Capitalizing on Your Human Capital

Skill levels, productivity and labor availability all affect your bottom line.

Dr. Michael D. Bradley

A fundamental characteristic of the gear industry is that it is capital intensive. In the last decade, the gear manufacturing industry has been undergoing an intense drive toward improving and modernizing its capital equipment base. The Department of Commerce reports that annual sales of gear cutting equipment have increased nearly 60% since 1990. While this effort has paid off in increased competitiveness for the American gear industry, it is important to remember that there is another capital crucial to manufacturing success—"human capital."

Human capital is the set of skills, knowledge and abilities that makes an individual productive. The higher an individual's skill level, the more productive he will be and the more he will earn. This is exactly parallel to a new machine generating a higher rate of return than an older, less productive machine. Human capital is generally acquired through education and training. An engineer, for example, dramatically increases his or her human capital by going to college.

A gear manufacturer's human capital stock is measured by adding together the individual human capital of all its workers. Just as the total productive capacity of the physical capital stock is measured by adding up the physical capacities of the individual pieces of equipment, so too is the human capital stock measured.

Unfortunately, this sometimes doesn't get done. For one reason, acquisition of human capital doesn't typically require the outlay of a single huge pile of cash; a gear company makes payments gradually to workers through time. These gradual payments take away a natural point of focus in analyzing the human capital stock.

Another reason the human capital stock is less closely monitored may be that the state of human capital is more difficult to assess than that of machinery. Finding standards that measure and describe the status of human capital in an industry is often hard.

Fortunately, this latter problem is being remedied in the gear industry. The American Gear Manufacturers Association annually produces a comprehensive study of the state of human capital in the gear industry, called "Wage and Benefit Survey." This survey provides insight into the three important aspects of human capital stock which gear manufacturers should be monitoring. These are the expense of hiring the labor, the training and skill level of the labor force and the availability of skilled labor, both in the present and future.

The expense of hiring labor shows up in the quarterly bottom line, and it is this aspect of human capital that gets the most attention. According to the AGMA study, the average hourly wage paid to a direct worker in the gear industry is $12.65. Adding average hourly benefits of $7.20 per hour gives an average total hourly compensation of $19.85, or an average cost of $40,000 per year or $1.2 million during the worker's potential employment. Moreover, this represents the *average* direct employee's wages, including both low and high skilled employees. When just skilled workers, like tool makers or CNC machinists are considered, the lifetime compensation cost can climb to more than $1.5 million. Viewed in this way, it is clear that gear manufacturers make a substantial investment in their workers.

ACCORDING TO AGMA THE AVERAGE HOURLY WAGE IN THE INDUSTRY IS $12.65 PLUS $7.20 IN BENEFITS, MAKING FOR A TOTAL PACKAGE OF $19.85 AN HOUR.

The average gear manufacturer is small—less than half have more than 100 direct workers—but even with just 100 employees, the annual cost of compensation can exceed $4 million. Moreover, this sum does not include additional indirect labor costs like training, administration and other non-direct human resource activities. It also does not include selling costs, engineering costs or management costs. In addition, compensation is even higher at unionized gear manufacturers, with between one quarter

and one third of gear firms being unionized. Compensation is about 30% higher at unionized firms, so the compensation cost at a unionized, 100-worker gear company can exceed $5 million a year.

Given the size of these costs, it is important for gear manufacturers to control their growth. One area in which they have been successful is in health care costs. The AGMA study shows that, after years of rapid growth, the annual average health care cost per employee has grown little in recent years. In fact, annual employee health care cost has grown by only 3% over the last *two* years, a rate that is less than that of inflation. Gear firms have achieved this success by aggressively pursuing cost-saving strategies, such as by switching to managed care, switching carriers, increasing employee contributions to premiums and increasing deductibles.

Worker's compensation is another example. After several years of sharp increase in premiums, about half of gear firms have undertaken safety plans that reduce accidents. This has two benefits: It reduces worker's compensation premiums, and it reduces the lost productive output from injured workers. The point is, when a human capital issue comes to the attention of gear manufacturers, they can take successful steps to address it.

The worker's compensation issue also helps to reveal the dual nature of the human capital issue for gear manufacturers. While the level of compensation is obviously important, it is only half of the human capital story. High wages by themselves are not necessarily a burden for a firm. In fact, some firms that pay the highest wages are the most profitable.

The other half of the human capital story is the productivity of the labor. The higher the human capital content of the labor force, the greater its skills and abilities, and the more productive it will be. A useful summary of the important relationship between a firm's compensation cost and the productivity of its labor is given by a measure called "unit labor costs." Like the internal rate of return to physical capital, this is a measure that helps a gear firm figure out how well it is managing its labor force.

The unit labor cost measure recognizes the two parts of labor costs. It accounts for both the rate of compensation to workers and the amount of labor required to produce output. In this sense, it is the mirror image of productivity. When productivity rises, output-per-labor-hour rises. When productivity rises, the labor hours required to produce a single unit of output falls. This mirror image of productivity is called the labor content of output, and it falls as productivity rises.

Unit labor cost is derived by multiplying this measure of labor content by the rate of average hourly compensation, and is, therefore, a dollar measure of the labor cost of producing a unit of output. When unit labor costs are falling, productivity is rising faster than wages, indicating that the gear manufacturer is doing a good job managing its human capital. Falling

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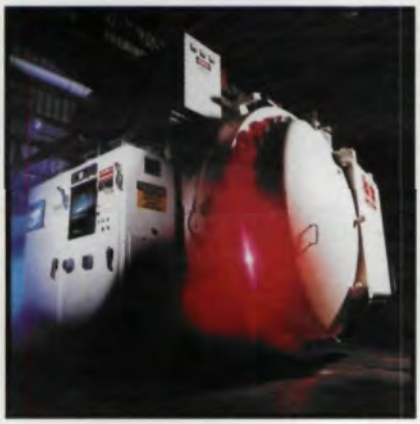

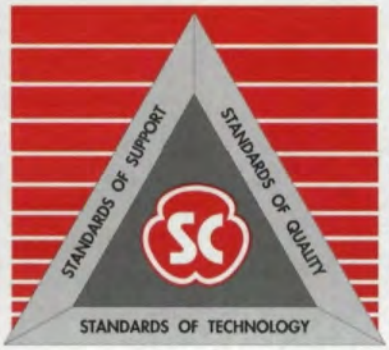

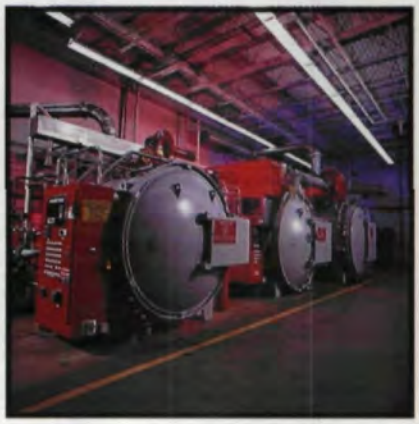

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unit labor costs also help profitability because declining unit labor costs mean that profits will rise without an increase in prices. This is crucial during a period of intense competition.

While unit labor costs measure how quickly labor productivity is rising relative to compensation, it tells us nothing about efforts to improve labor productivity. Even in an economy with modest inflation, wages tend to rise every year, and without an increase in productivity, higher wages mean higher unit labor costs and lower profitability. Therefore gear manufacturers must try to continuously improve the productivity of their work force.

The primary way gear manufacturers accomplish this for direct workers is through training. While there are some bright spots, this is an area in which the American gear industry is not particularly strong. For example, less than a quarter of gear manufacturers have apprenticeship programs. These programs are the fundamental way in which relatively new workers can rapidly increase their productivity through organized programs of skill transfer. This lack of apprenticeship programs stands in marked contrast to gear industries in other countries that tend to have well-established and successful apprenticeship programs.

It is true that several gear manufacturers have started partnerships with local community colleges. These programs include donations of old equipment, the establishment of scholarships for studying gear manufacturing and the creation of coordinate work/study programs. Unfortunately, these programs are still the exception rather than the rule.

Gear manufacturers have begun to offer incentives for workers to get skills and become more productive. For example, the AGMA study reveals over the last three years a dramatic increase in the number of gear firms that "pay for knowledge." In 1994, less than 10% of the gear firms offered this incentive plan, but by 1996 more than 25% were offering it. Pay-for-knowledge programs provide financial compensation for the acquisition of additional skills. For example, some gear firms pay a premium to workers who can operate multiple machines. To be effective, this premium must be substantial, and it is averaging about 85 cents per hour among the gear manufacturers that use them.

Another incentive for workers to increase their productivity is through profit-sharing plans. In these plans, a worker's total compensation is linked to the performance of the firm. Usually, the firm's contribution to the worker's pension program depends upon firm performance, but 17% of

TIGHT LABOR MARKETS IMPLY RISING WAGES THAT WILL DRIVE UP LABOR COSTS.

gear manufacturers have profit-sharing programs in which workers' current pay depends upon current profits.

Of course, no incentive plan will work unless the gear manufacturer has the employees to work. The third important aspect of human capital in the gear industry is the availability of skilled workers. Given the rapid economic expansion in the gear industry in the last five years and the paucity of training programs, it is not surprising that many gear firms are having difficulty finding and hiring skilled workers. Some gear firms have reported that a shortage of skilled labor is currently limiting their capacity to produce. In other words, these firms have the machinery available to expand production, but simply cannot find the additional skilled workers to run the equipment.

The AGMA study tracks labor scarcity, and this problem has clearly become more severe in recent years. As recently as 1994, over a quarter of gear firms reported that grinder machinists were readily available, but by 1996, this percentage has fallen to just over 11% Similarly 93% of gear companies reported that in 1996, toolmakers were scarce and difficult to hire.

This problem is unlikely to improve as time passes. The industry work force is relatively old, and as older skilled workers retire, finding the new workers to replace them will be difficult. Forty-three percent of gear manufacturing workers are more than 45 years old, and 82% are more than 30 years old. In an industry where a current shortage of skilled labor already exists, this age profile foreshadows a continuing problem over the next two decades. Tight labor markets imply rising wages that will drive up unit labor costs. Unless productivity rises continuously, the labor shortage could provide an ongoing drag on the industry's profitability.

The American gear industry has made impressive strides in the last ten years to recapitalize itself and become world-class. However, not forgetting the "other" capital, human capital, is important. Labor costs remain a substantial part of gear firms' total costs, and the pressure to improve labor productivity continues. When we combine these factors with the current, and probable future shortages of skilled labor, the human capital dimension of gear manufacturing presents a persistent challenge for the future. ○

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