Buyer involvement at Lucent slashes cost

By working with product design teams, purchasing has cut product costs 15% per year and improved profit margins by eight percentage points

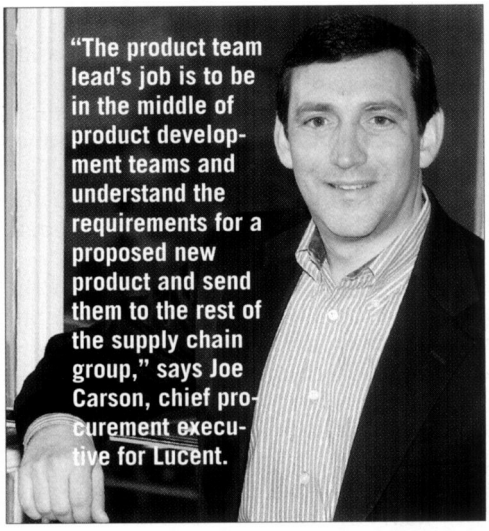
BY JIM CARBONE

Telecommunications equipment giant Lucent Technologies has taken purchasing involvement in design to a new level. Purchasers not only recommend which suppliers should be used, but often help determine which technology makes sense for a new product.

Purchasers are seeded with design engineers and design teams, and work with them to choose the appropriate technology building blocks and suppliers for new products. Lucent's strategy technology platforms group, which is part of supplier management, works with designers and helps determine sourcing strategies.

In fact, those sourcing strategies influence design even before an idea for a new product is proposed. "Sourcing strategies can define a key set of suppliers," says David Ayers, vice president platforms and quality engineering. He works with design teams and with purchasing on new product development.

"The purchasing group has really evolved over the past couple of years to be responsible for defining the strategic technology partnerships that we have with key suppliers," says Ayers. That is important because it defines which technologies and suppliers Lucent designers will be working with.



"The product team lead's job is to be in the middle of product development teams and understand the requirements for a proposed new product and send them to the rest of the supply chain group," says Joe Carson, chief procurement executive for Lucent.

The level of involvement of purchasing in design at Lucent has deepened in recent years. In the past, purchasing had little up front involvement with design.

"Five years ago, if we were designing a next generation optical networking product, designers would be talking to suppliers, making technology choices," says Ayers. Purchasing would get involved much later when it was time to draw up contracts.

"Today, purchasing folks help not only with the selection of suppliers, but also with the selection of the reference design building blocks—hardware like a certain chipset or a certain circuit pack or a certain operating system—that will make up the product," says Ayers.

For instance, a designer may be

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trying to build a core technology for an optical product. Purchasing would help the designer determine if the technology should be based on a field programmable gate array chip from Xilinx or perhaps a networking processing chip from Texas Instruments.

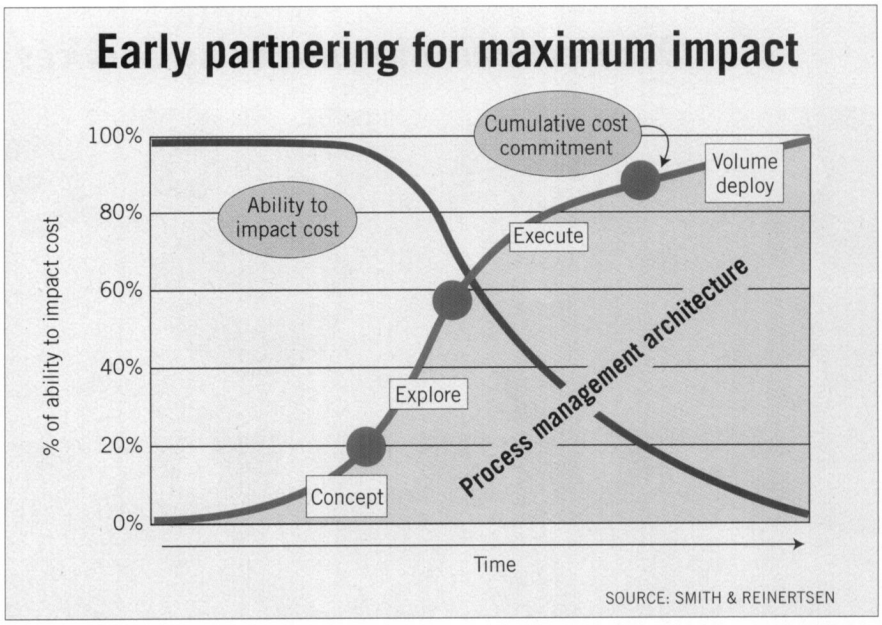
"The decision is really powerful because it's really going to shape that product," says Ayers. "Once the decision is made, the rest of the architecture is defined and that will define so many other things such as the basic software for the new product and the maintenance architecture. It will be set in stone," he says.

Product team leads

While buyers help select which technology building blocks to use and help select suppliers that should be used in future new products, they are also involved once there is a clearer idea for a new product. "It begins with the product team lead (PTL)," says Joe Carson, chief procurement executive for Lucent. Carson heads up Lucent's supplier management group. The PTL is kind of a liaison.

"The PTL's job is to be in the middle of product development teams and understand the requirements for a proposed new product and send them to the rest of the supply chain group," says Carson. The PTL will discuss the cost targets for the new product, what Lucent's competitors are doing in that product area and what technical nuances there may be for the new product. "From that point it is turned over to Dave's team (integrated networking solutions group) and my team," says Carson.

The two groups then work to see which technologies and suppliers will be needed. Within Carson's organization the strategic technology platform engineering team handles a lot of the



Full stream cost is determined very early in the product life cycle. Early partnering between Lucent and their suppliers can result in significant cost savings, shorter time to market, and improved delivery performance.

Buyers need technical know-how in design

Purchasers are involved with new product design teams in two different ways at Lucent Technologies.

For instance, a buyer may be an expert on a particular technology, or on a product such as a network processor. The buyer would be called into design teams when such expertise was needed for a new product. In other cases, buyers are assigned to certain product business units.

"We seed the [design] teams with deep technical experts on certain commodities and certain technologies" says David Ayers, vice president platforms and quality engineering. " We have experts on ADSL (asymmetric digital subscriber line) and VDSL (very high rate digital subscriber line) in our purchasing group because if we are going to help make the selection of which suppliers are going to be leaders in the next couple of years, we felt we needed some technical people in our purchasing group," says Ayers

Many of buyers involved in design are degreed engineers and work with design engineers and Lucent customers.

"We have a gentleman in our group who is Lucent's representative on all of the DSL standard committees," says Michael Massetti, director of technology platforms engineering team. "He is considered an integral member of the access networks design team because he does supplier assessments, negotiates with suppliers and represents Lucent in developing, modifying and defining the standards," says Massetti. "The design team brings him in to all discussions with the customers on technology. He come backs to purchasing as a customer advocate."

However, buyers involved in design also need to have business acumen. "Purchasers are also responsible for the ongoing business relationship with the supplier," says Ayers. "They monitor financial viability and the performance of the company." That's done through the supply management team which rates supplier performance annually.

A supplier could have a great new technology, but if the supplier can't manufacture the product in the volumes that Lucent needs or if its quality is substandard, it's up to buyers involved in design to inform the design team.

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responsibilities for determining which technologies and suppliers make sense for a proposed new product.

Buyers are also involved in the decision of what designs should be outsourced to suppliers. "One of the most fundamental decisions Lucent makes with new products is how much should be designed internally with our own proprietary architecture and how much should be designed using industry standard open platform architectures," says Ayers. "When we are making those tradeoffs, the technical people in the purchasing group are extremely important," he says. Buyers provide expertise on the technology strengths and design capabilities of suppliers to design.

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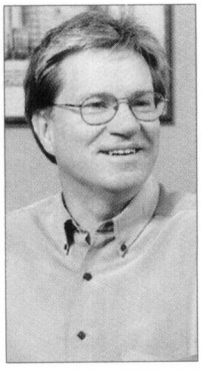
Lowering cost

Having purchasing involved in design has helped Lucent reduce its number of suppliers. That, in turn, has helped Lucent reduce the cost of its products and improve its margins.

Lucent has cut its supplier base by about half over the last five years to about 1,500. At the same time, Lucent has reduced the cost of many of its products by about 15% per year and helped improve margins. In 2004, margins on Lucent products increased by eight percentage points.

"It has been a successful cost reduction and margin improvement program," says Ayers. "I'd say 60% of the savings has been by redesign and product evolution, and 40% of it has been because of the cost advantage [from]



"The purchasing group has really evolved over the past couple of years," says David Ayers, vice president platforms and quality engineering.

having a reduced set of suppliers. With a small set of suppliers for a product, suppliers know they are getting the majority of the business for a certain technology. That means we get better pricing," says Ayers. "It also allows us to improve delivery to our customers."

An example of a supplier base reduction which resulted from purchasing involvement in design is network processors (NPU). NPUs are used in a variety of Lucent equipment.

Carson says it used to take three or four months for product development teams to come up with a networking processing solution for a new Lucent product. Each product team often ended up with a different solution resulting in Lucent having 16 different NPU suppliers. So Carson had Lucent's strategic technology platforms engi-

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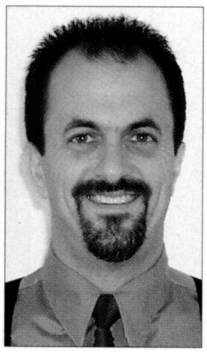
neering team look at the NPU technology of the different suppliers.

"We acquired all the hardware, software and development systems from the suppliers," says Michael Massetti, director of the group.

The data was aggregated so a design team could look up an NPU solution and determine if it would support the requirements of a new product under development. "We have cost points and performance points when you look at a DSLAM application versus an optical switch—each of which have different processor requirements."

The team's evaluation also looked at the total cost of deployment of different NPUs. For instance, using an NPU requires use a memory chip and memory chip cost can vary depending on its architecture. "Are you going to use double data rate memory or Rambus? "Which NPUs allow you use cheaper memory or which ones require more high performance memory?" asks Massetti. The evaluation provides the answers depending on the application.



"We have a representative on all of the DSL standard committees," says Mike Massetti, director of the strategic technology platforms engineering team.

As a result of the team's work, Lucent was able to reduce its number of NPU suppliers from 16 to four. Besides reducing the number of suppliers and the cost associated with managing a larger number of suppliers, Lucent has also reduced the time it takes to determine which NPU solution is best for an application.

"Instead of having six different (new product development) groups trying to find all their own NPU suppliers and final solutions, we have driven that down to one requirement for the company," says Carson. "Instead of a three- or four-month development cycle, it (the solution) is on the shelf now."

Lucent has also reduced the number of suppliers of application specific integrated circuits (ASICs), memory and interconnect solutions. It also plans to evaluate baseband processing to determine what the best solutions are for Lucent products.

While purchasing involvement in design has evolved, so has how products are developed at Lucent. "It is evolving because purchasing, technology selection and design are blending together," says Ayers. "The key technology selections define the design and the architecture of the products. It's not just which operating system or which chip you are using. It is which system architecture or open standard platform are you using. That is taking sourcing strategies right up to the top level." ■

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