

ENHANCING SUSTAINABILITY IN MANUFACTURING IN AMERICA

Article by Herb Rubenstein, President, Sustainable Business Group and

Keith McAslan, Managing Partner, McAslan Consulting

Introduction

Much work has been done in the area of sustainability in manufacturing in the United States. Virtually everyone agrees that much more needs to be done to improve energy efficiency in manufacturing, reduce waste, improve the development and management of the workforce, and design and manufacture products that use our scarce material and human resources in a more optimal manner. The National Association of Manufacturers (NAM) states on its website:

The NAM and our member companies are committed to working with Congress to establish sensible federal climate change policies that reduce greenhouse gas emissions, while maintaining a competitive playing field for U.S. companies in the global marketplace.

However, on the NAM website as of December 30, 2008 there is not one paper telling manufacturers about any best practices they could adopt to promote sustainability. It appears that NAM has no such task force studying how manufacturing concerns can create their current products in a more sustainable manner or begin to advance the state of the art in designing and producing the next generation of products that are more sustainable, efficient, effective, and less harmful to the environment.

Possibly NAM and state associations promoting manufacturing and technology could undertake and publish detailed research across the tens of thousands of manufacturers to identify the sustainability oriented practices that have helped improve the environment, helped improve the productivity of their workers, and helped improve their bottom line.

The Current Situation

Much information already exists on "green manufacturing." Conferences are being held. Books are being written. Engineering schools are focusing on sustainable engineering to attract students who can find great jobs in meeting the future manufacturing environments which will be embracing sustainability principles. A quick Google™ search reveals the following:

Green Manufacturing News

ManagingAutomation.com/Green.Mfg

The Latest News on Technologies, Business Practices and Trends!

IndustryWeek - Connecting Manufacturing's Leaders

Making Green: Sustainability In Manufacturing And The Clean-Tech Economy. Now that the green marketplace has firmly taken root, many manufacturers are ...

www.industryweek.com/MakingGreen

Sustainability is good business

The main business drivers of sustainability for manufacturing firms make a good strategic concept for improving business performance: ...

www.gdrc.org/sustbiz/good-susbiz.html

Amazon.com: Sustainability in Manufacturing: Recovery of Resources ...

Amazon.com: Sustainability in Manufacturing: Recovery of Resources in Product and Material Cycles: Günther Seliger: Books.

www.amazon.com/Sustainability-Manufacturing-Recovery-Resources-Material/dp/3540498702

Sustainable Manufacturing

Dec 10, 2008 ... Australian manufacturing firms are being placed on a more sustainable footing by our research in eco-efficient technologies and engineering ...

www.csiro.au/science/SustainableManufacturing.html

SUSTAINABLE LEAN MANUFACTURING

File Format: PDF/Adobe Acrobat - View as HTML

This set of slides is a brief introduction to the perspective Act Now brings to Sustainable Lean Manufacturing. This is not intended as actionable advice. ...

www.actnowproductions.com/assets/files/sustainability/Lean_Manufacturing.pdf

Tips for sustainability in manufacturing - 11/18/2008 - Control ...

Nov 18, 2008 ... Controls engineers have quietly done sustainability related efforts for years; we call them "lean initiatives," says Pack Expo speaker.

www.controleng.com/article/CA6614720.html -

The Laboratory for Manufacturing Automation

lma. Creating sustainable technologies to innovate manufacturing products, processes, and systems. "A sustainable world... by design". lma trans.

lma.berkeley.edu/

Sustainable Manufacturing Summit :: Corporate Climate Response ...

The Sustainable Manufacturing Summit provides the opportunity to find out how top manufacturers and their customers are lowering their carbon emissions and ...

www.greenpowerconferences.com/corporateclimateresponse/sustainable_manufacturing_summit.html

Fifty Sustainability Experts To Speak At Sustainable Manufacturing ...

Jan 21, 2008 ... Sustainability experts are looking forward to sharing their carbon reduction strategies on April 8th and 9th at the upcoming Corporate ...

www.environmentalleader.com/2008/01/21/fifty-sustainability-experts-to-speak-at-sustainable-manufacturing-summit/

Green Manufacturing Expo 2009

Sustainable manufacturing, defined as the “creation of manufactured products that use processes that are non-polluting, conserve energy and natural ...
www.greenmfgexpo.com/

Information and Progress

The existence of information, conferences, books, tips, be it from the U.S. or Australia in the examples is an excellent first step in promoting the improvement of manufacturing based on sustainability principles. However, information alone is not sufficient to propel manufacturing concerns throughout the U.S. to begin adopting on a large scale more sustainability oriented manufacturing practices.

One challenge to securing broader and more rapid adoption of sustainability oriented manufacturing processes is that there is no universal agreement as to what “sustainability” really means. Tremendous work has been done on creating very useful sustainability “scorecards” and measures, and this is very helpful. In an effort to give a simple, yet direct definition of sustainability in manufacturing, we offer the following definition.

“Sustainable manufacturing processes deploy the optimal use of material and human resources for the long term to produce the desired product.”

That is the official definition adopted by the Sustainable Business Group concerning manufacturing and sustainability. It is simple and direct and focuses on one key term: Optimal.

When a manufacturing concern can shave one kilowatt or one cubic foot of natural gas use through energy conservation, without creating an inferior product or inferior work conditions, then it is not operating in a sustainable manner because it is not operating in an optimal manner. Even when it can use less energy in peak times, it becomes a more sustainable manufacturing enterprise since peak energy use is by far the most costly (in dollar and environmental terms) type of energy use that exists.

If the employees of a manufacturing concern are not properly trained and educated by the company regarding how to conserve energy and materials use on their jobs, in their homes, their churches, and in their life-style choices, then these employees are not engaging in the highest level of sustainable activities since their actions are not optimal.

These are easy words to write, but brutally hard to implement at the manufacturing plant level or across an entire globalized manufacturing concern.

Where does a manufacturing concern start on the path or expand its already existing efforts toward becoming a more sustainable enterprise? This article begins in a very small way to address this question.

10 Recommendations to Promote Sustainability by Manufacturing Concerns

Make the optimal use of human and material resources in the production process, a key performance objective goal of the company with metrics to measure performance along this dimension. These metrics can be produced hourly, daily, or weekly and shared with employees, stockholders and customers. They should become a true source of pride in the company.

Create real incentives and rewards for everyone in the company to be more energy efficient, deploy human talent more effectively, reduce materials waste, reduce pollution and green house gas emissions, and promote the design and manufacture of the next generation of products that are more sustainable in the long run. Share in the savings being generated by implementation of a “gain sharing” type program to reward the employees and encourage creativity and savings.

Create real disincentives for employees and managers who do not effectively promote sustainability and reach the sustainability oriented targets. Create the accountability systems that will show management and co-workers who these employees are and how their disincentives are meted out to them.

Create and support a culture that promotes sustainability in everything the manufacturing concern does. This includes enhanced communication, testing of new methods/technologies and management support combined with a reward system to ensure the employees share a sense of ownership.

Reengineer the business plan of the manufacturing concern, adopt new technologies, human resource systems, and financial reporting systems to ensure that the sustainability activities created are cost effective and promote enhanced profitability of the company. A key to the success of the reengineering is assignment of “ownership” - managers must be assigned responsibility and given the resources and support to succeed. Additionally, relook at the manufacturing production schedule and ask the question, “Does it make sense to shift some production from the first shift to the second shift or third shift when there is less demand on the utilities (electric & gas) and rates are typically lower?”

Incorporate “externalities” (e.g., pollution for which a company is not charged, waste of materials and disposal of a product at the end of its life cycle disposal for which a company is not charged, etc.) in business decision making.

Demand real progress be made starting quickly and increasing cumulatively as the manufacturing concern learns how to become more sustainable. Utilize the heat generated by the manufacturing process to provide supplemental heating to the plant and office areas.

Develop plans in three phases: short term - focused on improvements in the next 1-3 years, medium term – focused on years 4 -10 and long term - ten and twenty year plans for getting closer and closer to achieving the optimal use of material and human resources

Demand that the supply chain used by the manufacturing concern adopt and implement sustainability planning and implementation. In order to get the supply chain engaged, the

business must help define “what’s in it for me”, by providing a cost benefit analysis for the suppliers to use in their ROI calculations.

Create “sustainability” as an integral part of the marketing, public relations, reputation, product development and transportation processes of the company. A business that has successfully implemented “sustainability” processes can utilize the success story as part of the sales and marketing campaign as well as communicate it to the community they reside, as a true green manufacturer.

These 10 steps are general guides. Survey your workers to ask them how the company can make real progress toward a more optimal use of material and human resources. Employees know a lot about this topic. Survey your customers and ask them these same questions. Survey your managers and find out not only what their suggestions are, but also identify and promote the managers who will actively promote sustainability and be willing to be held accountable for reaching the sustainability oriented goals of the company.

Conclusion

In today’s recession, a new motto is arising in manufacturing around the world and especially in the United States. That motto is: “Change or pain.” The principles of sustainability promote the right kind of change that will help existing manufacturing concerns survive and new manufacturing concerns thrive as they develop the new products our consumers need and our world requires to promote increased prosperity in a sustainable manner.

The CEO and the plant manager must be the CSC – Chief Sustainability Cheerleaders. Someone in the company must be held accountable for improving the company every year towards the goal of the optimal use of human and material resources for the long run. While every company will take a somewhat different tack toward reaching the goal, the basic strategy for reaching this goal should be very similar across many manufacturing concerns.

Now is the time for Associations, educational institutions, and government agencies that seek to promote the economic improvement and the longevity of manufacturing in the US and throughout the world to gather and disseminate the best practices, hold conferences, educate workers and managers alike, and set their eyes on one simple goal – to help manufacturers strive toward the optimal use of human and material resources for the long run in developing their desired product. Company leaders and even company employees without significant managerial responsibility can help lead this effort in your company, in your industry, in your locale, in your state, in your country, and yes, in the world. The time is now for strengthening the leadership in improving sustainability in manufacturing.

About the Authors

Herb Rubenstein is the President of Sustainable Business Group, a consulting firm to businesses with its headquarters in Colorado. He is the author of two business books, Breakthrough, Inc.: High Growth Strategies for Entrepreneurial Organizations and Leadership for Lawyers, and over 100 articles on business strategy, entrepreneurship, leadership, and

improving how organizations function and deliver value. He can be reached at herb@sbizgroup.com. He can also be reached at 303 279-1878. The website for the Sustainable Business Group is www.sbizgroup.com.

Keith McAslan is the Managing Partner of McAslan Consulting, a consulting firm to businesses providing financial restructuring, turnaround management, interim management, business analysis, merger & acquisition, strategy, finance, accounting and management consulting. Mr. McAslan's executive experience includes: 10+ years as a CFO in manufacturing and technology, 3 years as a CEO in manufacturing and over 2 ½ years in investment/private equity. He has demonstrated success leading private, public and private equity owned companies and can be reached at 303-520-2493, or McAslan.ConsultingPC@gmail.com.