

Packaging Artwork: An Important Value Chain Process

Insights on How to Streamline Packaging Artwork
Approval Processes within Consumer Products

9/20/2012

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Research

This independent research was conducted with input from Kalypso (www.kalypso.com) and is published using the principle of Open Content research. However, the views are our own.

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Disclosure

Your trust is important to us. As such, we are open and transparent about our financial relationships and our research processes.

Research Methodology and Overview

This report is based on a quantitative survey among thirty-three supply chain professionals working in packaging development or design. Data was collected in the time period of June 21st-August 9th 2012. This data was reviewed with a small group of consumer manufacturers to gain input on process resolution in the period of August-September. Respondent demographics are shared in the Appendix at the end of the report.

Executive Overview

The original goal of consumer packaging development and artwork management was defined to support new product launch and accelerate cost reduction opportunities within the organization. This process has become more complex. Most companies understand that it has become more complex and unwieldy, but they don't know what to do. There are three drivers of complexity:

Clarity of Scope of Work. The responsibilities of the packaging and artwork development teams have expanded to include the development of packaging for global supply chains with increased compliance needs to meet local regulations. It has also expanded to focus on the development of sustainable packaging (products with less packaging waste and lower environmental impact). These added implications increase the need for precision in process definition and governance. However, the process of packaging artwork management cannot be solved within the research and development team. It is a value chain process requiring a coordinated cross-functional approach.

Effective Management of Networks. Packaging artwork developed as a simple process. The design and approval of artwork was an integral part of the research and development team with local approval. Over time, with the development of design networks and the outsourcing of design, only 38% of packaging concept work is now directly managed by the organization. The rest is managed through a system of complex network relationships. These relationships need to be selected holistically with a clear focus on value, not a singular focus on price. As a result, clear definition of value-based outcomes needs to be integral in the selection of suppliers. Procurement, and the selection of packaging suppliers based on value chain relationships, needs to be a clear input to the value chain process. As a result, include procurement in the process redesign of packaging processes.

Clarity of Process with Growing Organizational Complexity. With the consolidation of consumer products companies, and the acceleration of global market expansion, packaging organizations have become larger and more complex. However, the solution to packaging artwork complexity cannot be solved within the packaging organization itself. Instead, there is a need for value chain mapping and a value chain leader to drive continuous improvement activities on the process.

The effective management of packaging and artwork has several ramifications for the global supply chain. It is usually the gating factor, or constraint, for new product launch; it is a significant contributor to product recalls; and it is a critical component of sustainability initiatives to meet the zero waste goals.

The answer is not one of “what;” instead it is a question of “how.” It is not resolved by a simple automation by technology. Instead, it requires an outside-in value chain mapping exercise and leadership by a value chain leader. This report is designed to help this leader drive process improvement.

Research Summary

Packaging development and artwork management sounds easy. It is not. They are supply chain constraints, major elements of corporate social responsibility goals and often a driver of cost. Choices in suppliers can improve the situation, but the design of value networks to improve packaging and artwork needs to be holistic, looking at governance, process, partnerships and technologies. To become agile, drive growth, and achieve corporate social responsibility goals, the design and development of packaging and artwork matters.

Complexity Increasing. Progress is Questionable.

Over the past five years in studying the process, we see that the process is grown more complex, and that the progress to improve accuracy and decrease cycles is questionable.

- **Complexity in Product Portfolios.** The number of items within a consumer goods manufacturer has grown 23%.
- **Process Cycles have Lengthened Despite More People:** The number of people managing packaging artwork management has grown three-fold; however, artwork approval has increased by 30% (from two to three weeks on average).
- **Global Management is Challenging.** Global specification management is now the overarching theme. The number of consumer manufacturing companies having packaging sustainability in global supply chains as a major initiative has doubled. Global/regional governance and clear accountabilities is the starting place to build process reliability.
- **Waste is High.** Write-offs due to packaging artwork has grown. In 2012, 22% of packaging write-offs are due to artwork management.
- **The Answer Lies within the Network.** With only 30-40% of the packaging development insourced, the management of packaging design requires an effective network. The use of network-based Product Artwork Management (PAM) technologies is critical to streamline results and reduce cycle times.
- **Product Lifecycle Management (PLM) Approaches have had Questionable Results.** The implementation results of PLM are not consistent in the industry. While some have gained value, most have not. Over this time, the number of companies using a Product Lifecycle Management technology has doubled; however, there is no discernible difference in results between those using PLM and those that do not use PLM technologies.

Packaging Can't Be Resolved with Silo Thinking

Core to the process is the definition of collaborative workflows. Process definition is paramount. While the process needs to be driven and owned from the packaging development team, it cannot be solved by them. Instead, it is dependent upon effective and managed input from multiple parties in the organization. As outlined in figure 1, it requires the cross-functional

coordination of 14 groups with approval processes in four primary process steps. It needs to be collaborative, yet disciplined. It requires clear process definition in value chain mapping.

Figure 1. Process Overview of Approvals for Packaging Artwork Development

NPDI Packaging/Artwork Collaborators by Phase					
Top 3 Collaborators	NET	Concept	Development	Testing & Validation	Launch
Marketing	97%	91%	85%	48%	61%
Package Engineering/Development	97%	82%	91%	85%	79%
Creative, Design Services or Artwork/Labeling Development	97%	79%	79%	36%	39%
Packaging Suppliers (External)	97%	45%	67%	79%	76%
Procurement	97%	30%	76%	39%	67%
Quality	97%	9%	36%	67%	82%
Finance	94%	24%	61%	36%	61%
Regulatory or Compliance	94%	21%	55%	70%	58%
Manufacturing Operations	94%	33%	73%	76%	85%
Supply Chain Management	91%	15%	52%	52%	76%
Design/Prepress Agency (External)	91%	55%	58%	39%	21%
R & D (Non Packaging Related)	82%	58%	58%	58%	42%
Market Research	79%	73%	42%	24%	15%
Sustainability	67%	39%	45%	21%	33%

Source: Supply Chain Insights LLC, Packaging (June-Aug 2012)

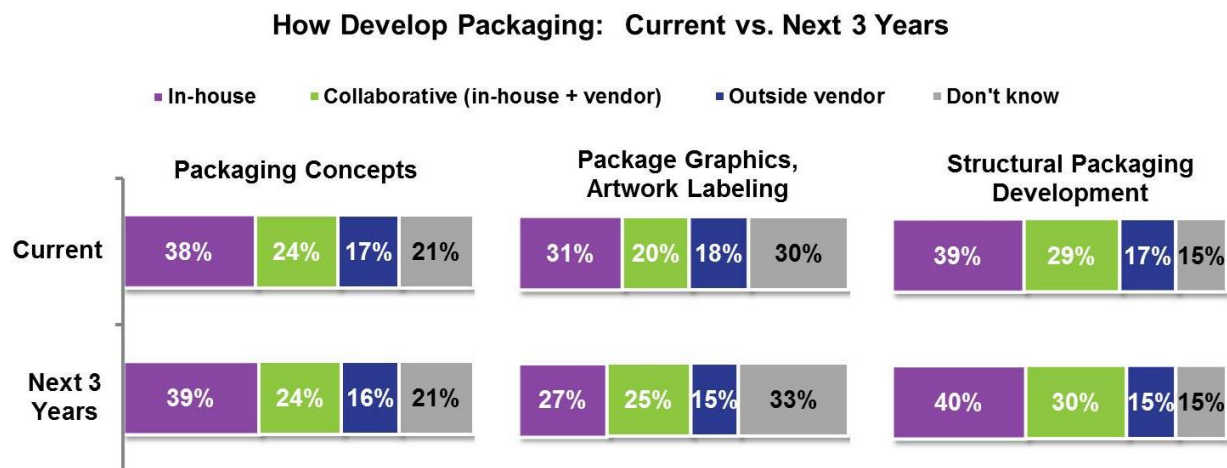
Base: Packaging Development/Design Professionals (n=33)

Q19. During the NPDI process, who collaborates in packaging/artwork design and development during each of the four phases? Please select all that apply for each phase.

Dependent on Value Network Partnerships

It is a value chain, not an enterprise discussion. Today, and in the future, only 38% of packaging concept work is done within the consumer products organization. Client discussions indicate that this use of third-party relationships, now an essential element of the process, has increased two-fold in five years. (Approximately, 50% of the artwork management process was done within the organization five years ago.) As a result, the selection of design agencies and suppliers should be based on a holistic view of artwork management capabilities. As shown in figure 2, these requirements will continue through the next three years. All too often, and sadly, we find that the coordination of these external partnerships is not holistic, creating an unnecessary bottleneck in the approval processes.

Figure 2. Collaborative Packaging Artwork Requirements through External Relationships



Source: Supply Chain Insights LLC, Packaging (June-Aug 2012)
 Base: Packaging Development/Design Professionals (n=33)
 Q13. For each of the following areas, what percentage of packaging is currently designed in-house versus by an outside vendor? And then, what do you think this will look like in the next 3 years?

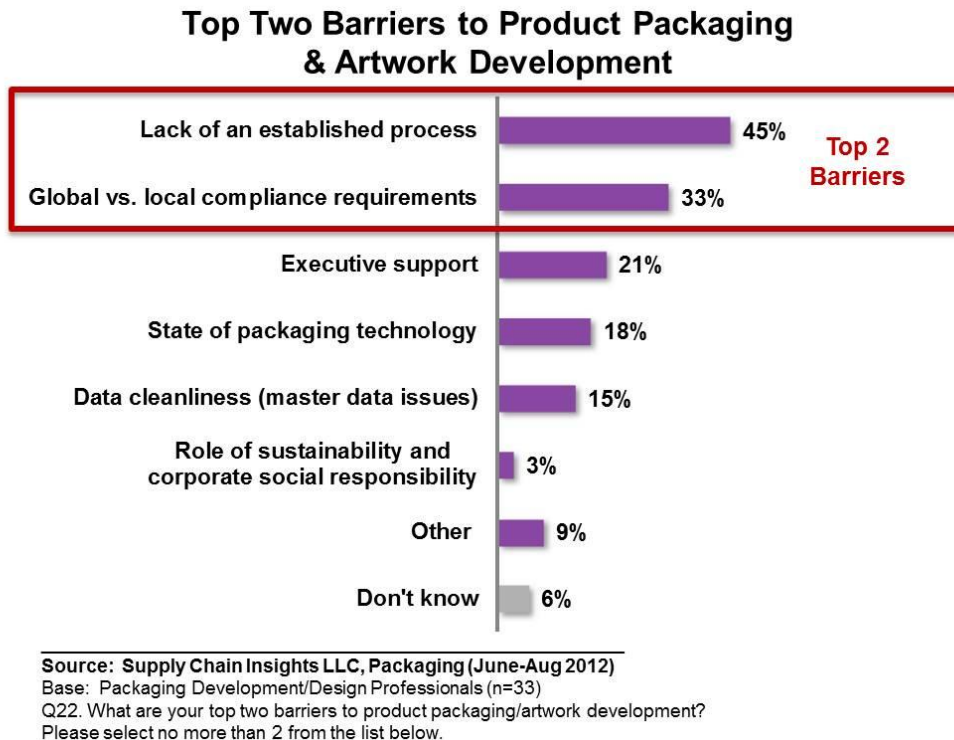
No Industry-Standard Template

Each company designs their process slightly differently. There is no industry standard, but there are clear practices that work. The place to start is putting rigor and discipline in the process and mapping the roles of all of the participants. While the process specifics will vary based on the size of the company, the definition of the global organization, and the compliance of the commodity type, the basics are the same. The biggest barrier to streamlining the process is the lack of an established process with clear accountabilities and disciplined sign-offs. The most important step that a company can take is the design of the process outside-in (e.g., this is the mapping of the process from the market requirements while using input on product innovation of new materials from packaging suppliers back, with a close look at how changes are made, who makes decisions, and how governmental regulations are tracked.) There is a close tie of this artwork process with the definition of product master data and the governance structures for the definition and approval of these important data elements within the supply chain. The two should be mapped together. This becomes even more important in the management of the global supply chain with increasing complexities of local regulatory compliance.

While many companies believe that they need a sophisticated tool for packaging artwork master data, we often find that simple web forms, Microsoft Sharepoint and IBM Lotus Notes are more effective to get started. Over time, these need to be augmented with deeper capabilities in PLM and collaborative Artwork Management technologies, but many companies get so caught up in the big technology process that they do not spend enough time on clear governance and

workflows. It is a case where clear roles and responsibilities, coupled with clear governance structures, trumps technology sophistication.

Figure 3. Barriers to Product Packaging and Artwork Development



It is both complex and time intensive. Few company executive managers have the patience for it. However, asking the hard questions and defining the process, and driving continuous improvement to the process, needs to be done. For all, it is a costly constraint and will be an unwieldy, nagging process issue unless it is addressed:

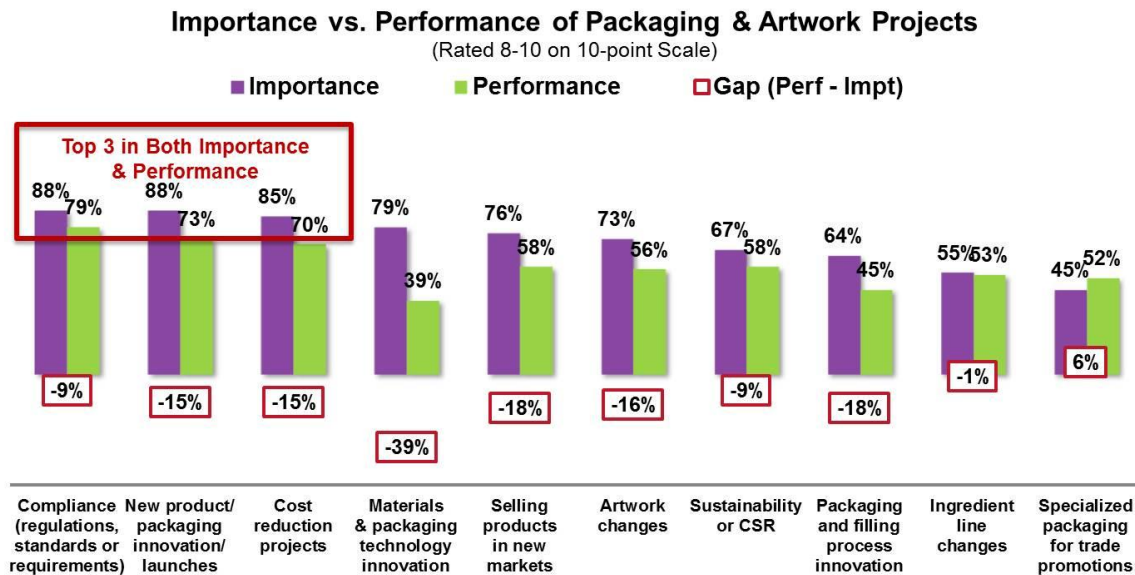
Complex. The average company has 4,000 unique and different items with 150 people dedicated to process of packaging artwork development within the Research and Development team (R&D). The R&D team cannot solve the process issues by themselves.

It is not an issue of clarity of task. It is an issue of process refinement. While there is very little gap for the team at a task level (importance versus performance) as shown in figure 4, there is a great gap at the process level, requiring close attention by a business leader to drive and build a value chain process level definition. It needs to be owned by the value chain continuous improvement leader.

Getting to the root of the issue and solving the problem is important since 22% of packaging write-offs and product recalls are due to packaging issues. The secret to managing these costs

and write-offs lies in the definition of process, and clear governance. Many companies default too early to declaring it to be a technology problem without adequately mapping the process holistically and defining roles, clear process definition and working governance models. The stumbling block is the “how” not the “what.”

Figure 4. Importance versus Performance of Packaging Artwork Tasks

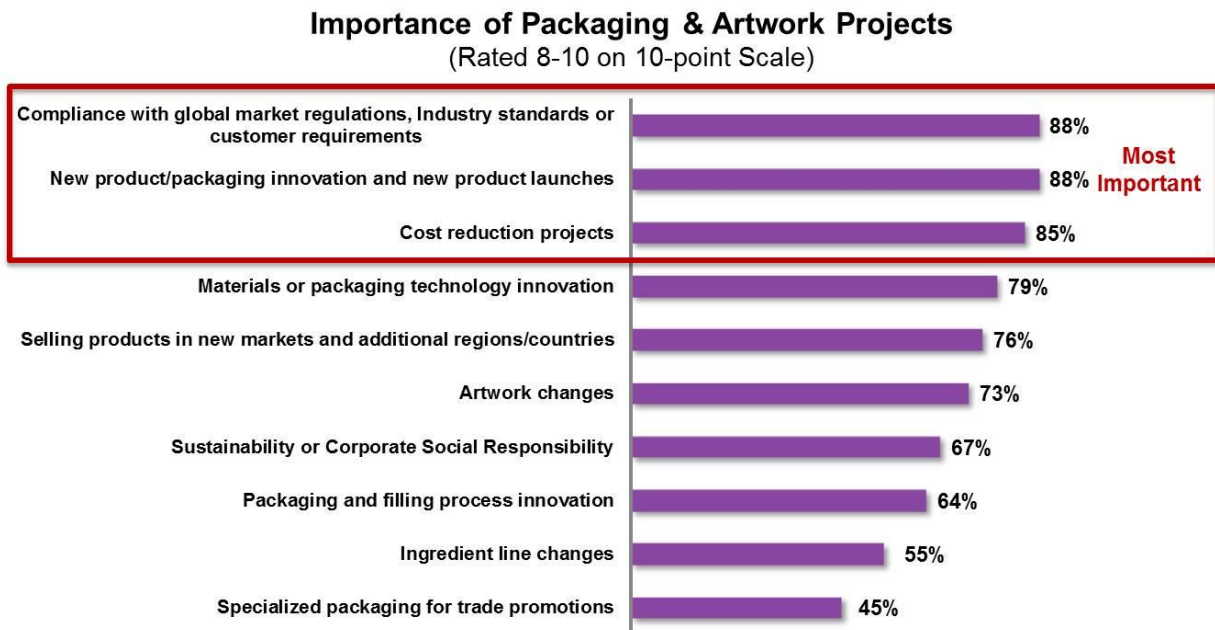


Source: Supply Chain Insights LLC, Packaging (June-Aug 2012)
 Base: Packaging Development/Design Professionals (n=33)
 Q10. How important are the following types of product packaging/artwork development to your organization?
 Base: Packaging Development/Design Professionals and have area in company (n varies by project= 30-33)
 Q11. How well does your company execute in each of these same areas of product packaging/artwork development?

Global Is Not Global

One thorny issue that has grown in the past five years, making the process more complex, is global specification management and input from regional teams on compliance. This will continue and will be different depending on how they have defined the global supply chain. No two companies have defined the global supply chain the same.

Figure 5. Importance of Packaging and Artwork Projects

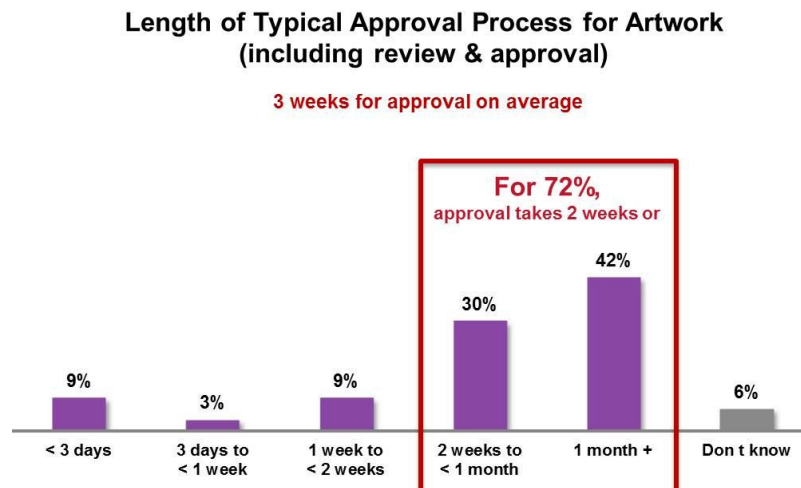


Source: Supply Chain Insights LLC, Packaging (June-Aug 2012)
 Base: Packaging Development/Design Professionals (n=33)
 Q10. How important are the following types of product packaging/artwork development to your organization?

Why it Matters

It is time intensive. It is a supply chain constraint. For most it is a murky, ill-defined process that haunts many discussions. Resolving it, and getting to the core of the issues, is important. Today, artwork approval averages three weeks. Over the last five years of studying the process, it has doubled. Despite investments in technology, the time has increased and the write-offs have grown. Frustration with the process within the organization is high.

Figure 6. Length of Approval Time for the Artwork Process



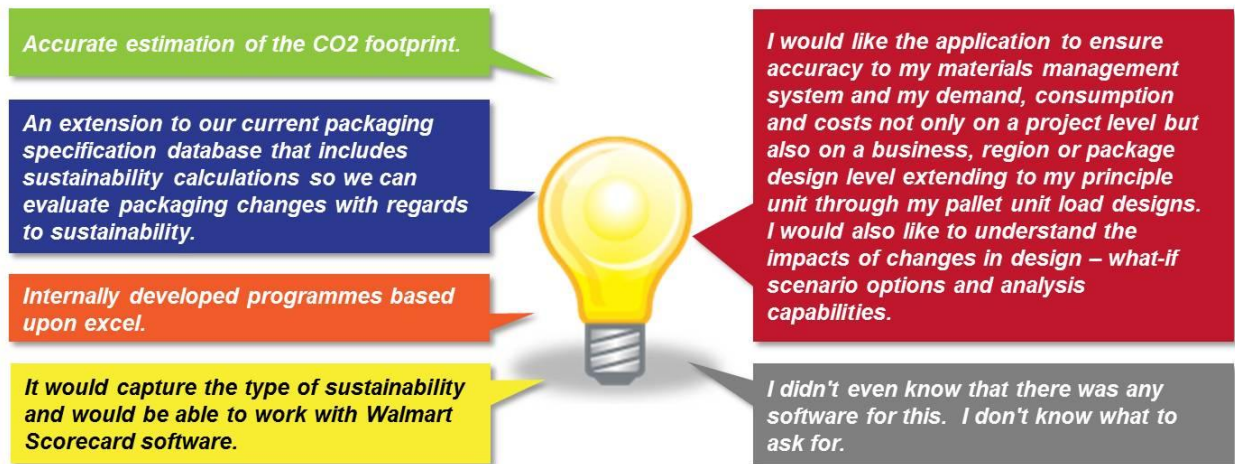
Technology can Help; But, It Is Not a Panacea

There is not one solution used to manage and approve artwork. The use of systems is still fragmented with only 55% using an established Product Lifecycle Management (PLM) system provider, and 42% using a custom or a homegrown solution. This adoption of technology is low. PLM has struggled for acceptance in the consumer products industry. Contrast this to 90% adoption of Enterprise Resource Planning (ERP) or Advanced Planning Systems (APS) by the consumer products industry.

Companies that have focused on product master data management tend to be better at the processes of packaging development and artwork management. They understand the complexity and the required workflows. Couple the two initiatives together.

One of the opportunities for providers of technology to help solve the packaging artwork process is driving greater value in the determination of “green packaging” for zero waste and a lower carbon footprint. As shown below, companies are looking for more encompassing solutions:

Volunteered Software Functionality Desired to Support Sustainability (among those not currently using software)



Source: Supply Chain Insights LLC, Packaging (June-Aug 2012)

Base: Packaging Development/Design Professionals who do NOT use software to support sustainability (n=13)

Q18. Please describe any software application functionality that you would like to have, to support your company's packaging sustainability efforts. OPEN-ENDED

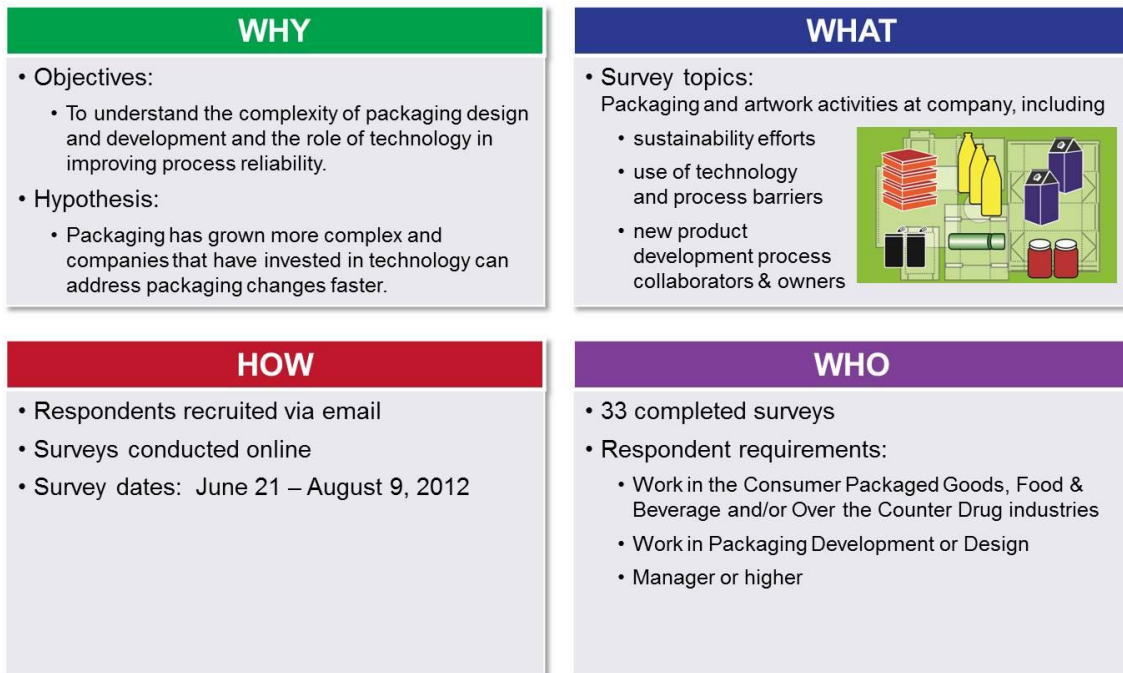
Recommendations

Organizations should take five actions to improve the situation:

- **Create a Packaging Process Owner.** Within a large group of packaging engineers, creative designers, artwork production managers, brand owners, regulatory affairs, legal, quality, manufacturing, procurement and external suppliers and design agencies the Process Owner needs to be the “glue” or single point of contact to define process reliability. Align this person’s role to be the process owner, to own the outcome of the value chain leader driving continuous improvement efforts
- **Map the Process Outside-in. Assign a Value Chain Leader to Define the Process.** The work is messy and tough going. It requires a cross-functional focus. Declare it as a value chain initiative, and assign a value chain process leader to work with a cross-functional team. It cannot be resolved by a singular organization. It will not happen with a siloed approach.
- **Align the Packaging, Artwork and the Master Data Processes.** Work within the organization to align the product master data work with the packaging and artwork initiatives. They are closely coupled and require tight coordination. Companies good at product master data, with clear definition of global specification management, drive success faster in global process initiatives.
- **Select Value Chain Partnerships Based on Capabilities.** It is critical to make technology and artwork approval capabilities an integral part of the value chain definition for the selection of design partnerships and suppliers of packaging to the company. While purchasing organizations are incented to buy services based on cost, this is one process that needs a clear definition of value and alignment of the procurement decision to value. It is about more than cost. It is for this reason that the procurement team should be included in the value chain team.
- **Avoid Big Technology Answers.** Delay decisions on technology until there is clarity on the process. Focus on the “how” with clear definitions on workflows and approvals. This is not a project that should be led with a technology solution. There is an inverse relationship between the use of technology and the approval of artwork because most people have wrongly led with a big technology solution. Technology is an enabler, and an important driver, but should only be addressed after clear definition of the process.

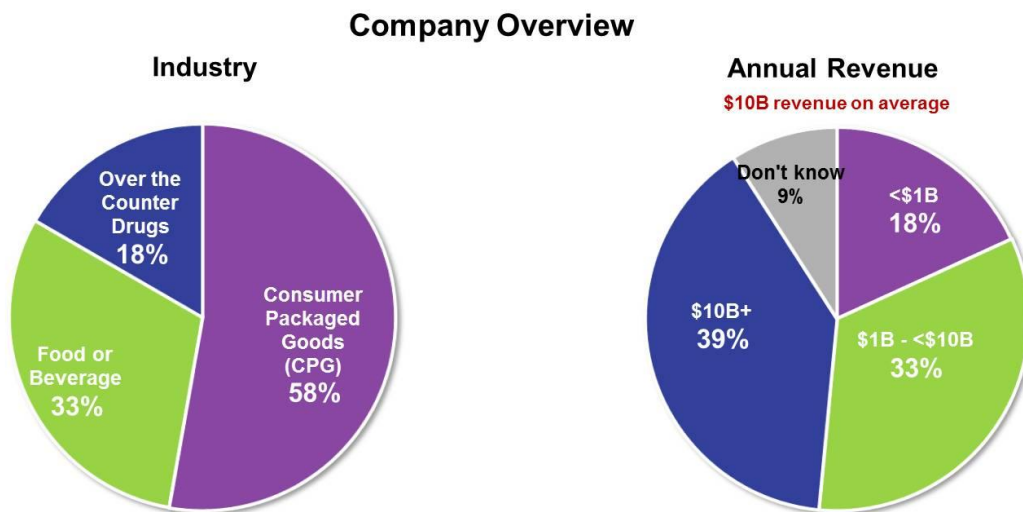
Methodology and Survey Demographics:

Respondent demographics and research methodology details:



As shown in figure A, companies surveyed were primarily consumer packaged goods companies averaging \$10B in annual revenue.

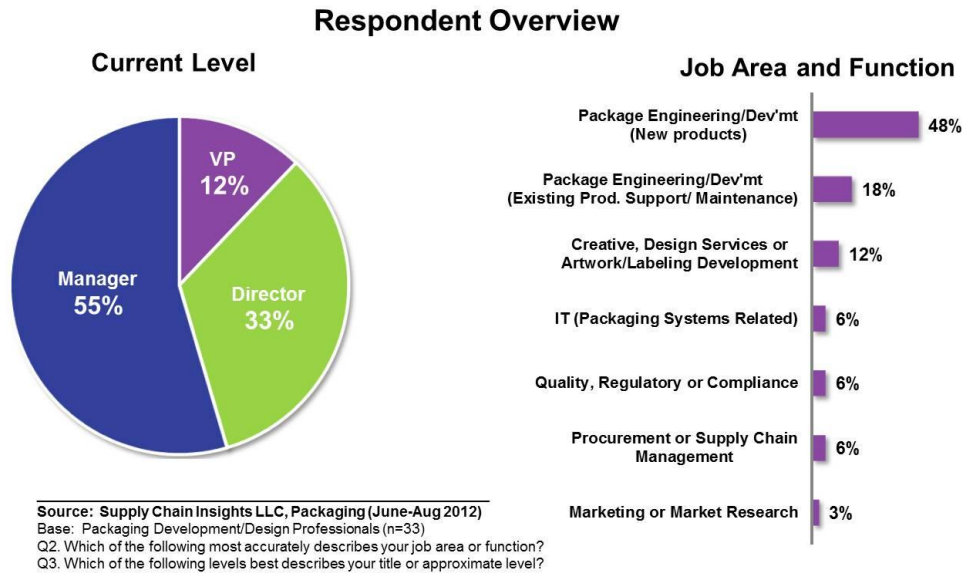
Figure A. Survey Demographics



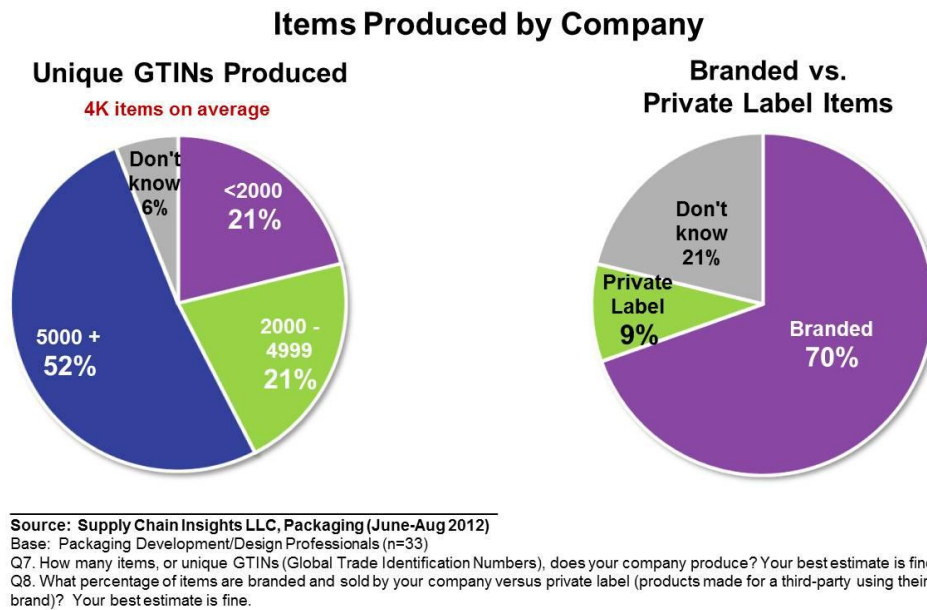
Source: Supply Chain Insights LLC, Packaging (June-Aug 2012)
 Base: Packaging Development/Design Professionals (n=33)
 Q1. First, what is your company's primary type of business? Please select all that apply.
 Q6. What is your company's approximate annual revenue? Your best estimate is fine.

The majority of the respondents, as shown in figure B, were managers in the packaging development area responsible for artwork development. 48% of the respondents were leaders of their group within a larger research and development team.

Figure B. Respondents Overview

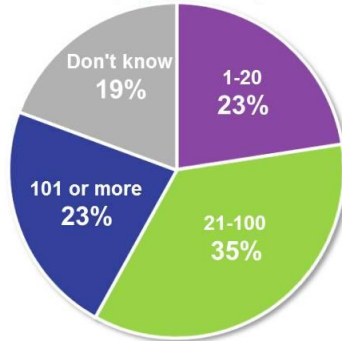


The following are charts whose data were referenced, but not shown, in the report.



People Dedicated to Packaging & Artwork Creation or Management

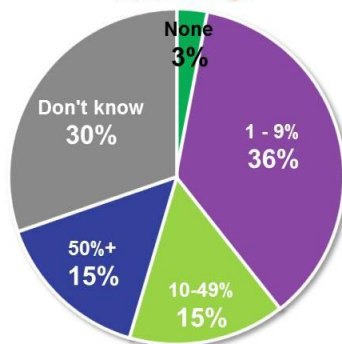
150 people on average



Source: Supply Chain Insights LLC, Packaging (June-Aug 2012)
 Base: Packaging Development/Design Professionals (n=33)
 Q9. How many people are dedicated to the creation and management of packaging and artwork in your company? Your best estimate is fine.

Percent of Product Recalls/Write-offs Related to Packaging/Artwork

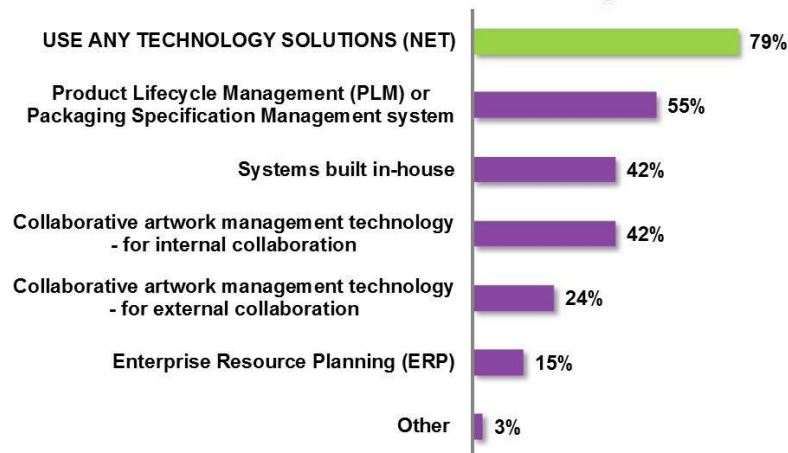
22% on average



Source: Supply Chain Insights LLC, Packaging (June-Aug 2012)
 Base: Packaging Development/Design Professionals (n=33)
 Q12. In 2011, what percentage of your product recalls or write-offs were related to packaging and artwork issues? Your best estimate is fine.

Technology Solutions Use to Improve Product Packaging & Artwork Development

2.3 solutions used on average



Source: Supply Chain Insights LLC, Packaging (June-Aug 2012)
 Base: Packaging Development/Design Professionals (n=33)
 Q23. Which technology solutions, if any, do you currently use to improve your product packaging/artwork development? Please select all that apply. NET for any technology used does not include "don't know"

About Supply Chain Insights LLC

Supply Chain Insights LLC (SCI) is a research and advisory firm focused on reinventing the analyst model. The services of the company are designed to help supply chain teams improve value-based outcomes through research-based Advisory Services, a Dedicated Supply Chain Community and Web-based Training. Formed in February 2012, the company is focused on helping technology providers and users of technologies improve value in their supply chain practices.

About Lora Cecere



Lora Cecere (twitter ID [@lcecere](#)) is the Founder of [Supply Chain Insights LLC](#) and the author of popular enterprise software blog [Supply Chain Shaman](#) currently read by 4500 supply chain professionals. Her book, [Bricks Matter](#), publishes in December 2012.

With over nine years as a research analyst with **AMR Research**, **Altimeter Group**, and **Gartner Group** and now as a Founder of Supply Chain Insights, Lora understands supply chain. She has worked with over 600 companies on their supply chain strategy and speaks at over 50 conferences a year on the evolution of supply chain processes and technologies. Her research is designed for the early adopter seeking first mover advantage.