

Advisory Board Directions



Knowledge based engineering methods speed development, improve quality

By **Bozena Kunowski**

Is your organization looking for: shorter product development times, lower development costs and improved product quality?

If you answered yes, you may be interested in learning about Knowledge Based Engineering (KBE). KBE can be defined as

the process of capturing product design knowledge and then re-using it. But the question remains, how can KBE be used to help your organization?

Let's consider a case study: Joe, is a senior designer for over 15 years in a company that creates the designs of new widgets to meet the specific needs of their customers. Business is good and Joe is completely tied up with creating new widgets. The com-

pany would like Joe to use his experience to work ahead on some R&D projects but it seems Joe is the only one that can complete the critical design work for the widgets and thus has no time for R&D.

The company is in a competitive market and knows that innovation is essential for their success. The solution?

Look for opportunities to harness Joe's experience by documenting standard prac-

tices, defining rules where possible and look for opportunities of re-usability. By defining Joe's design process, there will most likely be opportunities to include junior support more easily as well as to highlight potential opportunities for automating portions of this process. The end result will be more time for Joe to dedicate to R&D and to continue innovation within the company – without jeopardizing production.

Digging into your own design team deeper, you may be surprised to find designers that are already using standards, spreadsheets and even equations generated through their experience. These are examples of KBE. The problem can be thought that this knowledge is locked into one realm instead of being shared within the organization. Unleashing this knowledge will result in a larger benefit to the entire company.

All companies hold knowledge. To see how your company is doing, ask yourself the following questions. If you answer yes, to any of these questions it might be a good time to take a closer look at how KBE could benefit your product development process.

Do you require product specific knowledge to build your product and have you adequately captured that knowledge?

Can you share and re-use this knowledge? Or do you start from scratch with each new product?

Have you ever repeated past design errors? Have you ever lost product knowledge because one of your employees left the company?

Does it appear or are you told your designers are too busy with day-to-day work that they cannot look into new product development opportunities?

Let's now have a look at how can we go about implementing a KBE philosophy. The following points briefly define the steps in the process:

- 1. Discover:** Define the design process; look for opportunities for re-use or steps that can be defined. Interview your technical people and ask questions. Really understand the tasks that are required in your product development process.
- 2. Capture:** Document what you have learned through discovery. Feed the configurator and create rules. Defining and documenting the design process is an essential step to understanding opportunities for the implementation of knowledge based engineering practices.
- 3. Share:** Organize the knowledge and ensure it is easily available to all people that need it. Publish and distribute; make the information available and easy to find.
- 4. Utilize:** Incorporate, Re-use, Automate and Validate. Build this "knowledge" into your designs automatically.

Challenging the phrase "that's the way we've always done it" may bring great rewards and not to mention, free up more time to do exciting product development work.



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