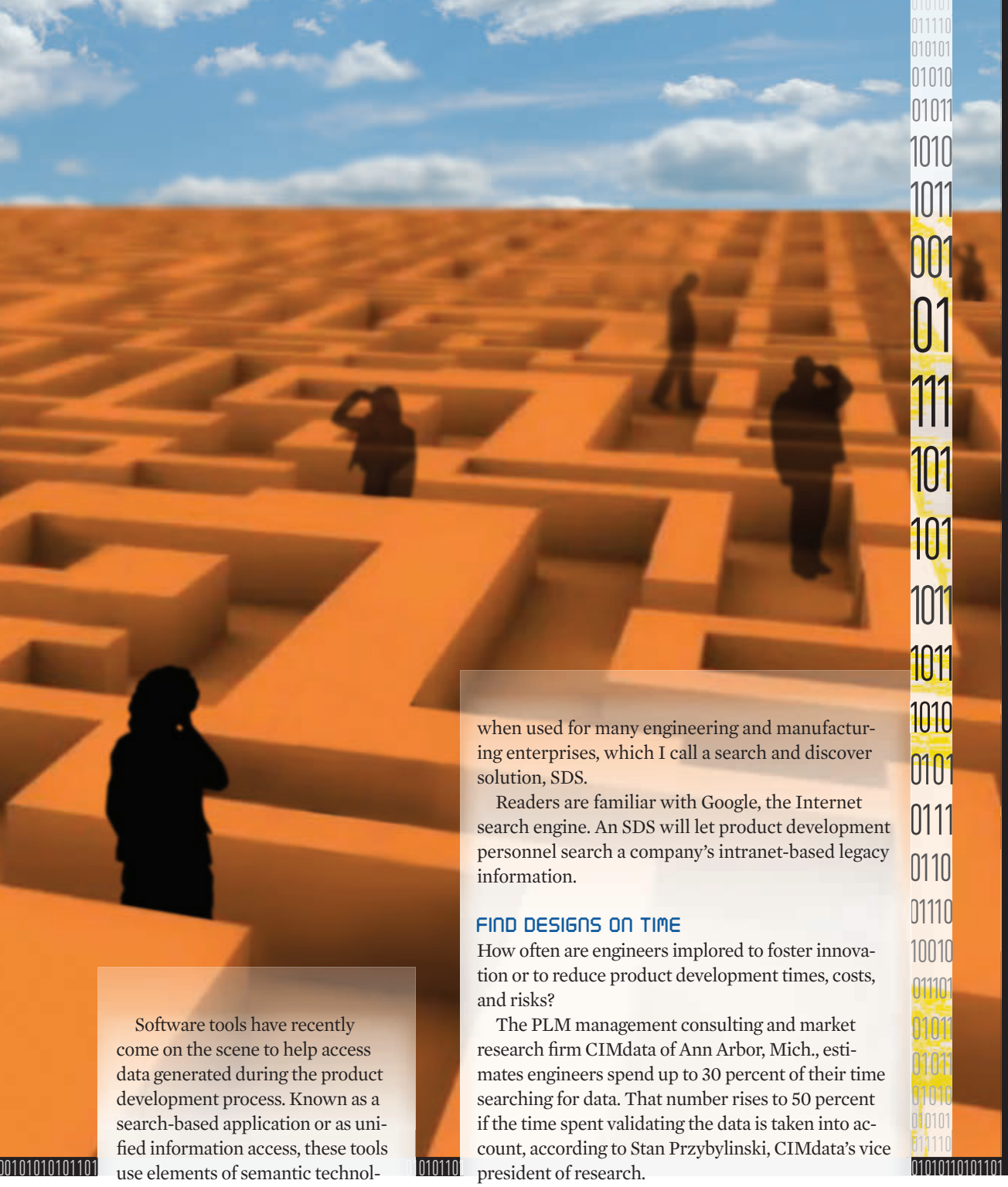
SOFTWARE GIVES ENGINEERS QUICK ACCESS TO PRODUCT INFO FROM LAYERS OF COMPANY FILES

BY DICK BOURKE

SEARCHING FOR PRODUCT DATA IS OFTEN A frantic and fruitless experience for engineers. "Sorry, don't have any idea where those documents are stored." "I'd ask Joe, but he just retired." "Oh, I guess I'll have to stay late to recreate that design info. There goes seeing my kid's soccer game."

Sound familiar?



Software tools have recently come on the scene to help access data generated during the product development process. Known as a search-based application or as unified information access, these tools use elements of semantic technology—machine-based recognition of meanings and relationships in text—to find information stored throughout a company's multiple sources of data, including computer-aided design files and product lifecycle management systems.

These software tools perform three functions: They search, discover, and analyze. The last function involves a highly visible—and hyped—topic these days: Big Data. Just the first two functions, however, constitute a focused application when used for many engineering and manufacturing enterprises, which I call a search and discover solution, SDS.

Readers are familiar with Google, the Internet search engine. An SDS will let product development personnel search a company's intranet-based legacy information.

FIND DESIGNS ON TIME

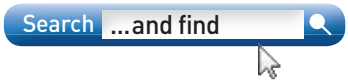
How often are engineers implored to foster innovation or to reduce product development times, costs, and risks?

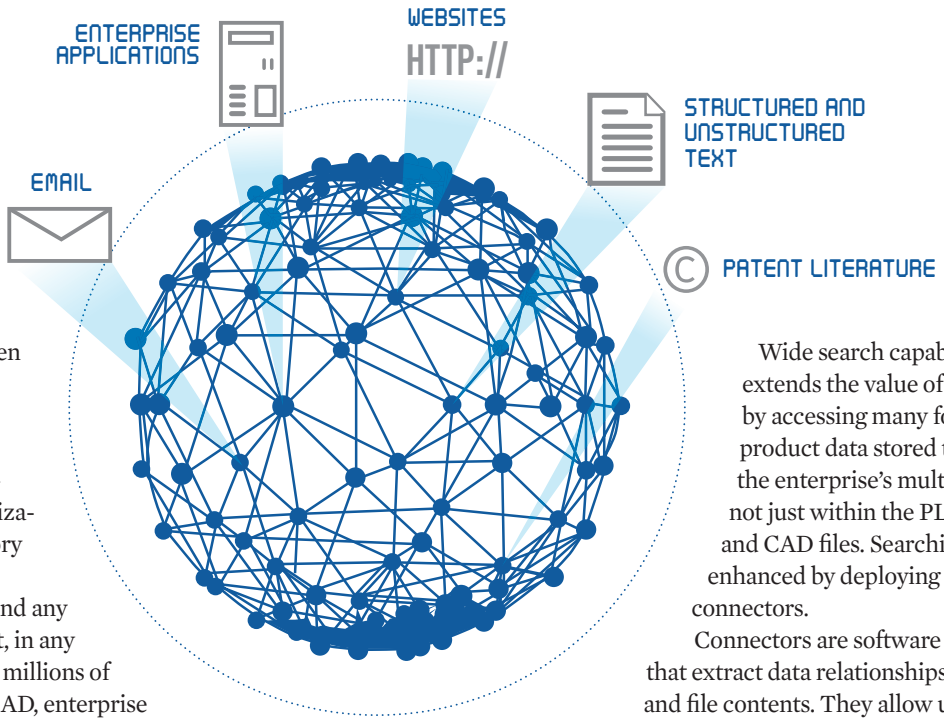
The PLM management consulting and market research firm CIMdata of Ann Arbor, Mich., estimates engineers spend up to 30 percent of their time searching for data. That number rises to 50 percent if the time spent validating the data is taken into account, according to Stan Przybylinski, CIMdata's vice president of research.

Other consulting firms, such as market intelligence firm IDC of Framingham, Mass., cite similar amounts of time wasted by knowledge workers looking for already-created information.

When search applications find tested designs in a timely manner, they save time and money. They also reduce the risks of using incomplete information when making product development decisions. Engineers do not need to create new solutions to problems that have already been solved, nor spend great blocks of their time looking for existing solutions. Instead, they get to focus on activities that are more productive.

Engineers can begin with designs that have already





proved themselves and then will have time to improve on them. Discovering and using legacy designs also avoids costly part duplication, fosters part standardization, and supports inventory reduction.

An SDS is designed to find any information, in any format, in any file, almost instantly, from millions of files. It can search PLM, CAD, enterprise resource planning systems, and many other internal sources of product data.

There is no need to extract, transform, and load new databases or to create new data warehouses to better satisfy everyday inquiry needs. So SDS technology provides another notable benefit: avoiding the time and cost of constantly repurposing and reorganizing files.

HOW AN SDS GETS RESULTS

SDS works a little like Google or Yahoo, in that users plug in a phrase or a single word, and the software will search for these terms through records and files in seconds. The search engine index checks all of the words in every stored document as it tries to match the search criteria. SDS software also will use synonyms of the search terms to assure completeness of the search.

It will find structured data in defined field formats within a database, such as a part number.

It also searches unstructured text, which can account for more than 80 percent of a company's stored information. Unstructured text exists in CAD, Word, portable document files, and in e-mails. Cracking open CAD files, in particular, will reveal content and relationships among these files during the search process, allowing engineers to find helpful information that can be reused. By finding such a file, an engineer doesn't have to recreate a part that already exists in the system but previously couldn't be found.

Wide search capability extends the value of an SDS by accessing many forms of product data stored throughout the enterprise's multiple files, not just within the PLM systems and CAD files. Searching can be enhanced by deploying an array of connectors.

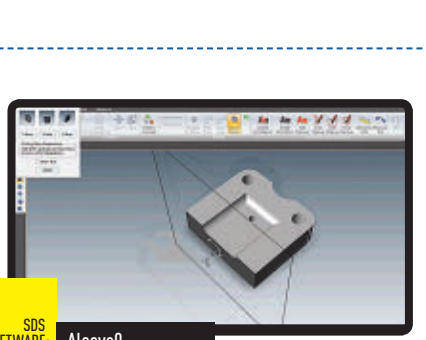
Connectors are software modules that extract data relationships, metadata, and file contents. They allow users to discover product data previously hidden in isolated silos, such as quality reports.

The width of a search is optional, depending on management policies for accessibility and security, and the availability of connectors. The wider the search the more likely that all relevant content will be discovered.

A typical initial search may reveal hundreds of choices; further exploration is highly likely. A user can then refine the results list to discover data that are most relevant for decision-making requirements.

Relevance is an essential dynamic in an SDS. It's the "aha" moment: "Oh, here's that CAD file with the supporting analysis reports I desperately need."

Relevance is determined by ranking methods, which range from simple to



highly complex, based on sophisticated mathematical logic.

In addition to the results list, a user will see choices to refine searches: by date or by file type, for example. Most SDSs also show thumbnail previews of documents and images to help the user identify them without having to open them.

Thus, the user's ability to determine the correct choices for further exploration, discovery, and ultimately, informed decision-making is key to the most successful search.

SDS SOFTWARE: Exalead OnePart
COMPANY: Dassault

TOOLS FOR THE JOB

According to Martin White, managing director of Intranet Focus Ltd., an information management consultancy in Horsham, England, there are about 70 search software choices. Not all of the 70 choices are focused on product development needs in engineering and manufacturing enterprises.

Those that do have a product-development focus include Spinfire Professional, from Actify; Active Workspace, from Siemens; Alcove9, from the company of the same name; Endeca, from Oracle; Exalead OnePart from Dassault; IHS Goldfire, from IHS; Infor 10 ION Enterprise Search, from Infor; Inforbix, from Autodesk; and Encompass Engineering, from Perception Software.

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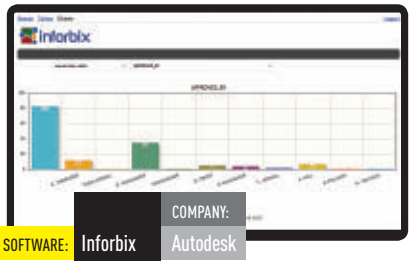

SDS SOFTWARE: Inforbix
COMPANY: Autodesk

Another type of search technology to consider is geometric-based search. It pinpoints relevant parts based on shape. Geometric-based search finds 3-D CAD models with identical or similar shapes by using mathematical representations of part profiles–in contrast to an SDS's semantic technology applied to text.

The recent CIMdata report "3D Geometric Search" describes this technology and identifies several vendors. (You can get a copy by request to info@cimdata.com.)

A company's software selection criteria must encompass the informational needs of all product development activities throughout the enterprise. These activities include design engineering, manufacturing process planning, and quality control. For that reason, I strongly recommend an SDS that can open and access content in CAD files.

But widely accepted selection criteria for an SDS in engineering and manufacturing don't exist yet. For an individual enterprise, the criteria will be situational. In other words, there is no one best software tool. Don't waste time looking for it.

As Ken Versprille, CIMdata executive consultant, put it: "I actually see the future as a mix of text, geometry, image, and audio search. And if you could touch and smell it, maybe throw that in too." ME

SDS SOFTWARE: Infor 10 ION Enterprise Search
COMPANY: Infor

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COMPANY: Oracle

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