

MANUFACTURING in the FUTURE

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Manufacturing is one of the most important factor to the economy of a country because it affects the wealth of a country and the standard of living its people enjoy. You only have to look at any number of countries and if they have a strong manufacturing base, they in turn also have a high standard of living.

If it were possible to gaze into a crystal ball and look into the future of manufacturing, many amazing things are happening now and will happen in the near future. The use of the Internet will continue to play a major role in how manufacturing is conducted throughout the world. Some of the Web-based technologies such as machine tool control, machine diagnostics online, e-Procurement, e-Manufacturing, Virtual



Reality and Simulation, etc., are available now. Investments being made now in new technology will pay huge dividends in product quality, increased productivity, decreased time to market, reduced manufacturing costs in the future.

Factory Focus

Conventional manufacturing is being rapidly replaced by new, fast response, customer-focused techniques that maximize the manufacturers return on all resources – capital, materials, equipment, facilities, time, and especially human resources. All these factors help industry increase productivity, improve product quality, and reduce manufacturing costs. The changes projected for the future will continue to amaze everyone, especially the old timers who have been associated with manufacturing for many years.

Handling Technological Change

In the advanced technology world we live in today, there is no escaping from constant change. Constant-changing technology, although not always easy to understand, is one that can work either to a company's benefit or against a company depending on how concerned they are about the future.

The introduction of new technology into a manufacturing operation as quickly as possible is critical to keeping up with competition throughout the world. The longer a company waits to use new technology, the further they fall behind the competition in productivity and the ability to produce world-class quality products.

It is not the case of whether you can afford the new technology but can you afford to be without it.

Purchasing New Technology

High technology alone cannot provide all these benefits without a skilled and knowledgeable workforce who are continually being updated and trained to get the full benefits that each new technology can provide. Therefore, training and managing of the workforce should be the greatest focus of any firm wishing to compete and survive in manufacturing. The most important investment a company can make to grow their business and ensure themselves of a share of tomorrow's prosperity is to provide employees with the opportunity to continually renew and improve their skills.

We cannot remain or become the world's economic leader unless there is a continual renewing and honing the skills of current and future employees so that they can work successfully in the modern manufacturing environment. Education packs a double economic wallop; first, it helps the economy grow faster; by increasing the skills and knowledge of the workforce, it quickens the pace at which productivity improves. Second, education counteracts the forces of inequality; by enlarging the supply of educated workers and reducing the supply of less-educated workers, it narrows the wage gap.

Personnel Training

Unfortunately some companies purchase new technologies and expect their present staff to implement it as soon as possible. In many cases this approach is not very successful and naturally the new technology is blamed. In order to derive the full benefit of any new technology, it is important that it be used on the right application and be applied by personnel fully trained in its use.

You cannot expect High-Technology work from Low-Technology workers. Transition to Advanced Technology is only possible through a continuous training program.

Manufacturing Costs

Every company must constantly work to improve product quality, increase productivity, and reduce manufacturing costs. This is a never-ending process and the manufacturing professional must apply the lessons learned through experience to develop practical solutions to

keep ahead of the competition. To compete successfully, it is important to look at all phases of a manufacturing operation to reduce waste and lower costs. This involves departments such as product design and development, engineering, accounting, purchasing, manufacturing, and marketing.

Mass Production

Specialized and single-purpose machines were developed in the early 1900s for the mass production of identical parts. Many different transfer-type machines, each designed to produce a specific product or perform a specific machining operation, were used in manufacturing. This process was not very flexible and as many as 150 different machines were required to produce a limited number of finished products in the early 1900s.

Evolving Quality

In the future, quality will be primarily based on satisfying the customer. While the current standard of quality is said to be almost defect-free, this standard will just be considered entry-level quality in the future. The prime consideration will be on the appreciation of value, the customer's insight and feeling of how good the product is for the price paid. Quality must be designed into the product and the manufacturing process, not built into it later with inspection, rework, or retrofit in the final assembly. **Quality is free; what costs money are the poor-quality things that result from not doing the job right the first time.**