Preserve, Protect, Prosper: Packaging Sustainability

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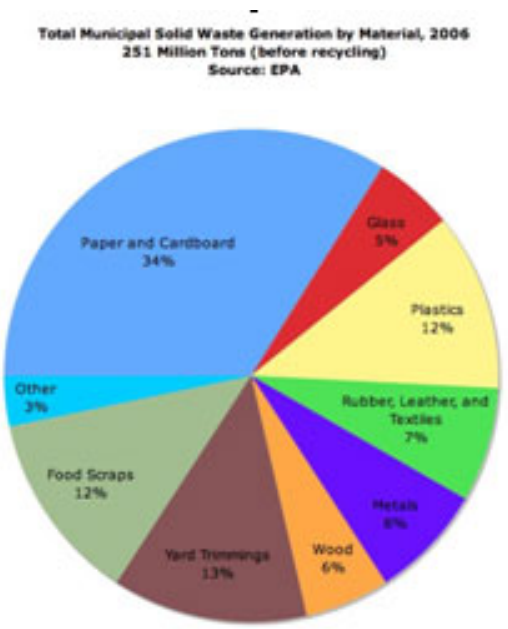
Our world's need to preserve resources for the future means the packaging industry's ultimate goal is achieving packaging sustainability. Packaging sustainability balances economic prosperity with social responsibility, and packagers must find ways to preserve resources by minimizing environmental impact, energy consumption, and scrap by adopting new environmentally-friendly packaging. Packagers must also address issues regarding the protection of its products and employees by improving processes to minimize contamination, tampering, and injuries. Finally, coupled with these challenges packagers must ensure their company's continued prosperity by maximizing production efficiency.

As packagers research and review their options to achieve the goal of packaging sustainability they will find flexible automation to be a powerful and effective solution. Flexible automation will be vital for packagers to achieve a sustainable balance by addressing the three strategic goals: preserve, protect, prosper. Automation allows packagers to increase production, consistency, and reliability while improving working conditions and allowing manufacturers to quickly change to more eco-friendly packaging materials and options. Let's take a more in-depth look at each of these goals to understand what's driving this movement and how flexible automation addresses the issues.

Preserve

Packaging, when tallied up, accounts for almost a third of trash thrown away in the U.S. According to the EPA, paper, cardboard, and plastics—most of which involves packaging in some form—constitutes 46 percent of all worldwide municipal solid waste.



Paper, cardboard, and plastics make up 46 percent of municipal solid waste

While packaging is a necessity to protect product from contamination, spoilage, and tampering, it has a significant environmental impact. The most obvious solution is for packagers to produce less, which means reducing the quantity of materials and other resources used in packaging. Packagers are investing in new packaging that weighs less, is smaller, uses recycled material, and incorporates renewable resources whenever possible. By doing so they will reduce waste, save on energy costs with lower shipping weights, cut production costs, and offset price increases.

Packagers are designing in new formats, such as eliminating secondary packaging or replacing rigid packaging with flexible packaging. Wal-Mart has even instituted guidelines for its suppliers that requires strict adherence to environmentally-savvy packaging. According to the EPA, Wal-Mart anticipates that the program will reduce packaging of a toy line enough to save 3,800 trees, 1,000 barrels of oil, and $2.4 million in transportation costs in one year. Many manufacturers are redesigning product packaging to be “smarter.” Clearly, this trend is growing.

With that being said, how can automation affect these trends? Flexible automation can deliver a process that preserves the earth’s natural resources. It leads to the reduction in scrap products and wasted materials, allows for quick and easy changeover to environmentally-conscious and innovative packaging materials, gives manufacturers the flexibility to handle lightweight packaging, and maximizes space and time.

“Manufacturers will need to take a hard look reducing scrap and wasted materials if they wish to remain competitive,” says John Dulchinos, president and CEO of Adept Technology, Inc. “Robotics and automation in general is a much more efficient and reliable method of handling and packaging products. It is consistent every time and therefore produces less scrap and wasted materials due to handling errors.

Automated handling far exceeds in reliability over manual handling every time, thereby (manufacturers) innately will reduce on scrap."

With all the new environmentally-conscious packages coming on the market, packagers will need the easiest and quickest way to change from one format to another. Fixed machines and manual handling simply cannot keep up. Robots with various end of arm tooling capabilities can easily adapt to various changes.

"Flexibility is key to getting the most out of automation. With EOATs created for specific tasks and tool changers to facilitate safe, quick, and accurate changeovers, packagers can optimize the use of their robots," says Clay Cooper, vice president of corporate development at Applied Robotics.."Smarter tooling also allows for more flexibility. For example, grippers with easy programming, the ability to store many different programs, and … an adjustable grip force to be able to handle various sized parts all get the job done."

In order to minimize a packager's environmental footprint they must maximize the use or their space and time. Flexible automation with its various configuration potentials (ceiling mounted robots or multiple EOATs, for example) allows manufacturers to produce more quickly from the amount of space they are currently using.

Protect

According to the Centre for Disease and Control and Prevention, approximately 70 percent of all food-borne disease is due to viruses spread by direct or indirect contact with infected individuals. Every year, approximately 40,000 cases of salmonellosis are reported in the United States and about 600 people die of it, according to the US Centers for Disease Control (CDC). The CDC also reports that as many as 76 million illnesses are caused by food contamination every year in the U.S. When one adds in the effect of product tampering (consider the Tylenol poisonings in the '80s), and statistics from OSHA that estimate repetitive strain injuries account for 60 percent of all "workplace illnesses," packagers and manufacturers have to seriously review any and all methods of keeping their employees and products safe.

"We're hearing more and more concern from our customers about reducing human contact with product in the wake of recent contamination and tampering incidences," said Bill Kaup, technical sales manager for RA Jones, an automation integrator. "Packagers using flexible automation can address most of the issues involving contamination, injury, and tampering by virtue of automation's ability to reduce human contact on products being manufactured and packaged."

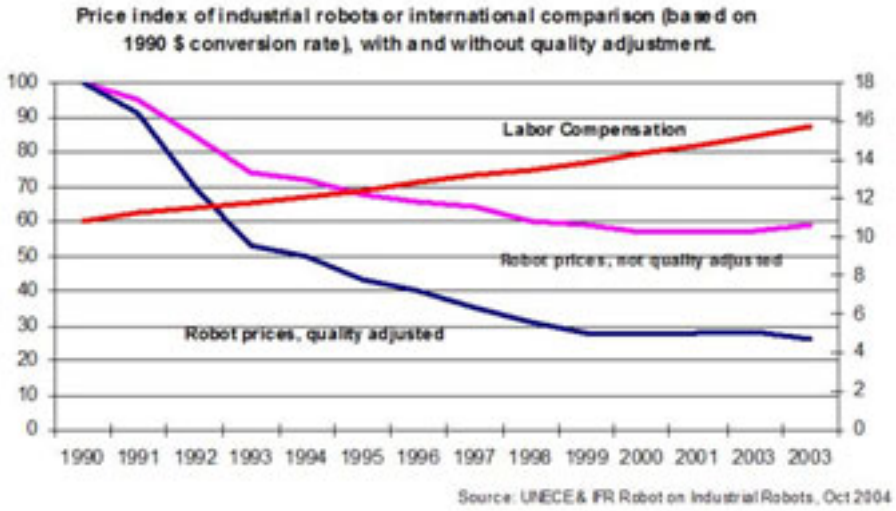
Tedious tasks such as picking and placing products into packaging are ripe for repetitive stress disorders. Automation can accomplish these tasks faster and more efficiently, thereby protecting employees and at the same time saving manufacturers costly medical compensation.

There is no doubt that humans are carriers of disease. The less contact employees

have with products—particularly consumable products—the better. Not only is this safer for the consumer, but it also saves manufacturers and packagers from the exorbitant costs of product recalls—not to mention the cost against a company's reputation. Automating contact with products will naturally help reduce the human contact equation and reduce incidents of contamination.

Prosper

Finally, manufacturers must balance the goals of preserving and protecting with its economic prosperity. Whether the economy is good or uncertain, companies must maximize their packaging efficiency to ensure economic growth. To combat the rising costs of manufacturing, a careful analysis of how a company might use its current factory space is essential.



Maximizing the valuable floor space currently available to a company is the most efficient method of protecting profitability—it is a cornerstone behind the concept of lean manufacturing. Simply put, the more you can produce in the same amount of space, the more profitable you will be.

The makeup of potential employees has been trending towards a more educated resource pool as the economy shifts away from less physical labor jobs to positions requiring greater mental labor. As labor rates continue to rise and product packaging diversity multiplies within the wake of new eco-friendly packaging, manufacturers will need to find ways to increase production without increasing employees.

Flexible automation gives packagers and manufacturers the ability to increase production and flexibility. Robot costs are declining while labor is climbing. With the ability of automation to deliver unmatched reliability and consistency at a faster production rate than manual labor packagers will be best advised to adopt this method.

"Automation has advanced significantly with regards to speed and reliability," said Gary Bartlow, director of American sales for Adept Technology, Inc. "Back in the '90s with a vision-guided SCARA robot we were packaging chocolates at 47 pieces per minute and that was unbelievably fast. Now with … a parallel robot we can

accomplish that same task at 130 pieces per minute and the cost of the robots themselves has dropped fairly significantly. So we're at nearly two or three times the productivity for less money. Manufacturers and packagers alike can now produce more, at less cost."

More information on companies mentioned in this article can be found at the following websites:

Adept Technology, Inc.: http://www.adept.com [1]
5960 Inglewood Dr.
Pleasanton, CA 94588
tel: 925-245-3400

RA Jones: http://www.oystar.rajones.com [2]

Applied Robotics, Inc.: http://www.appliedrobotics.com [3]

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