

The Noble Cause of Manufacturing

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Imagine being a king in the 16th century. You lived in a cold stone building with no central heating. You likely had neither running water nor indoor plumbing unless you were one of the world's wealthiest kings. If you wanted entertainment, you had to bring the musicians, actors, and jesters to the court. There was no radio or television, not even telegrams or newspapers to keep you informed. Imagine making decisions on maintaining the security of your country relying on hand-carried messages. And, if you had bad teeth or gout, good luck on healthcare.

Of course, you had almost absolute power over your subjects, who led lives that were even more uncomfortable than your own. And as a subject there was little one could do to improve his or her lot in life.

Only the wealthiest could afford contemporary luxuries such as running water, because it was too expensive to produce, too labor intensive. (Even today in many areas of the world the same holds true. But in those areas where manufacturing is encouraged, goods are more readily available.)

Fastforward to the 21st century. Now, large numbers of people can live better lives than the royalty of the past. You live in comfortable homes with central heat, running water (hot and cold), and indoor plumbing. If you want entertainment, from sports to opera, an infinite array of the world's top talent is readily available. You can be kept up to date on world developments instantly through radio, television, cell phones, e-mail, Facebook, and Twitter. The average person has far more control over their lives because they can communicate readily with the world. And advanced healthcare is available to provide extended quality of life.

You have luxuries that kings of old couldn't imagine: Fresh food from around the world, and freezers to keep food fresh for long periods of time; the ability to participate in sports like golf and tennis, even after a hip implant; the ability to have snowmobiles, autos, trucks, and motorcycles; the freedom to devote time to your passion of volunteering for causes that are important to you. The list is endless.

But how is this possible? How is it that the common man today enjoys a better standard of living than the kings of old? Why can so many live so well, even on modest incomes? The single most important reason is manufacturing—the life-sustaining force that touches every single thing around you: the clothes you wear, the food you eat, the cars you drive...you get the picture.

Manufacturing converts designs and materials into products that are useful to people. Yet often these products are taken for granted, and the processes that produce them are all but invisible. How did these products get from being an idea or concept into their physical realizable form? It is through manufacturing. The skills of manufacturers create the products that can be sold at affordable prices. Manufacturers design and implement processes that make the best use of materials and energy, reduce waste, and streamline operations to reduce product costs, which allow affordable prices.

Because manufacturing is so efficient, and manufacturers quietly continue to improve their operations, it gets little attention.

When we think of manufacturing and manufacturing jobs, we don't see the tremendous benefit they bring to society. The insides of manufacturing plants are not commonly visible to most of us. We tend to focus on an old image of the factory, not a view of the modern manufacturing operation that is using science, engineering, and technology to continuously improve. The perception of manufacturing is out of whack with reality. We don't see the many ongoing initiatives of manufacturers to improve their processes, reduce waste, and decrease their use of energy and the effects of their processes

on the environment. We don't see the robots, sensors, and artificial intelligence used in manufacturing, nor the smart materials and safe and clean environments that characterize the exciting, challenging, and fulfilling manufacturing of today.

When we think about manufacturing, we don't discuss its role in creating a better life for us all. We focus on features of manufacturing that we imagine from the past, not on the benefits that manufacturing brings to society. We, particularly manufacturers, need to change that image.

We need more young people to become active in manufacturing and the engineering, engineering technology, and science disciplines that are critical to building and improving our manufacturing capabilities. Young people are more interested in benefits than features. If we are to have a chance of reaching young people, then we need to talk about manufacturing's role in stewardship of our planet. Helping those in need through healthcare manufacturing, biomanufacturing, energy-efficient manufacturing, and all the myriad of products that make people's lives better and create a safer world. We need to emphasize the noble cause that is manufacturing.

It is through a strong manufacturing capability that we will be able to create the products that will help solve the many problems we are facing in energy, water, the environment, affordable healthcare, and many more. In fact, manufacturing itself has become green, using lean and environmentally friendly practices to conserve nature's precious resources that result in sustainable manufacturing. In the process, we will strengthen the economy and create jobs that provide income, but just as important, jobs that are meaningful and allow us to build products that improve lives and contribute back to society.

A Call to Action for Manufacturers

As manufacturers, you need to lead the charge. You need to bring the benefits of manufacturing to the forefront, and put the features in the background. Charles Revson, former CEO of Revlon, was once asked what his company did. His answer: "In the factory we manufacture cosmetics; in the store we sell hope." If you as manufacturers want to create a sustainable future for manufacturing, you will need talent. To attract that talent, you need to make visible the benefits of manufacturing. Reposition yourself from features to benefits. You may stamp hinges in your factory, but the benefit to society is helping your customers make energy-efficient freezers. You may solder circuits, but the benefit to society is that your pacemaker saves lives. You may recycle newspapers, but the benefit your product provides is to package cereal that is safe to eat.

What does your manufacturing operation do to benefit mankind? If you can make that clear, you stand a good chance of attracting the talent you'll need this century to have a sustain-able business and maximize your competitiveness.



About the Author

Ronald J. Bennett, PhD, is currently founding dean of the School of Engineering at the University of St. Thomas. Bennett has been chair of the undergraduate engineering department since 1993 and director of the graduate program since 1995. He holds a bachelor's degree in physics and mathematics from the University of Wisconsin, Eau Claire; an MS degree in metallurgical engineering; an MBA from the University of St. Thomas; and a PhD in metallurgy from the University of Minnesota. Bennett has been an SME member since 1993.