



Determining the Knowledge Base Uncovers a Company's Core Competencies

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The gear market globally exceeds \$45 billion today and is growing. Most of the business is dedicated to automotive needs, according to a report funded by the Gear Research Institute (Energetics 1). So, what happens if a company is based in the United States and does not manufacture automotive gearing? How can a company grow its business or plan for growth when its niche area only accesses the smaller part of the pie?

Add to the mix the fact that some gear orders are headed to producers with lower labor costs in China, India and Eastern Europe. Then there is the increasing competition from other technologies that substitute for gears and ultimately reduce the dollars available in certain gear sectors in which a company operates. In particular, electric motors and hydraulic systems are appropriating certain gear applications and potential revenue. What markets then should be considered a best fit with a company's production capabilities is mostly likely the best question to ask.

All of these factors shape the environment in which gear companies

operate today. Poor or incorrect decisions for a company could spell disaster for their futures. However, it is often difficult to measure a company's decision-making abilities for long-term growth. Many chief executive officers simply look at various inputs and outputs



Is your company selling a \$2 gear when it could be selling a \$500 assembly?

with the resulting revenue streams or lack of them. This, in turn, leads to identification of cost and profit centers. But, really this is a short-term view. Though this strategy often provides valuable information, it really does not take into consideration market trends. A perfect case in point: 75 percent of the gear work is targeted to automotive contracts. Should a company address this demand? Or, better yet, how should it compete to increase its share of the remaining 25 percent?

Obviously, gear industry managers

are engaged in constant evaluation to determine whether their product applications have been achieved through engineering and production methodologies to meet the expectations of their customers. These areas now are calculated and reviewed regularly for appropriate performance. Of course, the next question is: If customers are satisfied, why should a company look any further, except to meet that need? To be so customer-focused without the perspective of the marketplace, however, could put a company in

jeopardy. A case in point is IBM. It missed changes occurring in the early days of the personal computer market due to its customer-focused philosophy and clone policies, which allowed other companies to be created to develop these products and capture its business.

Sometimes, however, more sophisticated analysis is needed for the business as a whole. The "make or buy" choice to meet customer expectations is just one way to discover whether to manufacture parts in-house or outsource.

The decision either way could be an

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avenue for the company to reduce costs or increase revenues and profits. It may be an incentive to increase capacity and add customers in new markets at the same time. A decision also may expand the market base—increasing the value of a company's existing share without

increasing the actual share percentage. This means as the market grows, the company grows, too. This is not a very proactive approach, but many businesses take this growth route.

Perhaps, however, the most important consideration is the determination

of what the company does best. What are the skills of employees or what is the knowledge base that the company possesses?

Management and marketing guru Peter F. Drucker believes that it may seem simple to define what specific knowledge a business owns and at which it excels. However, a knowledge analysis takes practice. In fact, few questions force management into an objective look at itself as does the question: What is our specific core knowledge? (Drucker 117). This really is the critical decision-making determinant for longer-term growth, for it determines a company's core competencies.

Knowledge is not static. It changes. It can become enhanced and also can become obsolete. A product line related to a specific set of information also can disappear as new technologies take over. Remember the rotary phone? A better example, for instance, is Boeing's 787 fuselage. Now it is manufactured as a composite barrel wound on a frame as opposed to a riveted aluminum skin.

There are different options today in the gear industry to take advantage of molded and sintered gears, like those using net surface technologies. Likewise new materials, such as high-strength complex steels and synthetics, permit the use of smaller gears in certain applications. Key to success is the identification of knowledge throughout the organization, from

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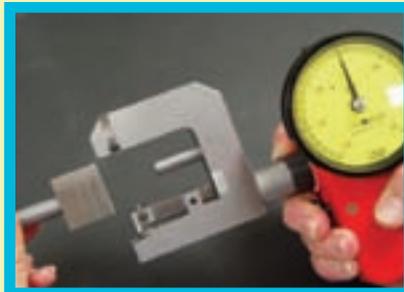
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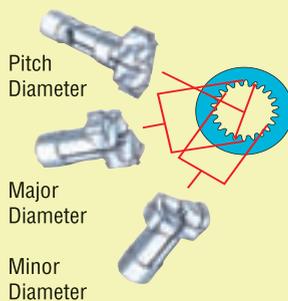


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Manufacturing and assembling a complete gearbox, such as this 3-stage planetary unit, may be more profitable and allow a gear manufacturer to take better advantage of its core competencies.

engineering design to purchasing and production. Such identification helps a company optimize its resource utilization, capitalize on new programs, and stay tuned up for any type of market challenges.

But, one of the first assessments of a company's knowledge base is related to revenue. Is the company giving away some expertise in order to manufacture a gear, gear assembly or gear system? Maybe the company has an engineering department that reviews customer drawings for manufacturability and then recommends changes. While this counseling helps facilitate the company's own production process and keep costs in line, this review is a step that adds value to the customer.

As such, a value-added activity should be associated and tracked with a fee—whether or not a company actually charges the customer for the service. After all, a company expends resources when it conveys built-in knowledge—first to evaluate a drawing, and second to suggest alterations—whether or not this involves a redesign or different materials to increase the program's manufacturability and the customer's requirements. Knowledge about this resource permits it to be targeted for a separate revenue stream down the road.

Knowledge and revenue are tied in other ways, too. A company may devote, for example, 20 percent of its resources to a program that yields only five percent of its total revenue for the year. Is this a wise decision for deployment of resources?

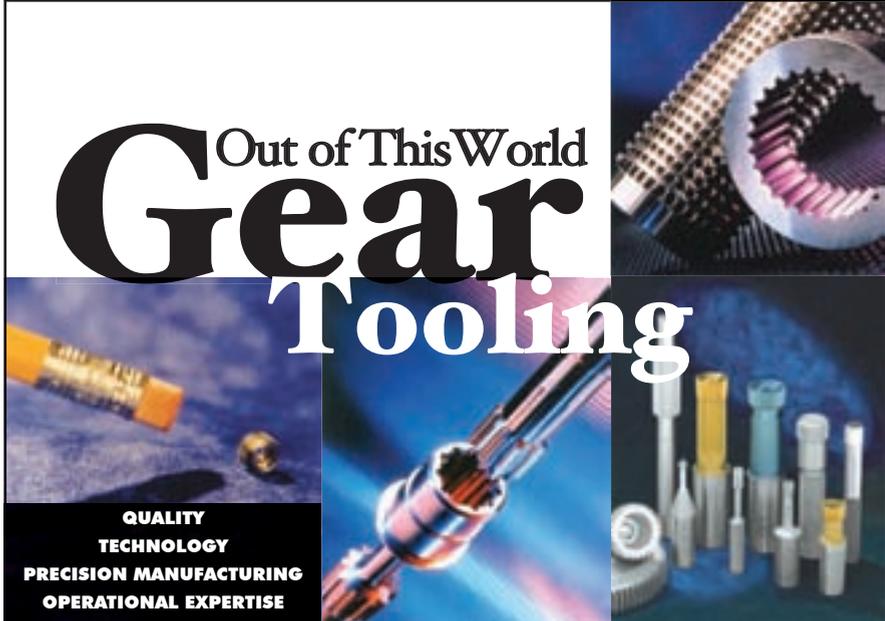
Maybe the decision to take on a highly specialized program enables the company to prove itself in a new product or new market. An articulated arm prosthetic project may position the company as a leader in gearing excellence and design. Reputation helps capture work and perhaps higher pricing. The program, moreover, may serve potentially as a prototype to acquire new business and engage in a higher

level of design and manufacturing. It also allows the company to increase its skill base and expand its core competencies at the same time.

Another way a company leverages its knowledge and revenue is through licensing. This may involve two

different kinds, however. One involves designs for production like a company that manufactures a fuel pump—a mature product. It can license its production elsewhere. This permits the company to earn income from its proprietary knowledge without tying

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up capacity, while it concentrates on developing technologies and acquiring new programs.

At the same time, a review of the company's products may reveal that a group of them can be standardized for sales licensing agreements. A look

at outside sales channels may relieve some pressure on an internal resource as well. It is important to assess what an outside source knows about the product's parameters and application. The knowledge base continues to play a critical role in decision-making.

Some situations also force a company to explore size limitations or added capability. A company may consider taking on more downstream work, such as assembly work, because it has usable space, capable individuals, and engineering know-how. The \$2 gear that is purchased by a customer now can be supplied in an assembly that generates \$500 of income and contributes more profit to the company. Another manufacturer, for example, may make gears up to 6" in diameter. It then receives a requirement from a customer for gears that are 8" in diameter. Is this worth exploring?

Here is where a company's knowledge base drives awareness of core competencies onto the playing field. Should the company leverage its assets and look at these requests as opportunities? Knowing what makes up the company's assets helps. These are its core competencies, which really can be defined as its people's expertise, equipment capability, workflow process, production quality, facility layout, and available space, etc. How these assets are utilized for cost, timing, capacity, and quality affect the decision to take on new or different work.

Maybe individuals with specialized knowledge should be promoted and supported with other staff or with added equipment. These can involve added expenses for the business, which likewise can increase revenues over time. If the company has licensed production partners, this may work, too. Moreover, strategic alliances in which companies collaborate with other manufacturers can broaden the reach of both entities for specialized capability, larger programs, and global applications. These typically are fiduciary relationships, which also can be informal.

Determination of a company's knowledge base is key to successful decision-making for longer-term growth. It provides an accurate picture of what its people know and what the company



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Ed Galloway, supervisor of the assembly department of Precipart Corp.

does best. Periodic evaluation, maybe annually, is important. To take advantage of market globalization, capture new business, and compete with lower-cost foreign producers, U.S. gear companies must take stock of their expertise as they widen their horizons. Gears remain “the most efficient, cost-effective means of power transmission available in many applications, a fundamental advantage that will continue to bolster gear use in many sectors of the economy” (Energetics 10). The company that has a profound understanding of itself and of the segments it serves is one that can best address its own future, as well as the future of its markets. ⚙️

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