The Role of IT in New Product Development Today

FEATURING:

- Getting ready for change
- How IT can help
- Maximizing ROI of IT
- Modular versus integrated solutions
- Web-based alternatives
- Making integration work

Selecting the right NPD technology and avoiding "tool hype"

TECHNOLOGY doesn't make decisions, humans do. So says Greg Taylor of Rand Worldwide. That said, companies are increasingly looking to technology to streamline and enhance new product development (NPD) performance.

The movement hasn't reached the tipping point yet. Potential technology users fall into three groups: the early adopters, the early majority who are willing to entertain the idea of software support, and the mass of companies that aren't ready at all. But that could change quickly.

This trend seems to be parallelling the adoption of the product development discipline itself. According to Bob Cooper of PDI, who coined the phrase "Stage-Gate™," over 70 percent of companies say they have embraced the discipline for NPD. But Brad Goldense of Goldense Group says that of the companies who claim adoption of the NPD discipline, as few as 20 percent are applying it at the management level, and less than 10 percent have actually drilled down to ensure that all layers in their company participate—a key factor in the effectiveness of the program.

To get a competitive edge, companies must execute the NPD process well, and the fact remains that product failures are still amazingly high. After that comes the right technology.

As one practitioner puts it, "What's really important is the process. If the software brings a process that's significantly better and easier to use than the current process, then it is a winner."

If the right process isn't in place, and potential software buyers don't understand what they want automation to achieve, they may find themselves the proud owners of discarded or unused "shelfware," rather than labor-saving, cycle-shortening business and operations management software tools. "The software doesn't work," is a common complaint, and too often, even when problems are corrected, mistrust of the new tools remains.

Technology has potential

But the promise of the new technology is real. Today software is being developed to streamline the NPD and product lifecycle management (PLM) process at every stage. Early adopters have found they've been able to enhance communications and collaboration, accelerate decision-making, improve portfolio management, and take the paperwork out of administrative tasks. Automation can also assist all phases of operations, enabling the parallel activities of design, testing, manufacturing, and marketing in preparation for launch. It can also help on the front end by capturing ideas, as well as during portfolio management by automating tracking measurements of various pro-

> "If the software brings a process that's significantly better, it's a winner."

cesses. Overall, these tools can lead to better measuring of NPD key processes in order to make better real-time decisions at the managerial level.

The IT vendor landscape

Today all of this is more than theoretically possible. Many systems are already available to make this happen. In fact, the landscape of IT vendors in the product development space is booming. Companies like Sopheon and IDe now offer broad suites of software designed to support the business management of product development, while other vendors such as Agile Software, Dassault Systemes, EDS PLM Solutions, IBM PLM, Matrix One and PTC (Parametric Technology Corp.) lead on the operations dimension of product development. (See *Visions* article for more on this distinction.[2]). Together, this entire class of IT systems is increasingly referred to as enterprise product lifecycle management (PLM) software.

More recently, software giants like SAP and Oracle have entered this arena, bringing to bear all the resources they have used to provide backbone business applications to the Fortune 1000 in areas such as enterprise resource planning (ERP).

Then there are the niche players. These firms—or divisions of larger companies—focus on more narrow PLM needs. One of the hottest areas right now is idea creation and management. The box on this page gives more details.
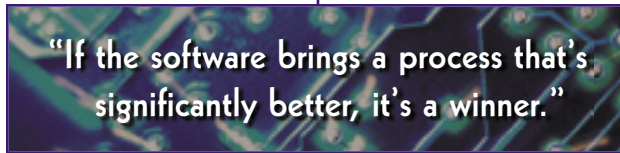
But can technology help the organization that hasn't developed the mindset and discipline of a strong NPD ethos? Providers claim that the structure provided by their software actively speeds the assimilation of phase-gate disciplines. In the end, however, the process requires intelligent, responsive decision-making, and while technology can feed information and metrics to decision-makers, technological tools are only as good as the process they facilitate. We're back to the human element.

To select technology tools effectively, companies need to understand how much progress they've made in adopting a disciplined NPD process. Exhibit 1 on page I-3 provided by *Mark Deck at PRTM* shows that Stage 0 companies are still using informal NPD practices based on individual experience. Far from automating the process, Stage 0 companies may not even have written the process down. These companies need to implement a process before considering much NPD technology.

Modular versus integrated solutions

Companies farther along the maturity scale are the ones that will benefit most from sophisticated tech tools. Just as NPD methodology continues to evolve, technology itself is evolving rapidly. While large vendors offer suites of NPD software, smaller software companies have developed programs that respond to specific needs—such as project management, resource management, etc.—that can be integrated into a company's legacy platform. Or they can help companies adapt programs such as Excel, Powerpoint, or Project to meet discrete NPD needs.

Challenges to integration remain, to be sure. Rand's Taylor cites an interesting survey that found that 15-20 years ago, the first question 80 percent of potential technology buyers asked was "What does this product do?" Now, according to Taylor, "Only 20 percent ask what it does, while 70-80 percent want to know who's going to implement it."

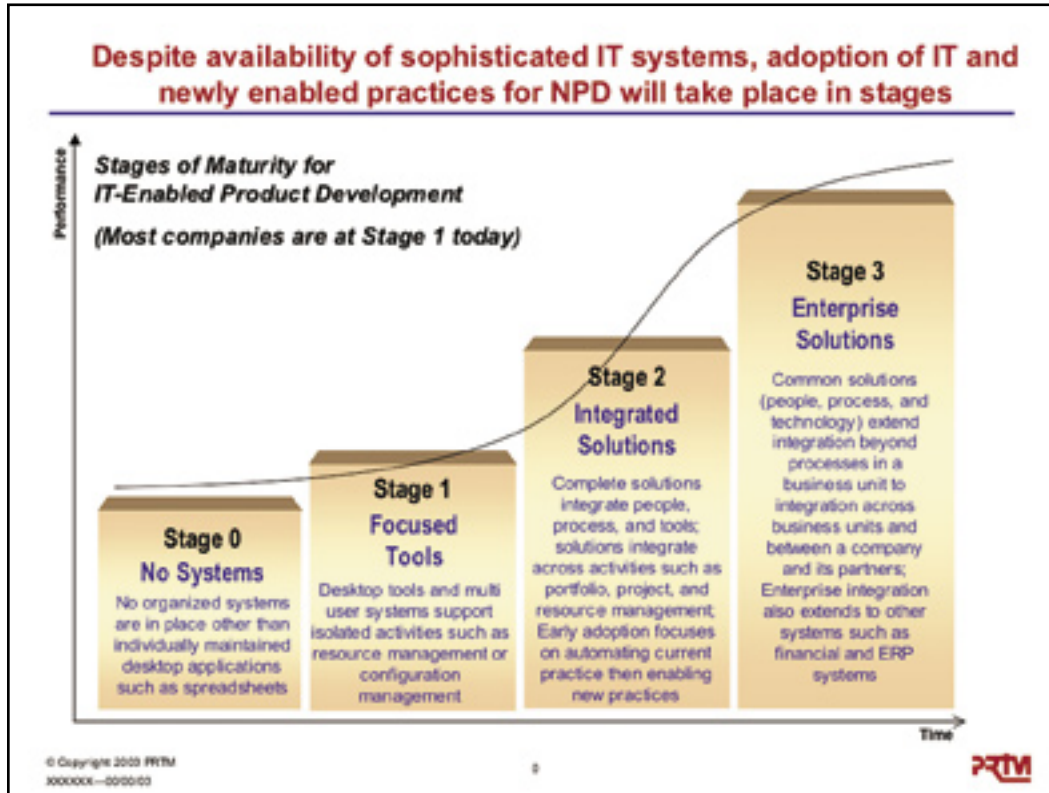### Harnessing IT for the Front End of Innovation

Numerous IT tools are being developed to enhance the front end of NPD—probably because this stage is believed to have the greatest potential for improving sustainable growth.

These front end tools fall into a number of categories such as idea management, "outside-the-box" innovation management, and web-enabling traditional techniques like focus groups.

Companies creating these tools include large providers like Sopheon and IDe, as well as niche players like Imaginatik with its *Idea Central* for capturing ideas from employees and Think Tools with *NextNet 3.0* for managing employee suggestions and ideas.

For more information on IT tools for the front end, see Peter Koen's *Visions* October 2003 article[1] or sign up for the upcoming front end conference co-sponsored by PDMA and IIR in Boston, May 24-26, through Sabina Gargiulo at sgargiulo@iirusa.com.

Exhibit #1: Different Stages of NPD Maturity: Are You Ready for IT?

Despite availability of sophisticated IT systems, adoption of IT and newly enabled practices for NPD will take place in stages

Stages of Maturity for
IT-Enabled Product Development

(Most companies are at Stage 1 today)

**Stage 0
No Systems**
No organized systems are in place other than individually maintained desktop applications such as spreadsheets

**Stage 1
Focused Tools**
Desktop tools and multi user systems support isolated activities such as resource management or configuration management

**Stage 2
Integrated Solutions**
Complete solutions integrate people, process, and tools; solutions integrate across activities such as portfolio, project, and resource management; Early adoption focuses on automating current practice then enabling new practices

**Stage 3
Enterprise Solutions**
Common solutions (people, process, and technology) extend integration beyond processes in a business unit to integration across business units and between a company and its partners; Enterprise integration also extends to other systems such as financial and ERP systems

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Having a mature NPD discipline in place enhances the potential for success.

As Margaret Furleigh of EDS points out, "Buyers without appropriate technical support may not understand all the things their software can do. Our consultants work to help clients maximize their software investment."

Of course, software providers have a vested interest in making sure their products do work. In the first place, larger vendors usually sell NPD software in modules, in anticipation of installing a fully integrated program over time; failure of an initial module could easily foreclose purchases of additional software. And smaller vendors who fail to satisfy customer needs will find themselves cut off from crucial customer referrals.

While large vendors like Sopheon and IDe are convinced that the highest ROI for customers comes from adopting their full-service NPD technology, they recognize that modular adoption may have to come first. Sopheon's Bryan Seyfarth is quick to point out that "cost is not the only driver in that decision. It's more about a company's state of readiness to automate."

Getting potential buyers ready for automation can be more than half the battle. Recognizing that potential buyers need to understand what the system does and what it can do for them, larger vendors like Sopheon and IDe provide customized workshops to demonstrate exactly how their software works. Presentations that reflect company-specific data enable prospects to see how the technology will work for them in capturing internal and external data, implementing best practices, facilitating communications and reducing administrative time.

According to IDe's Denise Harrington, "We recommend companies start by focusing on two or three business solutions, achieve ROI in a few months, and then move on to solve the next set of business problems." So the workshops are critical in helping them understand the software's potential.

Many companies are particularly interested in front end innovation tools today. Sopheon finds prospects particularly respond to its unique and exclusive database of online experts and industry information that prospects can tap into to see the resources available for the Fuzzy Front End of the NPD process.

> **"Companies further along the maturity scale are the ones that will benefit most from sophisticated tech tools."**

Where and how IT can help your NPD process

EDS PLM Solutions concentrates on product data management, as a way to speed collaboration and build a common process throughout

product development. EDS is working on optimizing the technology for one phase at a time and then implementing continuity between modules. Since buyers are looking for immediate ROI, the firm helps clients assess which business areas are critical, and structure implementation where it will yield immediate value.

Michael Burkett, a software applications analyst for AMR Research, agrees with that approach. If a company wants to automate its NPD process, the place to start is by identifying the major 'pain point' in the business—where it has a big problem that software could help solve. Then, he says, the company should "identify the product that does the best job to solve that problem." After that, the company may have to add components if it finds gaps in what that application provides.

Rand Worldwide, a global engineering technology provider, regularly addresses the issues facing firms whose operations stretch around the world. "When partner firms need to connect on a global basis, they have to make sure their Stage-Gate™ technology works," says Rand's Grayson. Accordingly, Rand now devotes 60 percent of its resources to support services, training companies to use PLM technology and offering ongoing support.

> "Getting potential buyers ready for automation can be more than half the battle."

For those committed to their legacy platforms, there are ways to use the Internet and generic web-based applications to help with many phases of the NPD process, from research to development, testing and validation, and, finally, market launch.

The disadvantage of using legacy applications is, as Sami Muneer of SAP points out, information may not be available in the right context for every user, and managers may not have access to the visibility and clarity of data they need. SAP has therefore developed an application as part of its suite of products to ensure central capture and categorization of vital data for efficient use at various levels of an organization.

In addition, there are consultants like PRTM and Goldense Group who specialize in maximizing web capabilities and integrating them into a full-fledged NPD system. Using inexpensive programs like Macromedia's Dreamweaver, Microsoft's Front Page, or Adobe's Creative Suite, companies can create web sites that serve as a platform for NPD automation. Like the question of whether to build or buy a NPD system, the answer will depend on how much internal time you want to devote and whether you'd rather work with a provider who can deliver a package deal.

Exhibit #2: IT and the NPD Process

How IT enablement of product development will play out for project, resource, portfolio, and operations management

Stages / Focus	1. No Systems	2. Focused Tools	3. Integrated Solutions	4. Enterprise Solutions
Project Management	Functional project management with desktop planning applications (e.g. MS Project)	Cross functional project management with limited manual integration of desktop plans via the web	Enterprise project planning and control with networked teams using a common, shared, enterprise application	Advanced, integrated project planning and control linking financial and resource management across the enterprise
Resource Management	Informal resource management with spreadsheets and ad hoc, manual data collection	Utilization focused resource management with systems the focus on tracking assignments	Capacity and demand balanced resource management integrated with project planning systems	Detailed resource requirements planning and enterprise integration with ERP & finance
Portfolio Management	Ad hoc portfolio management with spreadsheets and ad hoc, manual data collections	Periodic portfolio management with point solutions and ongoing, yet manual data collection	Dynamic portfolio management with continuous data collection via project system integration	Enterprise wide portfolio management across multiple portfolios integrated with financial system
Operations Management	No tools or rudimentary tools for PDM, document management, and product design (CAD)	Multiple, siloed applications with manual interfaces for managing product specific data from requirements to BOM	Integration with ERP systems and across key product data applications across an entire business	Enterprise wide integration of product data across the life cycle and integration with PD management systems (above)

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Here are ways in which IT can enhance different elements of the NPD process.

In some form or another, the search for technological assistance is on. And it's not just manufacturing companies who are interested in capitalizing on software support for their NPD process. Rimi Bewtra of Oracle Corporation says that the company's financial services clients are adopting new product development disciplines and looking for software to help. Like other vendors, Oracle is expanding its suite of eBusiness applications to help.

Rolling out Stage-Gate™ with the help of IT

Oracle believes strongly that the customizable templates it is developing can help companies facilitate NPD by standardizing the phase-gate process. According to Oracle's Ms. Bewtra, companies that already have the process in place are most receptive to implementing the new technology.

Oracle seems to be on to something. Early testimony of NPD software's efficacy came from Albany International's Paul Nahass in 2000. He credited software with facilitating the rollout of Stage-Gate™ at his company by helping users follow the logic and workflow of the process accurately. In addition, the implementation of the technology was viewed as a "strong endorsement" of Stage-Gate by senior management, according to Nahass.[3]

More recently, Motorola reported that automating skill portfolio management made it easier to identify and deploy employees with specific NPD skills. And in general, the company believes having centralized data available has been key to its NPD success.

Where early adopters go, their competitors are sure to follow. And as vendors refine their offerings with templates that guide users through the NPD process, new product development and sophisticated software systems and tools will probably become synonymous.

The important issue, for every company, is to select those tools—and the consultants and/or vendors offering them—wisely. And today, some experts are suggesting that companies should get away from the concept of software as a "product"—and instead see it as part of a continuum of service. Most vendors would agree.

Choosing the software that's right for you

AMR Research analyst Kevin O'Marah recommends buying business software applications in use-tested increments within a broad business strategy. "For most corporate buyers, this means more, smaller purchase orders aimed at getting applications into production fast and then learning what works in practice," writes O'Marah in a recent report.[4] However, he cautions, "To be successful…this approach needs to be based on a technology and process-integration strategy jointly owned by IT and a series of business process owners."

Which brings us back to the value of the human element—and finding the right vendor or expert to help you evaluate what your company or division needs in the way of IT for its NPD process. Individual modules should not be purchased in a vacuum, since that can just as easily lead to "shelf ware" as buying too comprehensive an application. To help companies choose wisely, O'Marah gives a list of recommendations for selecting IT applications outlined in the box on this page that companies can apply to their NPD process as well as other business processes.
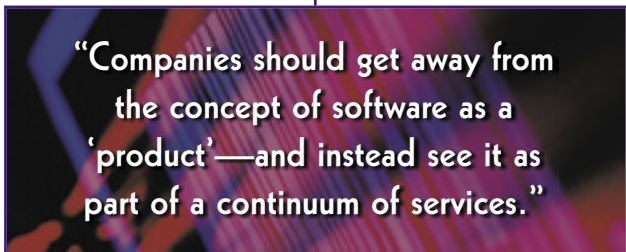
In the end, smooth coordination with your vendor will go a long way toward helping you make the right IT choices for your NPD process. So be sure to find a vendor who understands your needs, and has the financial stability and the resources you need right now and in the long run.

Given the IT tools now available, no one can afford to lag behind—and compete successfully. In fact, companies today ignore at their peril the mandate to manage NPD efficiently by finding the software solutions that work for them.

Margo Bowden is a freelance writer, editor and business writer based in New York City. She has written extensively in the fields of financial services and healthcare, as well as commercial software applications.

Footnotes:

[1] Koen, Peter, "Tools and techniques for managing the front end of innovation: Highlights from the May 2003 Cambridge conference," PDMA *Visions*, October 2003. Vol. XXVII. No. 4, pp. 16-19.

[2] Ausura, Bill and Mark Deck. "The 'new' Product Lifecycle Management Systems," PDMA *Visions*, January 2003, Vol. XXVII No. 1, pp. 22-25.

[3] Nahass, Paul, "How Albany International Web-Enabled Its Stage-Gate™ Process." PDMA *Visions*, July 2001, Vol. XXV No. 3, pp. 10-12.

[4] O'Marah, Kevin, AMR Research *Outlook*, (August 21, 2003).

> "Companies should get away from the concept of software as a 'product'—and instead see it as part of a continuum of services."

Tactics for Buying Business Software

Kevin O'Marah of AMR Research suggests the following when buying software applications for business functions such as NPD.

- Be sure to ask for a pilot test before you commit, preferably a test that is customized to your needs.

- Don't base your decision on features and functions alone. Consider how your strategy fits into the approach of your implementation partner.

- Negotiate the parameters of your entire relationship and make incremental commitments for future business.

- Make at least a token purchase early. Being an actual customer rather than a prospect allows your account sales rep to draw on more resources in serving you.

- Support your vendor or vendors' investor communications to ensure they have access to the capital they need to provide additional software and services to you.

—Kevin O'Marah
AMR Research Outlook
August 21, 2003