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Today, it's out with the old and in with the renewable

It's a time of change. And over the next few years, that change will bring exciting opportunities for innovative minds.

Recent weeks have seen tremendously volatile financial markets, severe credit constraints, and the rise and collapse of commodity prices. Lost in this drama is the reversal of a long-term trend. From 1997 to 2007, the Consumer Price Index increased at an annual rate of 2.5 percent. But this year the CPI has been increasing more rapidly. In September, the year-over-year increase almost doubled to reach 5 percent.

What's changed? In 1997, the cost of labor in an emerging economy was five to 10 times lower than in the United States. But those overseas costs are on the rise. Skilled workers in China and India are demanding and getting higher wages. In addition, new labor laws in those countries have added to the costs of offshoring and outsourcing.

What can be done if cheap labor can no longer be relied on to keep costs low? Businesses are coming up with intriguing ways to reduce the cost of materials used. Here are some examples:

■ **Reuse of discarded materials.** A man in Pennsylvania has discovered a process to microwave tires and reduce them to diesel fuel. At Rochester Institute of Technology's Center for Integrated Manufacturing Studies, engineers are working with a local company to design a process to convert used tires into railroad ties.



INNOVATION EDGE

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■ **Durable designs,** such as pre-owned luxury cars, that are certified to work as well as new. A German company, Henkel AG & Co., designed refillable glue sticks, reducing its use of plastics in this product by 70 percent. Xerox Corp. uses solid ink instead of cartridges, cutting the waste from its ink cartridges by almost 95 percent.

■ **Reusable platforms.** IKEA provides sofas whose covers can be replaced when the old covers are worn out or the pattern is dated. One Rochester entrepreneur is working on a "gray" car. Every couple of years the car will be refurbished, improved with new features, and resold as "new."

■ **Dematerialized products,** replacing physical products with information products. Amazon.com Inc. and Sony Corp. have designed e-books. A student would replace a backpack full of books with one e-book. An entrepreneur in British Columbia is designing a bracelet that contains a thumb drive. The student needs to carry only the bracelet and a laptop. Zipcar makes car-sharing

convenient. It uses the Web to provide information about the availability and location of rental cars. An electronic card provides access to the car. More information reduces the need for everyone to own a car.

■ **Early alert systems.** New systems alert owners that a failure may occur and maintenance is required. CIMS designed a centralized system to help the Regional Transit Service track key systems on their buses and order defective ones back for repairs before there is a breakdown. The centralized system also can collect data from all buses to test for efficiencies that result from the use of a new type of oil.

■ **Use of recycled materials.** IKEA is known for its use of recycled materials: paper to construct sofa frames, aluminum for bookcases and plastic for chairs. CIMS is designing new "demanufacturing" processes in conjunction with Delphi Corp. to recover precious metals like platinum from fuel cells.

The old approach to innovation was to design new products, services and processes to meet the needs of the customer. The new approach being adopted by socially responsible corporations is to employ creative minds that also consider the impact on our environment. It is a change that will make for a healthier, happier world.

Ashok Rao is dean of Rochester Institute of Technology's E. Philip Saunders College of Business.