## Packaging Basics: 'An Interactive Discussion'



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https://www.youtube.com/watch?v=7YrpmZFixp0

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## Course Agenda

#### Background

#### **Getting Started**

#### **Structural Packaging Development**

- Shape Options
- Material Options
- Shipping Distribution Options
- Environmental effects on packaging
- Manufacturing Processes

#### **Graphics Development**

- Developing your Brand and Story
- Using color to attract your customer
- Shelf "disruption"
- Printing processes

#### Selecting a supplier/partner

Keys to selection







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## **Overview / Background**

Packaging has evolved from simply being a method of bringing goods to the marketplace, to a method of informing consumers of features/benefits, creating brand loyalty, and protecting products.

This in an age where online sales are outpacing brick and mortar store sales.

Packaging Development is a process that involves research, ideation, material selection, vendor selection, prototyping, testing, iteration, final design, production, and implementation.











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## **NEW PRODUCT DEVELOPMENT PROCESS**

Packaging Development is a process that involves research, ideation, material selection, vendor selection, prototyping, testing, iteration, final design, production, and implementation.



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## **Getting Started**

Identifying Requirements

- Doing your homework
  - What are leading designs in market place
  - What are your competitors doing?
  - What kind of "experience" do want the consumer to have?
  - What are your budget limitations?
  - How fragile is your product?
  - What are your market channels? E-Commerce, Retail, Big Box, DIY, etc.
  - Is security a concern? (Mini-Clicker)







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## **Structural Design 1**

Identifying product characteristics and fragility:

- Is your product a brute or a lamb?



- Will your product dent, scratch, break easily? (Additional protection?)
- Is it susceptible to damage due to heat, moisture, corrosion, etc? (Isolation?)
- Will the product finish easily scuff, rub, chip? (Air cells?)

Knowing your product's fragility is key to developing the optimum packaging solution.

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## **Structural Design 2**

### Packaging Types:

- **Primary** packaging: Individual or "sell" unit
- Secondary packaging: Hold multiple individuals / "master pack"
- Tertiary packaging: I
- **Transport** packaging:
- : Inserts that fit inside master packs to separate or protect individual units
  - ging: Additional packaging that protects full pallet shipment during shipment





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## **Structural Design 3**

#### **Packaging Shapes:**

Square, Hexagonal, Octagonal, Circular, Contoured, Wedge







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## **Materials**

Corrugated Board, Paperboard (Folding Carton), Molded Fiber/Paper, Thermoformed Plastic, Metals, Foams



## Processes

Offset Litho/Flexo/Digital Printing, Folding, Gluing, Die Cutting, Molding, Thermoforming

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Web Fed Press

**Sheet Fed Press** 



Flexo/Folder/Gluer



#### Flat Bed Cutting Die







**Digital Press** 





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## **Manufacturing Processes**

#### Automation –

Automation options are being explored for carton assembly, rail packaging, part sorting, and shrink wrapping through NPD programs, and process improvement efforts.









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## Palletizing

#### **Importance of Palletization**

- Inefficient pallet pattern will cost you \$\$\$ in Shipping/Distribution *forever*
- Need to determine pallet pattern efficiency when you start package design

## **Pallet Overhang**

- Exposes freight to damage
- Decreases pallet's strength
- Can reduce up to 30% of the top to bottom compression (stacking) strength

= 2/3 Potential Compression Strength



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## Shipping/Distribution

Pallet Structure: Key to getting products to market.

Construction & costs will vary depending on spacing between boards and weight.



Wing Pallet



**Reversible Pallet** 



Chep Pallet

Plastic Pallet



#### Now, it looks like you have everything figured out, right?

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Peco Pallet

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Euro-Style Pallet

LiftMaster

Cargo Pallet

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## **Testing: Why**





Package Demo







**58%** 

said that product damage would put them off placing a repeat order

https://youtu.be/ZIUJmT2h3-4?t=255

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## **Testing: How**



Drop





# Shock

#### **TESTING VERIFICATION**

We use ISTA certified test labs to complete simulation of the shipping & distribution environment & validate package designs.

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#### **Environmental**



#### Compression





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## **Break time? Keep going?**



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## **Graphic Design**

What are your Brand objectives?

Who are the leaders in your category?

Do you want to lead or follow in the marketplace?

Do you want to disrupt the marketplace?



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## Retail Examples 1

Research has shown that consumers make decisions based on visual cues in 3-5 seconds.

Packaging has only that long to grab their attention.





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## **Retail Examples 2**

Shelf informational display with product imagery and color coding.



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## **PRINTING PROCESS OVERVIEW**



#### FLEXO UP TO 4 COLOR

Direct print utilizing up to 4 colors with minimal trap, line screens 65 or lower and no process printing.

Used for all volumes with lower end graphics, tooling is cheaper and turnaround time is faster.



#### **FLEXO UP TO 6 COLOR**

Direct print utilizing the 4 main colors and up to 2 pms colors, line screens up to 110, process printing to create images such as people.

Used for medium to high volume runs with high graphic quality similar to litho but cheaper.

Tooling is expensive so the graphics need to stay the same for a period of time for the payoff over Litho.

#### PREPRINT

Print using polymer plates producing up to 150 line screen on rolls of coated paper.

Used for high volume box runs with the need for high end graphics at a low price. Tooling is expensive, start up time is long and a paper roll commitment is needed.

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#### LITHO PRINTING

Printing using a metal plate producing up to 150 line screen on heavy sheet s of paper stock 80-100lb.

Used for medium runs with high end graphics. Tooling is cheap but lead times are long and the labels are expensive.



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## **Digital Printing**

## Pros

- No tooling required
- Able to change artwork during production run
- Good for short run production

## Cons

- Not ideal for large production runs
- More expensive per piece cost

## Future

• Higher speeds, more capacity, lower costs



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## Treatments: Foiling, Holographics, Emboss/Deboss, Spot Coating, Laser Cutting











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## Selecting a Supplier/Partner

Someone who will work with you as you grow your business and theirs

- Designing
- Prototyping
- Low volume production
- High volume production

## Supplier Business Models

#### Integrated Manufacturer

- Raw materials thru manufacturing all within their system
- Pros
  - Design/Development capabilities
  - Control of materials & processes "under one roof"
  - Direct pricing advantage
- Cons
  - Limited to materials & processes that they produce

#### Distributor

- Pros
  - Design/Development capabilities
  - Can offer different materials & process solutions
  - Affected by market pricing
- Cons
  - Do not directly control manufacturing
  - Affected by market pricing



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## What's the meaning of life? Why does it rain? What's for lunch? Has this been helpful/useful/mind blowing?



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## Appendix 1:

**ABRE - Brazilian Packaging Association** São Paulo, Brazil Adhesive & Sealant Council Bethesda, MD Alliance of Foam Packaging Recyclers Crofton, MD **American Bakers Association** Washington, DC **American Chemistry Council** Arlington, VA **American Forest & Paper Association** Washington, DC **American Frozen Food Institute** McLean, VA **American Hardware Manufacturers Association** Schaumburg, IL **American Institute of Food Distributors** Fair Lawn, NJ **American Iron and Steel Institute** Washington, DC **American Management Association** New York, NY **American Meat Institute** Arlington, VA **American National Standards Institute** New York, NY **American Plastics Council (APC)** Arlington, VA **American Society for Testing and Materials** West Conshohocken, PA Association for Suppliers of Printing, Publishing Reston, VA AICC, The Independent Packaging Association Alexandria, VA Association of Industrial Metallizers, Coaters and Laminators (AIMCAL) Cleveland, OH **Association of Visual Packaging Manufacturers** US **Automated Identification Manufacturer** Pittsburgh, PA

Automated Imaging Association Ann Arbor, MI California Film Extruders & Converters Association Newport Beach, CA **Can Manufacturers Institute** Washington, DC Chocolate Manufacturers Association of the U.S.A. McLean, VA **Closure Manufacturers Association** Washington, DC Composite Can & Tube Institute (CCTI) Alexandria, VA Consumer Healthcare Products Association Washington, DC **Contract Manufacturing and Packaging Association** Warrenton, VA **Converting Equipment Manufacturers Association** Springfield, NJ **Corrugated Packaging Council** Rolling Meadows, IL **Cosmetic, Toiletry & Fragrance Association** Washington, DC **Drug, Chemical & Allied Trade Association** East Windsor, NJ **Envelope Manufacturers Association** Alexandria, VA Environmental Industry Associations Washington, DC Fibre Box Association Rolling Meadows, IL Film and Bag Federation Washington, DC **Flexible Packaging Association** Linthicum, MD Flexographic Technical AssociationFlexographic Technical Association Ronkonkoma. NY Foil Stamping and Embossing Association Topeka, KS Food and Drug Law Institute Washingon, DC **Food Institute** Fair Lawn, NJ

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**Food Marketing Institute** Washington, DC Food Processing Machinery & Supplies Association Alexandria, VA **Foodservice & Packaging Institute** Falls Church, VA **Glass Packaging Institute** Alexandria, VA **Graphic Arts Technical Foundation** Sewickly, PA **Gravure Association of America** Rochester, NY **Grocery Manufacturers of America** Washington, DC **Health Industry Manufacturers Association** Washington, DC Healthcare Compliance Packaging Council Washington, DC **High Definition Flexo Consortium** Dayton, OH Institute of Food Technologists Chicago, IL Institute of Packaging Professionals Naperville, IL International Association of Food Industry Suppliers McLean, VA **International Bottled Water Association** Alexandria, VA **International Dairy Foods Association** Washington, DC International Foodservice Manufacturers Association Chicago, IL International Safe Transit Association East Lansing, MI **Italian and Machinery Technology** Italy Label Printing Industries of America Alexandria, VA **Material Handling Industry of America** Charlotte, NC Molded Pulp Environmental Packaging Association Mequon, WI

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## Appendix 2:

**National Association of Container Distributors** Naperville, IL **National Association of Manufacturers** Washington, DC National Association of Printers and Lithographers Teaneck, NJ National Beverage Packaging Association Alexandria, VA **National Chicken Council** Washington, DC **National Coil Coating Association** Chicago, IL National Confectioners Association of the U.S.A. McLean, VA National Food Processors Association Washington, DC National Freight Claim & Security Alexandria, VA **National Frozen Food Association** Harrisburg, PA National Institute of Packaging, Handling & Logistics Engineers Lanham, MD **National Paper Trade Association** Great Neck, NY **National Paperbox Association** Alexandria, VA **National Soft Drink Association** Washington, DC **National Wooden Pallet & Container** Arlington, VA **Open Modular Architecture Controls (OMAC) Packaging** Workgroup **Packaging and Label Gravure Association** New Madison, OH Packaging Association of Canada Willowdale, Ont., Canada Paperboard Packaging Council Springfield, MA Paper Shipping Sack Manufacturers Tarrytown, NY

Pharmaceutical Manufacturers Association Washington, DC **Pharmaceutical Research and Manufacturers of America** Washington, DC PMMI: The Association for Packaging and Processing **Technologies** Reston, VA **Polystyrene Packaging Council** Washington, DC **Pressure Sensitive Tape Council** Chicago, IL **Printing Industries of America** Alexandria, VA **Private Label Manufacturers Association** New York, NY Processing and Packaging Machinery Association (PPMA) Wallington Surrey United Kingdom **Produce Marketing Association, Inc.** Newark, DE **Research & Development Associates for Military Food &** Packaging Systems San Antonio, TX **Rigid Plastic Packaging Institute** Washington, DC **Robotic Industries Association (RIA)** Ann Arbor, MI **Snack Food Association** Alexandria, VA **Soap & Detergent Association** New York, NY **Society of Glass and Ceramic Decorators** Washington, DC **Society of Manufacturing Engineers** Dearborn, MI Society of Plastics Engineers (SPE) Brookfield, CT Society of the Plastics Industry (SPI) Washington, DC **Steel Recycling Institute** Pittsburgh, PA **Steel Shipping Containers Institute** Washington, DC

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Tag and Label Manufacturers Institute Naperville, IL **Technical Association of the Pulp & Paper Industry** Norcross, GA **The Aluminum Association** Washington, DC **Transportation Consumer Protection Council** Huntington, NY **Transportation Loss Prevention & Security Association** Alexandria, VA **Tube Council of North America** Naperville, IL Uniform Code Council, Inc. Dayton, OH Western Packaging Association (WPA) San Clemente, CA Women in Packaging Kennesaw, GA **World Packaging Organisation** Oakbrook Terrace, IL **Petroleum Packaging Council** San Clemente, CA

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## Thanks...

...to everyone for being here!

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