) 542-9160; john@ecocap.com
David Weinberger, Evident Marketing, 1(617) 738-8323; fax, 1(617) 738-7013; self@evident.com
Ray Ozzie, Andrew Mahon, Groove Networks, 1(978) 720-2222; fax, 1(978) 825-8377; rozzie@groove.net, amahon@groove.net
Larry Prusak, Institute for Knowledge Management, 1(617) 693-5021 fax, 1(617) 693-4649
Dave Newbold, Iris Associates (Lotus), 1(978) 392-5229; fax, 1(978) 692-7365; dnewbold@iris.com
Jonathan Winer, Krypteian Systems, 1(617) 547-2900; jwiner@krypteian.com
Doc Searls, Linux Journal, 1(605) 361-324; doc@searls.com
Scott Eliot, Lotus, 1(617) 693-5444; fax, 1(617) 693-5561; scott_eliot@lotus.com
Irene Greif, Dan Gruen, Paul Moody, Lotus, 1(617) 693-5789; 1(617) 693-1407; irene_greif@lotus.com, dan_gruen@lotus.com, paul_moody@lotus.com
Jeff Teper, Microsoft, jeffte@microsoft.com
Amir Bakhtiar, Neomeo, 1(212) 925-8222; amir@neomeo.com
Juan Morán, Javier Cabrerizo, Newknow, 34 (91) 639-9000; fax, 34 (91) 638-7159; juan.moran@newknow.com, javier.cabrerizo@newknow.com
Drew Peloso, Onclave, 1(609) 430-0444; fax, 1(609) 252-1957; drew@onclave.com
Tom Kehler, Recipio, 1(650) 655-2226; fax, 1(650) 655-2210; tom.kehler@recipio.com
David Gilmour, Tacit Knowledge Systems, 1(650) 251-2000; fax, 1(650) 251-2010; davidg@tacit.com
Chris Newell, Viant, 1(617) 531-3778; chris.newell@viant.com
John Seely Brown, Xerox PARC, 1(650) 812-4341 fax, 1(650) 812-4037; jsb@parc.xerox.com
Dave Roberts, Zaplet, 1(650) 620-3900; fax, 1(650) 632-1954; droberts@zaplet.com

For further reading:
Doc Searls on Weblogs and KM – http://doc.weblogs.com/2001/06/06#releaseEarlyReleaseOften
Maish Nichani and Venkat Rajamanickam, “Grassroots KM Through Blogging,”
http://www.elelearningpost.com/elethemes/blog.asp
Calendar of High-Tech Events

2001

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<tr>
<th>Event</th>
<th>Date</th>
<th>Location</th>
<th>Description</th>
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<tbody>
<tr>
<td>PC EXPO</td>
<td>June 25-28</td>
<td>New York, NY</td>
<td>One of the largest IT events in the country. For more info, contact Meredith Zeitlin; call 1 (800) 249-8241; email <a href="mailto:mzeitlin@cmp.com">mzeitlin@cmp.com</a>; <a href="http://www.pcexpo.com">www.pcexpo.com</a>.</td>
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<tr>
<td>FORBES CIO CONGRESS</td>
<td>July 11-13</td>
<td>Dana Point, CA</td>
<td>How CIOs can prepare their corporations for rapidly changing industries. For info, fax 1 (212) 367-3514; email <a href="mailto:conferences@forbes.com">conferences@forbes.com</a>. <a href="http://www.forbes.com/conf/cio/agenda1.shtml">www.forbes.com/conf/cio/agenda1.shtml</a></td>
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<tr>
<td>MOBICOM 2001</td>
<td>July 15-21</td>
<td>Rome, Italy</td>
<td>Address the challenges of the mobile computing and networking industries. For more info, email <a href="mailto:aztela@lucent.com">aztela@lucent.com</a> or <a href="mailto:mobicom2001@winlab.rutgers.edu">mobicom2001@winlab.rutgers.edu</a>. <a href="http://www.research.ibm.com/mobicom2001">www.research.ibm.com/mobicom2001</a></td>
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<tr>
<td>WEBBY AWARDS</td>
<td>July 18</td>
<td>San Francisco, CA</td>
<td>The &quot;Oscars of the Internet.&quot; For more info, call 1 (415) 974-7400; fax, 1 (415) 974-7401; email, <a href="mailto:drwatson@webbyawards.com">drwatson@webbyawards.com</a>. <a href="http://www.webbyawards.com">www.webbyawards.com</a></td>
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<tr>
<td>INTERNET SUMMIT</td>
<td>July 22-25</td>
<td>Carlsbad, CA</td>
<td>The Industry Standard's flagship event. To register, call 1 (800) 255-1444; fax, 1 (415) 733-5401; email, <a href="mailto:conference-info@thestandard.com">conference-info@thestandard.com</a>. <a href="http://www.thestandard.com/events">www.thestandard.com/events</a></td>
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<tr>
<td>O'REILLY OPEN SOURCE</td>
<td>July 23-27</td>
<td>San Diego, CA</td>
<td>The theme for the 3rd annual conference is Fueling the Open Source Alternative. For hardcore system administrators, programmers, and Web developers. conferences.oreilly.com/oscon/</td>
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<tr>
<td>EDUCATION TECHNOLOGY</td>
<td>July 24-26</td>
<td>Arlington, VA</td>
<td>E-learning, management systems, research and applications. Call 1 (540) 347-0055, email <a href="mailto:conference_info@lti.org">conference_info@lti.org</a>. <a href="http://www.salt.org/Ed_Conf/Conference/ConfMain.htm">www.salt.org/Ed_Conf/Conference/ConfMain.htm</a></td>
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<tr>
<td>SIGGRAPH 2001</td>
<td>August 12-17</td>
<td>Los Angeles, CA</td>
<td>Explore the theory, application, evolution and future of interaction and digital images. To register, call 1 (312) 321-6830; fax, 1 (312) 321-6876; email, <a href="mailto:registration@siggraph.org">registration@siggraph.org</a>. helios.siggraph.org/s2001/index.html</td>
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<tr>
<td>EDVENTURE’S HIGH-TECH</td>
<td>November 7-9</td>
<td>Berlin, Germany</td>
<td>Our 12th year in Europe. Call Daphne Kis, 1 (212) 924-8800; fax, 1 (212) 924-0240; <a href="mailto:daphne@edventure.com">daphne@edventure.com</a>; <a href="http://www.edventure.com">www.edventure.com</a>.</td>
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Events Esther plans to attend: [ ]
Events Kevin plans to attend: [ ]

Lack of a symbol is no indication of lack of merit. The full, current calendar is available on our Website, www.edventure.com. Please contact Joanna Douglas (joanna@edventure.com) to let us know about other events we should include.
The conversation continues! Our free email newsletter offers commentary, industry analysis and pointers to interesting Websites on a regular basis. To sign up, please visit http://www.edventure.com/conversation/join.cfm or send email to conversation@edventure.com and you’ll automatically be added to the list.

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*personal email address required for electronic access.

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