



TAKE RISK OUT OF THE INFORMATION EQUATION



Senior vice president in the Product Design business at IHS, Chad Hawkinson identifies risks to the technical enterprise and shares his thoughts on how to address those challenges

Q What are the information risks confronting engineers today?

As an engineer, I believe that engineering is the greatest profession. Engineers have a profound impact on our daily lives through the things they invent, the problems they solve and the innovations they bring to market. And engineers are tough—they take great pride in being able to solve difficult problems, despite the fact that they might not have the best tools and despite the fact that they might not be able to access all the information they need. Engineers work through those challenges, they come up with solutions, and they get those solutions out to market.

But what we see, working with a great number of engineering teams, is that engineering-centric companies across industries are having to deal with a convergence of information

challenges that are putting their long-term prospects at risk.

For example, look at the volume of information engineers need to get their jobs done. Did you know that, for any given technical problem, an engineer needs to access an average of 13 different information sources to solve that one problem? It might be things like standards, patents, material properties or their own internal documents, like previous projects they worked on or internal corporate standards. It takes a lot of time for engineers to find that information. In fact, our studies suggest that engineers take anywhere from one-third to half of their time searching for information.

Another challenge is simple demographics. We did a survey recently with *Supply & Demand Chain Executive* and found that half of the practicing engineers surveyed were

planning to retire in the next five to 10 years. That represents a huge amount of technical knowledge and tribal know-how that is walking out the door in the very near term. We see many organizations struggling to preserve that knowledge and, more importantly, make sure that the younger generation of engineers entering the workforce is able to access that knowledge so they don't have to reinvent the wheel, or make the same mistakes over and over again. (See "Winning the Knowledge Race" on Page 16 for more survey results.)

Q What can organizations do to effectively mitigate the risks you talked about?

The good news is that companies are learning how to make their teams more productive and effective by embracing a technical knowledge management framework that removes the barriers preventing engineers from easily accessing the information they need to get their jobs done. The impact of this kind of framework can be dramatic. As aforementioned, engineers typically spend one-third or half of their time looking for information. With the right kind of knowledge management framework in place, companies see their engineers spending just 5 to 10 percent of their time locating information. And when they have the right answers and the right tools at their fingertips, engineers are able to solve problems faster, innovate faster and complete their projects faster.



Q What does a best-in-class technical knowledge management framework look like?

It's three components, really: content, analytics and tools. It all starts with the content, the library of technical information that you want to put at your engineers' fingertips. That includes the accumulated internal knowledge built up within an organization—after all, an engineer's most trusted source of information is other engineers. But it also includes information such as standards and specifications, handbooks and manuals, technical articles, academic journals and patents—all the essential external reference information, if you will, that engineers use in making decisions.

An important point about this external information is that it should be curated to ensure that it meets the information needs of the company's engineers, so that it aligns with their industry and with their particular engineering discipline. It also should be curated in the sense that the information sources are trusted, so your engineers are relying on up-to-date, authoritative sources when they're making mission-critical decisions.

In addition to the content, you want to have a means of finding answers in all the information. To discover the needle in this huge haystack, you need to apply the most advanced content analytics and search technology. This next-generation search technology understands the meaning of a user's query and can match the query to the appropriate content that answers that query, regardless of whether that content is external or internal, and regardless of whether it is structured or unstructured content. Ideally, you want to have what amounts to a virtual subject matter

expert standing beside you, guiding you through the content, asking questions that you might not think to ask and bringing in knowledge from sources you might not think to search.

Finally, you need embedded workflow tools that automate ideation and problem-solving methodologies, such as root cause analysis (RCA), value engineering and failure mode and effects analysis (FMEA), among others. These are tools that leverage the content in your curated library and let your teams work with the information

of platform, we saw engineers' search time go from 30 to 50 percent of their time all the way down to 10 percent. When you think about that kind of gain, it's really about giving those companies back 20 to 30 percent of their engineering workforce—doing much more with the same resources. It's about giving your engineers more time to solve the big problems, making you more responsive and competitive in the marketplace, staying out in front of the innovation curve, and hitting your financial goals.

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in the context of their workflows. For example, an engineer might use a patent analysis tool to identify where a competitor has a blocking patent, driving the engineer to make a crucial design decision early in the development process to avoid redesign later in the process.

So, those are the three components of the technical knowledge management framework: content, analytics and tools, all brought together in a single platform on the engineer's desktop.

Q You mentioned that this kind of platform can reduce the time engineers spend looking for information. What are the other benefits of a platform like you described?

Just to reiterate, in some of our early testing with customers using this kind

of platform, we saw engineers' search time go from 30 to 50 percent of their time all the way down to 10 percent. When you think about that kind of gain, it's really about giving those companies back 20 to 30 percent of their engineering workforce—doing much more with the same resources. It's about giving your engineers more time to solve the big problems, making you more responsive and competitive in the marketplace, staying out in front of the innovation curve, and hitting your financial goals.

ABOUT THE AUTHOR

A senior vice president in the Product Design business at IHS, **CHAD HAWKINSON** has more than 20 years of experience working with engineers to solve their most difficult challenges. Today, through frequent meetings with senior engineering leadership at the world's largest manufacturing and engineering companies, Hawkinson sees close-up the risks looming over the technical enterprise and the problems keeping engineering leaders up at night. In this interview, Hawkinson shares his thoughts on the information challenges facing the engineering community—and his perspective on how leading organizations are addressing those challenges.