

Trends in Packaging

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Leadership Conference

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International Paper Design Center

Private Label Packaging

- Sales up 7.4% in food, drug, mass merchandisers
- Store brands strongest in commodities: milk, eggs, sugar, canned vegetables
- Store brands weakest where brand marketing support is strong: candy, gum, beer and where high-level innovation rules--detergents, deodorant, cosmetics
- Top dollar growth category: frozen pizza and snacks

Private Label Packaging

- Private labels make up 21% of total food sales world-wide
- Predicted to reach 30% by 2015
- Swiss lead at 37% currently
- Trend is viewed as beneficial to packaging suppliers because large volumes go to fewer sources, thus optimizing production, transport, logistics
- Benefit to retailers because they make more decisions themselves, incl. choice of packaging

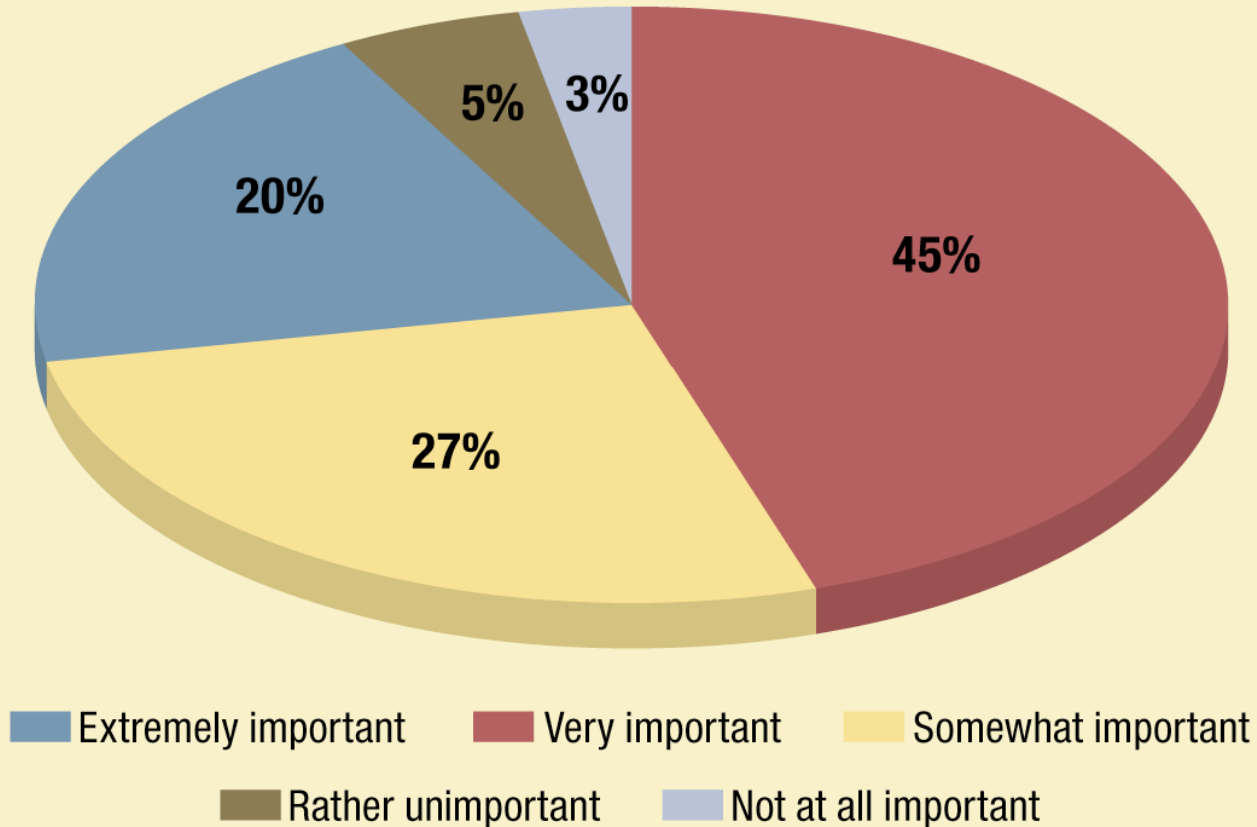
Private Label Packaging

- 24% of all foods and beverages served in U.S. homes were store brands, up from 18% in 1999

Private Label Packaging

- Will cost concerns inhibit packaging innovation?
- What role do retailers play?
- Packaging World/PTIS Survey: CPG cos., retailers, materials suppliers

Fig. 2: In your experience, how important are retailers in package development?



Source: *Packaging World/PTIS 2009 survey*

Fig. 4: Do retailers help or hinder product/package innovation?

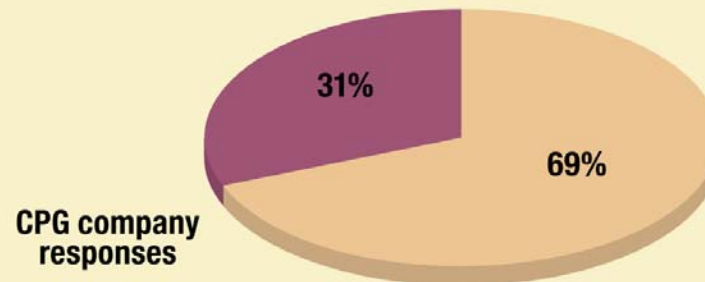
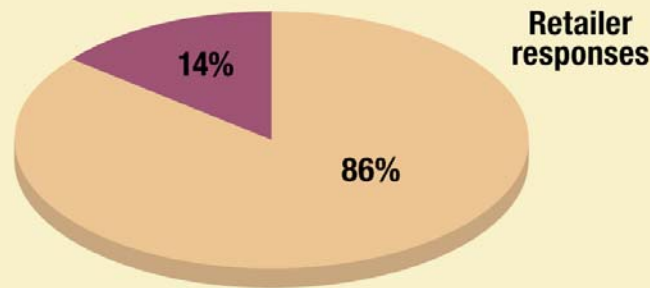
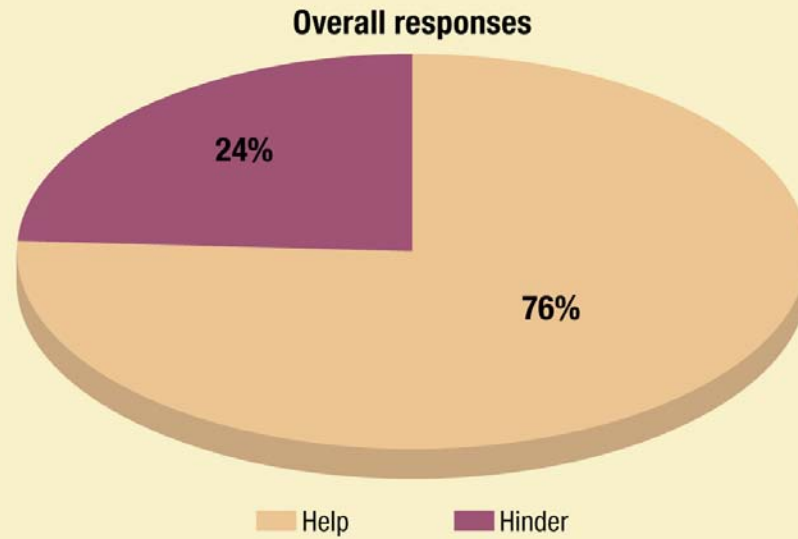
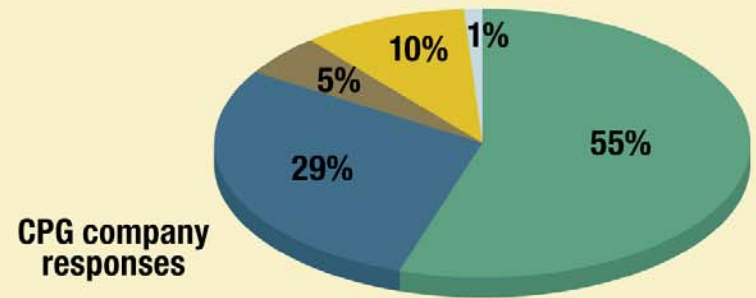
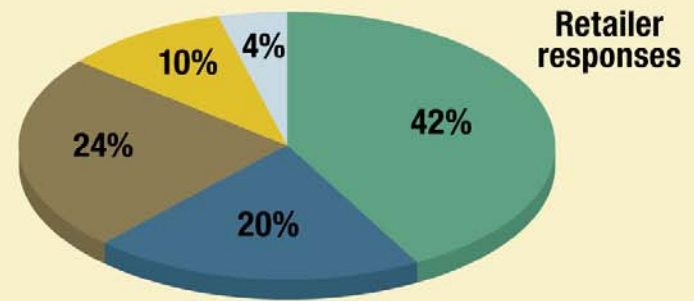
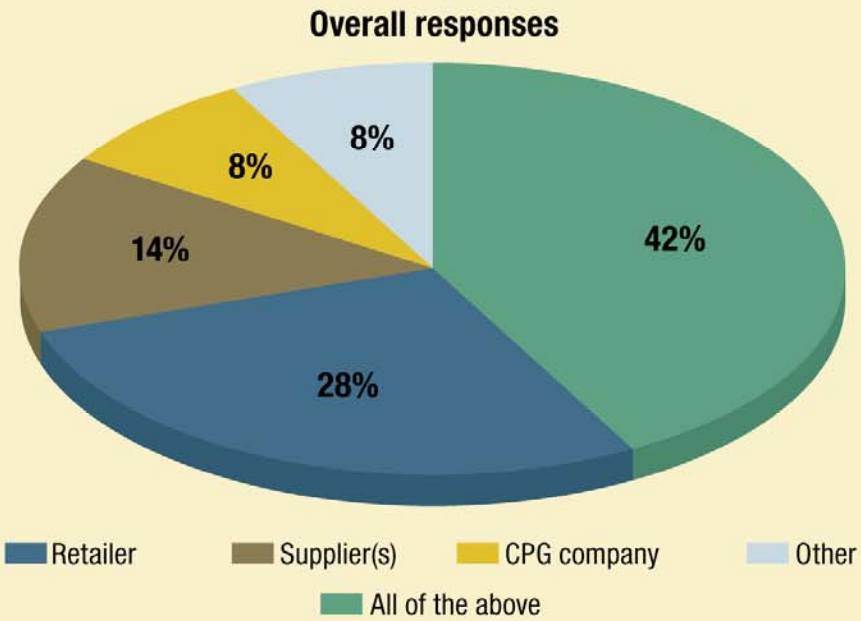


Fig. 5: Retailers want products shipped in shelf-ready cartons to reduce in-store labor. Who should foot the bill?



Source: *Packaging World*/PTIS 2009 survey

Innovation

- Lakeside Foods
- Primarily private-label manufacturer
- Pressure to innovate
- Stand-up, steam-in bag replaces pillow pouch
- Target's Archer Farms-- canisters for RTE cereals, potato chips with zipper reclosure.



Innovation

- Mercadona chain in Spain
- Pushing suppliers for antimicrobials
- Sealed Air, Nanobiomatters



Private Label Packaging

- Consumer behavior in recent recessions
- So current growth is built on a foundation that's decades old

Private Label Packaging

- Retailer's balancing act
- Doug Palmer, VP Own Brands at A&P:
Listen to the consumer
- Pack Expo: The Future of Retailer
Packaging and Branding--the A&P story

Private Label Packaging

- Beyond private label: private brand
- Even greater emphasis on good packaging
- A&P as an example





GREENWAY™

ORGANIC
BLUEBERRY
LOWFAT YOGURT



1%
MILK
FAT



GREENWAY™

ORGANIC
PEACH
LOWFAT YOGURT



PER SERVING

1%
MILK
FAT

120
CALORIES





Private Label Packaging



Interactive Mobile Marketing

- PLU label includes encrypted code giving each product a unique identity.
- Instant traceability back to source
- Powerful tool for communicating with consumers--recipes, surveys, coupons



Interactive Mobile Marketing

- Mobile coupon. Scan bar code with cell phone and you get \$2.00 credited to your PayPal account.
- ScanBuy, DuPont, Printpack partnering to let CPG companies extend content to consumers on labels via cell phone.
- “Taking this technology to the next level.”



Interactive Mobile Marketing



- MSO, converter; Pharmorx Security, track and trace experts; Sun Chemical, inks and pigments
- Multilayered solution

Printed Electronics

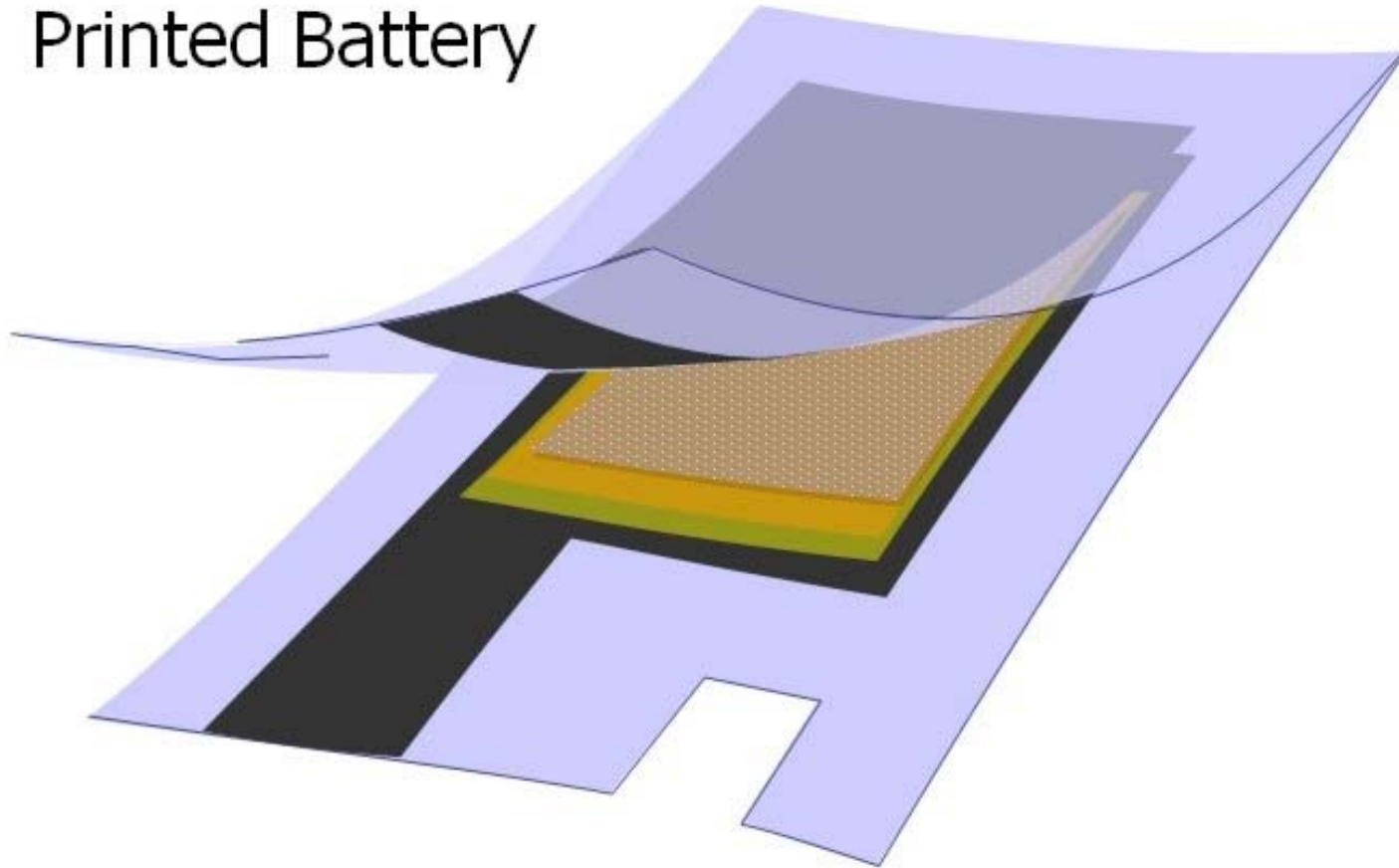
- Electrically functional inks
- Like RFID but delivered via printing process so cost is reduced
- Conductive polymers that are carbon-based, like the molecules of living things. Traditional electronics relies on inorganic conductors such as copper or silicon.
- Polytos project in Germany is packaging centric, and unique because it involves the entire value chain, from designers to physicists to film converters. Also a key stakeholder and funder is Merck.



Printed Electronics

- Will reduce cost of electronics suitable for packaging by 99%
- Energy harvesting: printed photovoltaics
- From \$0.09 billion in 2010 to \$7.7 billion in 2020
- E-packaging for brand enhancement

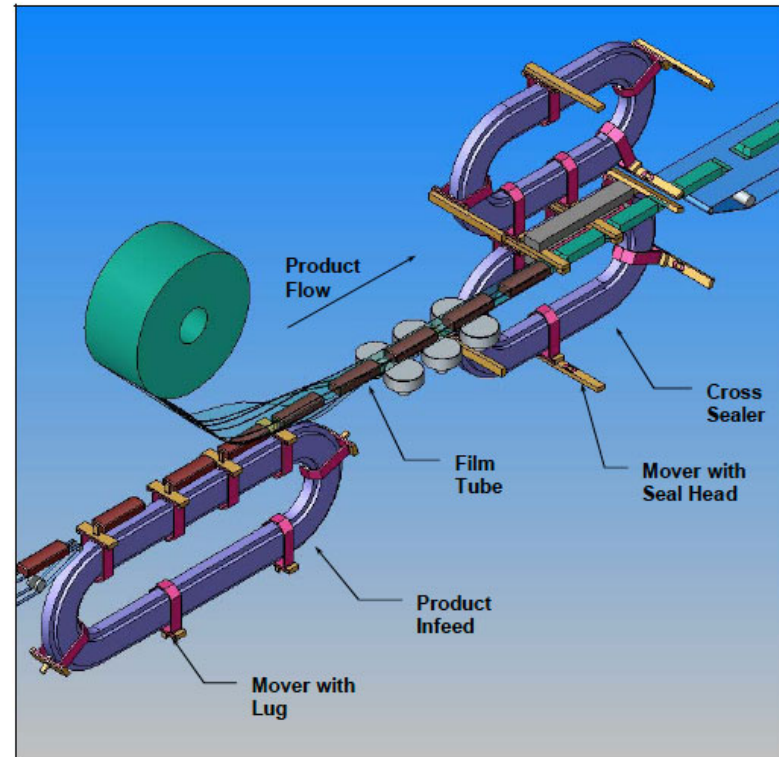
Printed Battery



Preionic, Austria

Linear Servo Motor

- PackTrak, Jacobs Automation-- replaces rotary-driven chains, belts, gears with a direct-drive linear motor.
- As a replacement for rotary servomotor, it eliminates the need to convert rotary motion into a linear or curvilinear motion to accomplish actuation.
- Each axis of motion can be driven and controlled independently. No mechanical transmission. Maximum changeover flexibility.



Convergence of IT and Mfg.

- Old: Spreadsheet done on one computer and then re-done on someone else's; manual, iterative, time-consuming
- New: Software, servers, systems that integrate customer order entry with production scheduling so that production scheduling can be optimized based on real-time data from plant floor; automated, collaborative, fast

Convergence of IT & Mfg.

- Need info, not data
- Too many repositories, not enough info for analysis
- No visibility of plant-floor ops; need dashboards that are user-friendly

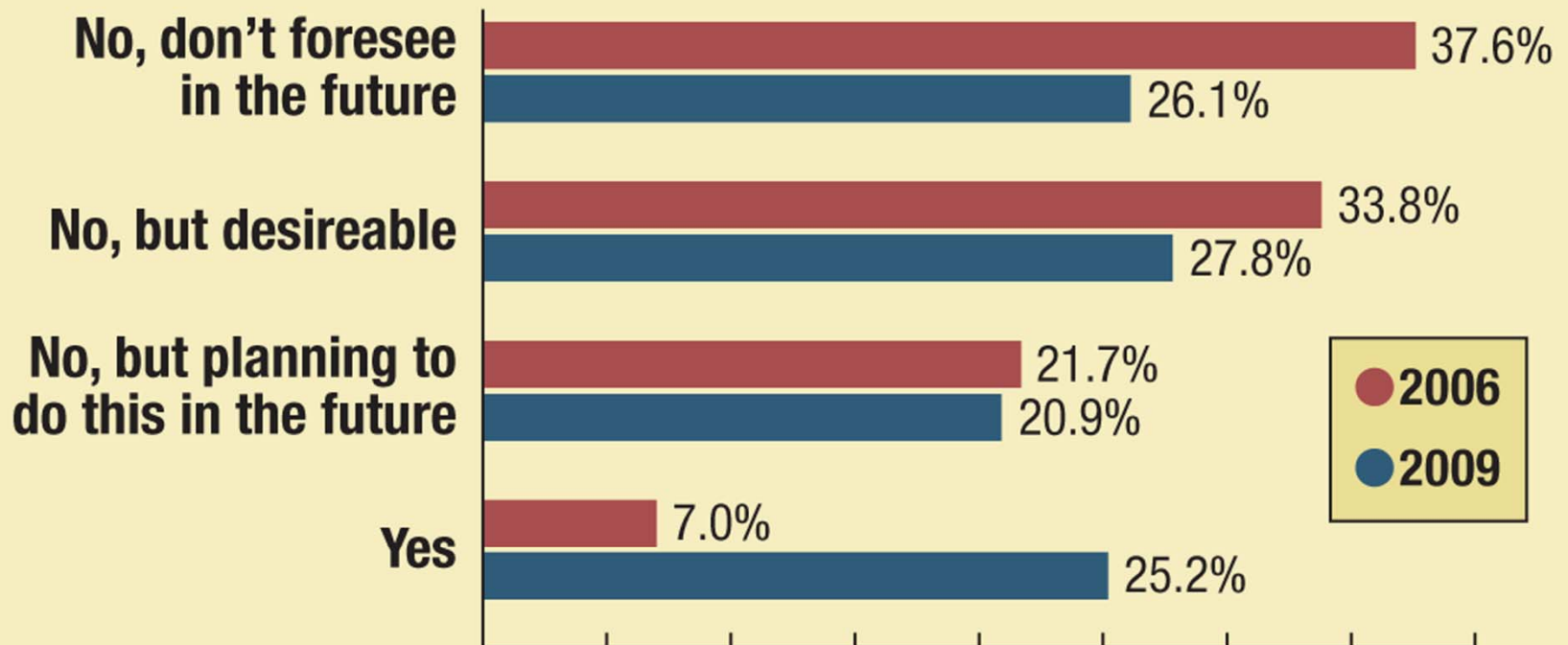
Convergence of IT and Mfg.

- Kronos at Drinktec last month featured its IT and MES solutions
- Raw materials delivery, process technology, filling and packaging, distribution logistics--all tightly integrated
- Goal: up to 30% more value creation
- Drive business forward proactively rather than look back reactively
- HR considerations
 - Career path questions
 - Enabled workforce working smarter, not harder

Enabling workers

- Perrigo engineer on implementation of an SAP Mii solution: “We sat in an ivory tower and imagined how all this was going to go. But out on the shop floor, operators said there was too much scrolling, too many charts. In a week we input their recommendations, and immediately they became our greatest champions as we rolled the software out on new lines or in new plants.”

Are your packaging lines integrated with your ERP systems to allow automatic upload of production results and download of production schedules to be processed by the packaging line?



Source: *Packaging World*/OMAC joint survey

Chart 4

Clarity

- Talent
- Sustainability
- Cash flow
- Better view of present, future, big picture, emerging opportunities, supply chain, customer behavior, where risks reside, where inefficiencies proliferate

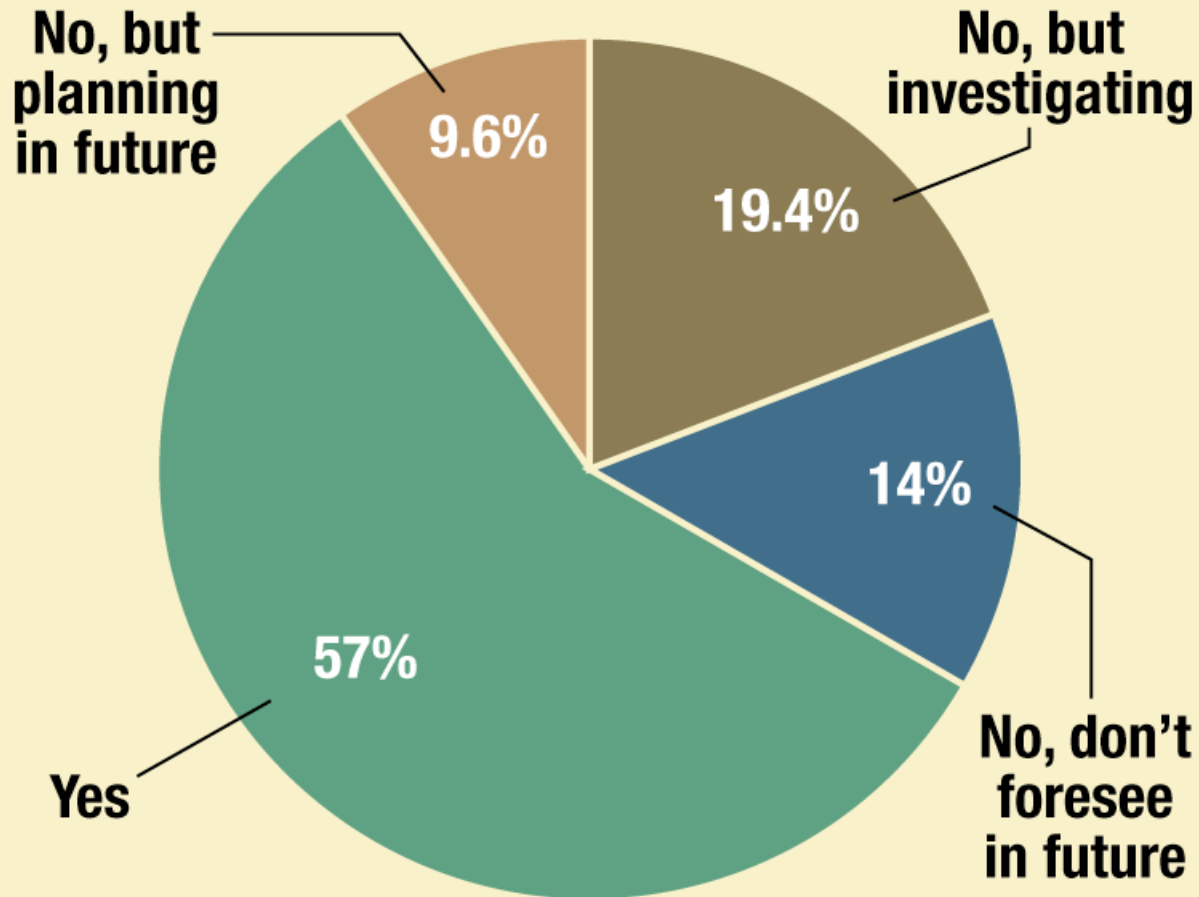
C-level objectives

- Examine cost, but with a view to enhancing value
- Outsource
- Establish shared services
 - Cloud computing
- Shed non-core businesses
- Establish an IT platform; without one, little else matters

Mechatronics

- **Mechatronics** is the synergistic application of mechanical engineering, electrical engineering, controls engineering, and computer science to make useful products. It emphasizes troubleshooting of automated machinery with a systems point of view.

Do you utilize mechatronics in the design of your machines?



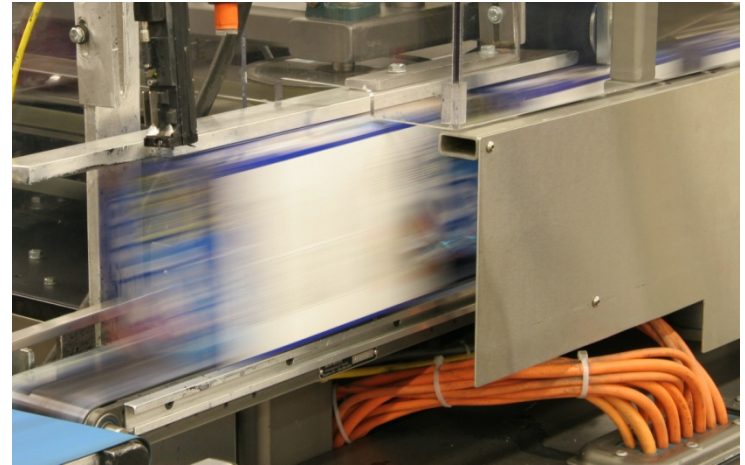
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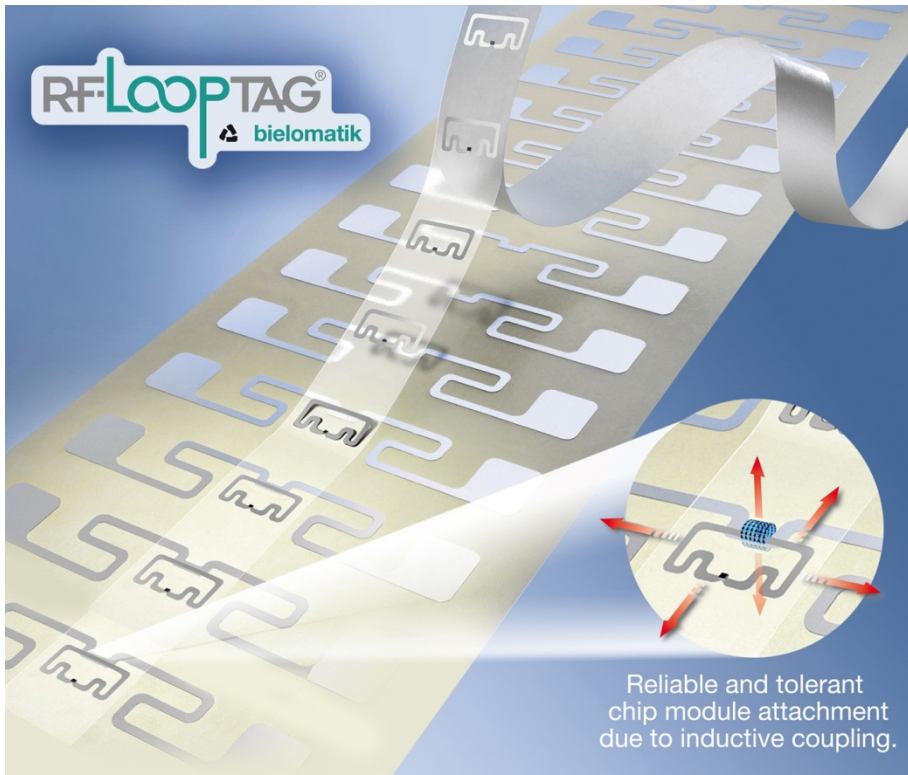
Mechatronics

- U.S. Dept. of Labor recently included a packaging machinery oriented mechatronics competency model on its Career One Stop Website
- One of only 14 such models
- Acknowledges the importance of mechatronics to the U.S economy
- Same competencies being incorporated into PMMI's mechatronics certificate program
- www.careeronestop.org/competencymodel/pyramid.aspx?me=y

Simplification

- Servo motor and drive integrated
- 7-axis vertical cartoner needs 1 cable daisy-chained to each motor/drive instead of 14 cables connecting drives in the controls cabinet to servo motors out on the machine.
- Cabling cost down 40%; time for field wiring down 40%, footprint down 20%, greater flexibility

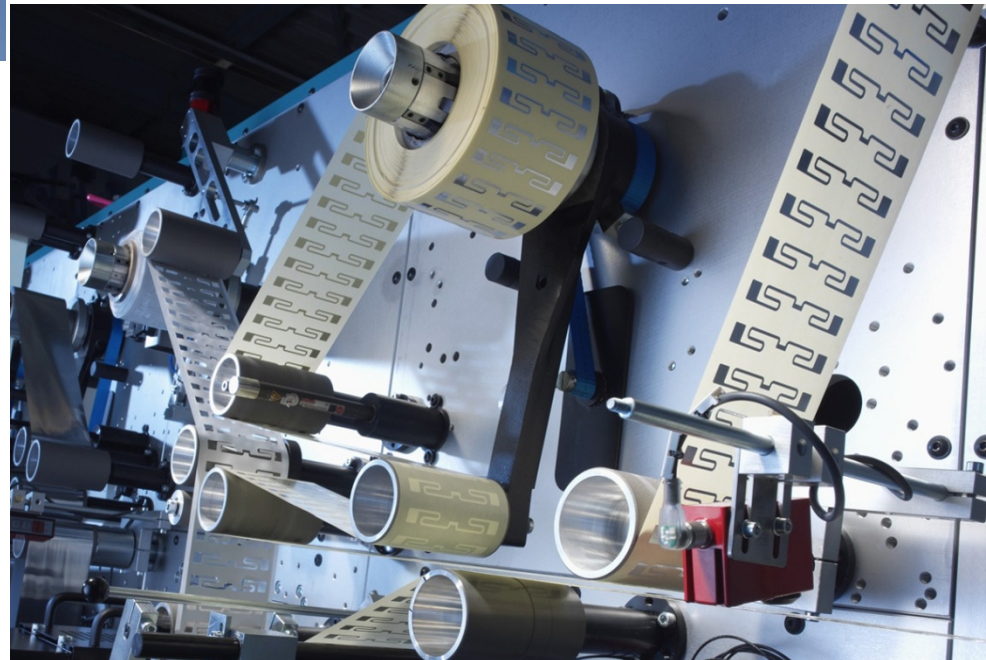




- Labelexpo 2009, Brussels
- Loop antenna with chip attached
- Delivered as a p-s label and is affixed to secondary antenna at high speeds
- Result: a Smart Label with a long read range

“The power to bring about the magical five-cent RFID tag in the near future.”

bielomatik

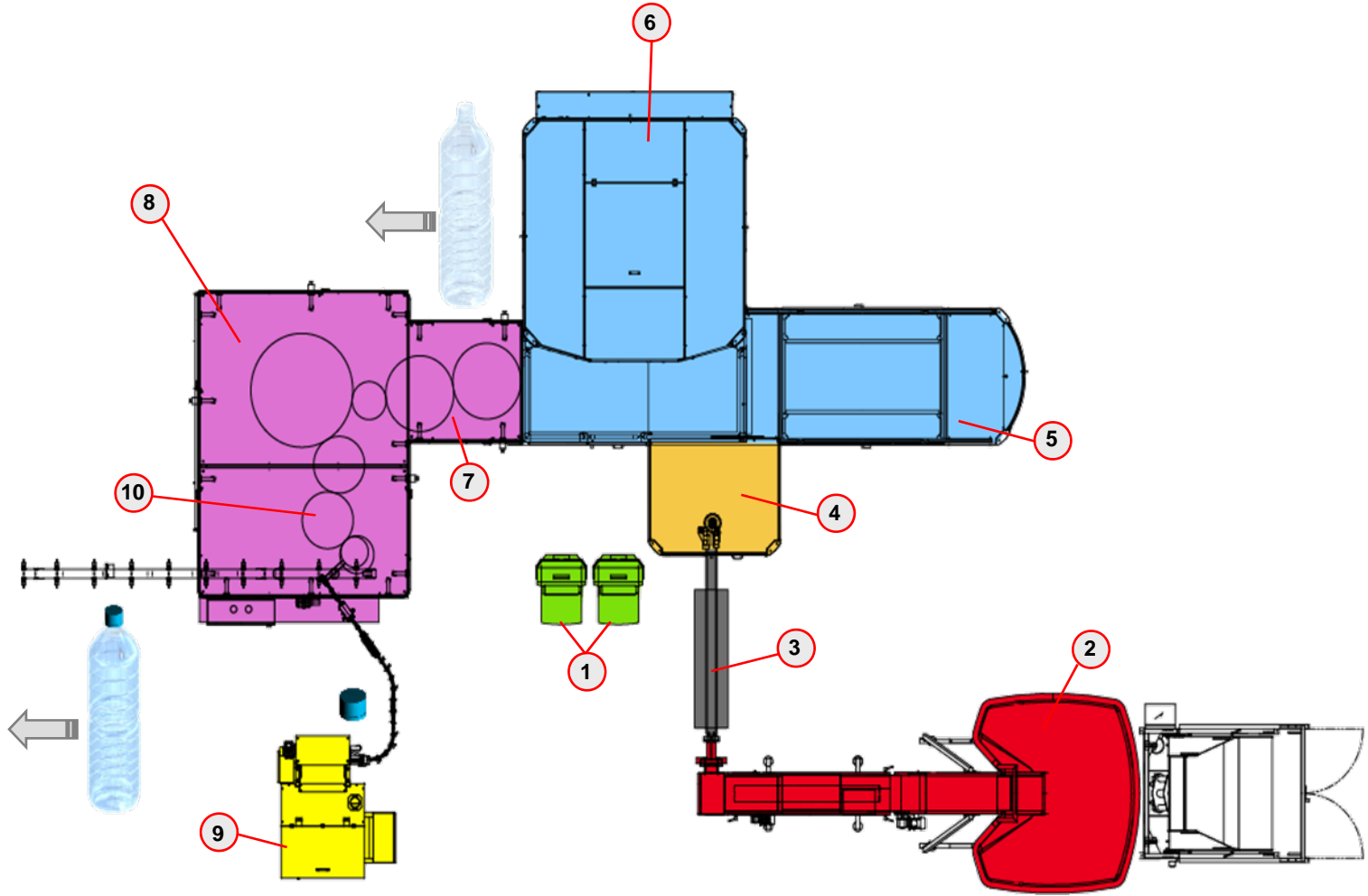


Demo3D

- Polytron www.polytron.com
- e squared m www.e2m.com

Predis Dry Sterilization

- ① Operating console
- ② Preform infeed hopper
- ③ UV preform neck treatment
- ④ **Dry preform decontamination H₂O₂**
- ⑤ Thermal conditioning & activation
- ⑥ SBO Universal blow molder
- ⑦ Positive transfer between blowing/filling
- ⑧ Sidel FMm filler
- ⑨ Cap disinfection and feeding
- ⑩ Screwing/capping



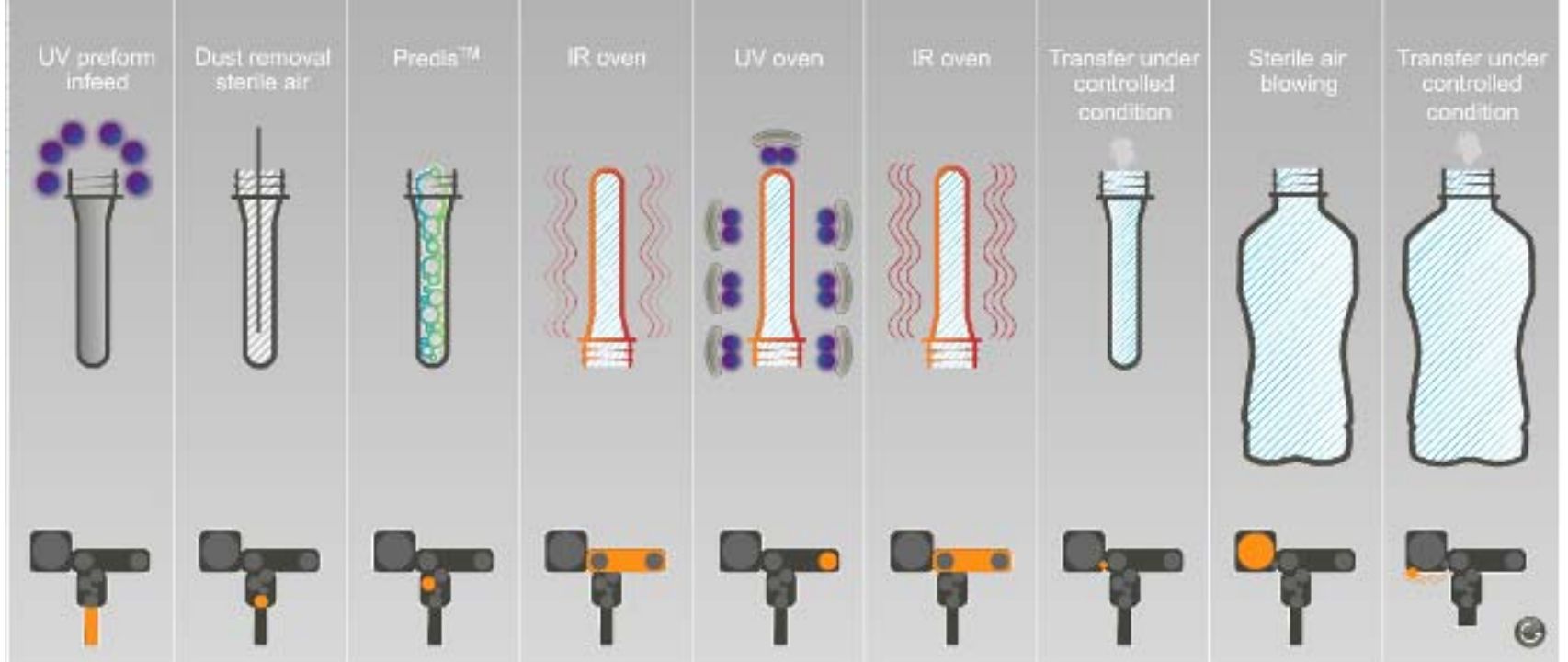


LSDH, France

- 1-L, 400/min, 4-mo. shelf life
- Black PET preform that's overmolded with white PET
- No foil liner under lid
- 24 g, looking at 22 g



‘Ecological. Practical. No sealing lid.’



UV on preform neck	Treatment takes 3-4 sec. depending on output. 2.5 log reduction on neck
Dedusting	Dust removal (blowing) with filtered air and extraction
PREDIS™	Very low chemical consumption / simple design / no water
Preform heating	No additional energy consumption for preform sterilization (oven energy)
UV on preform body	Simple outside preform decontamination using UV lamps in the oven
Preform heating	No decontamination limits due to bottle shape
Preform transfer	Unidirectional sterile air flow protection
Blow molding	Blowing with 0.01 micron sterile air ("Blown = Decontaminated")
Bottle transfer	Unidirectional sterile air flow protection

- Byrne Dairy, Syracuse, NY--first Predis application in N. Amer
- ESL milk, flavored milk, coffee creamers
- 8-, 12-, 32-, 64-oz sizes



EB Curing

- Advanced Electron Beams (AEB)
- Surfaces sterilized with a stream of energetic electrons
- No water, no chemical sterilant, minimal energy consumption, lighter bottle



Coil-to-can with aluminum

- Up to 40% lighter vs impact extrusion
- Up to 65% PCR vs 99.7% virgin for IE
- Coil--cup (draw & redraw)--trim--BPA-free coating--offset printing--necking down; faster
- Digital printing soon
- Could mean alum. bottles get beyond niche apps
- Exal Corp.



Eaux Vives Water

Cap Can goes 'sleek'

- New 12-oz version from Rexam and Dayton Systems Group
- Hi-speed can making + DSG tech seams on a Cap Can end and closure.
- “To communicate that our product was unlike anything experienced before, we needed an equally innovative package that would attract consumer attention. It’s portable, resealable, recyclable, and it really stands out on the retail shelves.”

Mark Hall, President
Monster Energy



Monster Energy

And don't forget...

- Shortage of skills
- BPA--Late Nov. decision from FDA
- Producer Responsibility
- Nanotech
- Shape emerging to challenge color
- Oxodegradables / Oxobiodegradables
- Wireless