Leveraging Package Prototypes for Cost Reduction

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Abstract

Companies have recognized a sizable cost reduction by developing package prototypes for customers prior to production. Prototypes enable the customer to visualize the final product without going to the full expense and extended process of setting up a production run. New technology has moved this step earlier in the workflow by enabling visualization of packages in a digital environment.

Many companies may be considering how to plan investment allocation to adapt their process to this new technology. Initial investment costs for software can be prohibitive. However, efficiency improvements and error reduction may enable a redistribution of resources in such a way that the potential for growth is accelerated. For small businesses that do not specialize in packaging and do not plan to generate multiple packages each month, rather than investing in this solution, partnerships with companies that have the volume to justify the purchase may added to a growth plan.

Further study and analysis of fiscal results and efficiency is recommended.

Introduction

During my thirteen years at Hewlett Packard and Compaq Computers as packaging manager for the personal systems group, I watched the processes and technology used to design packages evolve. From my initial work in commercial distribution packaging which required very little graphic design or content - through to developing consumer brand standards, content and iconography for a variety of product lines and solutions; the one constant was the need to visually demonstrate the design to several levels of management without taking the time to ship individual prototype packages from office to office. In fact, when packages were shipped, the lack of control and potential issues in transport proved to do more harm than good.

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Anyone managing print production is aware of the horrors of the review process. Stakeholders don't want to review preliminary artwork or even final artwork, until it is convenient to them. One lever smart designers in my group would use to get a response was to place a physical prototype in the hands of the reviewer and stand there waiting for feedback. Unfortunately, in our global economy this is not only difficult when dealing with multi-located teams, it can be impossible when considering the time to transport packages and get physical signatures from each party.

This does not negate the need for a print or production team to have artwork approved and physically "signed for" by the team. As costs are being reduced and margins frayed, no one can afford to pay for oversights or last minute client changes. So the industry was forced to find a way to get the attention of marketing managers early, quickly and efficiently in order to get feedback and final approvals on artwork for production.

Hypothesis

The original abstract for this paper presented research into the actual cost savings from a production perspective. The goal was to identify when eliminating the need to provide short runs for client approval would be beneficial considering the investment in the technology. However, after further investigation, businesses identified a different cost savings associated with generating software prototypes instead of physical prototypes. However, I discovered that of greater importance to the manufacturer was the ability to work quickly and improve time to market by utilizing software that is globally accessible.

Research Intent and Opportunity

As indicated at the conference, the ability to obtain data and hard costs for this research and assessment was unavailable. It is the goal of this researcher to find companies that are at the early stages of investigation in order to provide them with the service of research and comparative analysis. In the interim, software options were investigated based on functionality, cost, efficiency, effectiveness and feasibility.

A cost-benefit analysis of digital prototype software was performed based on specific case studies and data mining. Items considered included initial investment, the time value of money, workforce efficiency, redeployment of resources and improved productivity as well as the capabilities of the software.

The variety and functionality of technologies for digital prototyping are constantly expanding. Is it worth the investment? We have compared the cost and capabilities of three major packaging software providers to determine which solution is the best value.

Discovery

The first major learning of the investigation showed that the objectives and services offered by the print company greatly impacted the recommendations for use. It is therefore recommended that a phased approach utilizing public-private partnerships in a multi-year study that allows access to complete data sets be performed in order to obtain the most accurate results.

The variety and functionality of technologies for digital prototyping are constantly expanding. Is it worth the investment? We have compared the cost and capabilities of three major packaging software providers to determine which solution is best value. Software packages investigated included: ESKO, ArtiosCAD and Studio; Arden, Impact: Packmage. Social media feedback and research identified that ESKO was the highest ranking in the areas of visualization, structural options, die board production and preparation and module pricing flexibility. Packmage did not offer die board production and preparation and in fact scored lowest on each of these aspects.

The following needs were identified:

Universal Needs
- Pricing
- Efficiency
- Effectiveness

Manufacturers
- Nesting
- Imposition
- Seamless dies

Artwork Designers
- Rendering
- Visualization
- Integration

Considering the unique needs of each aspect of the supply chain and the varying capabilities and strengths of different firms, we recommend a phased approach to developing a solution specific to the needs of the firm.

Efficiency

The keys to any packaging, print or other business are efficiency, effectiveness and feasibility of any given solution. Speed to market and functionality are the key measures to profitability once a feasible solution is identified.

Based on my research experience I recommend the following process to identify the best solution for a firm.

1. Interview stakeholders: Identify gaps, challenges and successes.
2. Map out the existing process: Identify whether or not the current process is efficient or can be improved.
3. Validate the findings
4. Evaluate the activities of production.
5. Target areas for improvement.

Once a baseline analysis has been provided, there are several aspects to evaluate in order to understand how efficient any update may potentially be. What value will the new solution add? What is the waste comparison with the current solution? Is time saved for the manufacturer, producer, others? Will the change enhance the competitive position of the firm? Will the change enable brand impact growth?

According to Vanderroost et al (2017) "Improve package design, testing, and production processes, eventually resulting in fully digitized processes, i.e., without using any paper documents. This is often denoted by the term Computer-Integrated Manufacturing (CIM) and requires the standardization of data file formats and transfer protocols such that easy file and data exchange between different computer systems is possible."

Effectiveness

One solution that was identified to improve effectiveness was the GlobalVision software. According to their marketing communications, "90% of brands use a manual proofreading process, 95% of materials need to be available in non-English languages, and 80% of approvals are done with just a quick glance." This aligns with my experience in routing proofs through my corporation. For instance, many of the packages I managed at Hewlett Packard did not necessary align with the brand palette depending upon not only the substrate, but the print country. These substrate and production impacts were clearly visible on consumer shelves where products from a variety of factories were available to customers.

To this end, Pantone Live is now available from SunChemical. This software provides designer with information and visual examples of how different Pantone colors will print on a variety of substrates. Having these visuals in advance could potentially save packaging managers from the pervasive issue of upper management not understanding why colors appear differently on Kraft carton board than they do on white film laminate.

Profitability

Supply chain management is a key to profitability. The more steps you have in a process, the longer it will take and the more it will cost. When it comes to brand management, the greater the number of suppliers you have working to develop and produce content the greater opportunity you have for errors. The first step to any improvement program is to identify the current process. Comparing your process to best practices will allow you to identify gaps, issues, or other areas where you are losing money.

The next key to maintaining profitability is customer relationships. According to GlobalVision (2017) recalls have a greater impact than we may realize. Research shows that 21% of consumers state they will never buy anything from the company again; 50% switch brands; 14% completely discontinue purchasing the product; a Deloitte study shows that food recalls alone can cost up to $10 Million; after a recall is announced the average stock price drops by 22% within the next two weeks.

One solution we identified to reduce the risk of issues with artwork is the MediaBeacon software. It allows global teams to work together to review artwork, share files and meet schedules with a workflow solution that is accessible from any location.

Conclusion

In the end, this project clarified the need for further research and a deep investigation into the subject. All of the information utilized for our results are based on marketing materials which do not provide unbiased and reliable data.

That said, there are some companies that are confident enough to share information that can assist any company in identifying whether or not research would be of benefit. For example, the ESKO website (www.esko.com) offers a Value Estimator to identify if and how much money their solution can save potential customers. How these figures are generated is not currently available.

Ultimately, certain items seem obvious. But should be researched in order to provide data analytics. Digital Asset Management (DAM) systems seem to benefit long-term leverage and re-utilization. However, user experience testing, brand protection and reducing duplication all seem to be low hanging fruit. By analyzing and streamlining processes as well as allowing remote real-time approvals would improve time to market.

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Selected Bibliography

Adducci, B., & Keller, A. (2008). Design matters: packaging capsule 01: an essential primer for today's competitive market. Beverly, MA: Rockport .

Blatner, D., Fleischman, G., & Roth, S. F. (1998). Real world scanning and halftones: the definitive guide to scanning and halftones from the desktop (2nd ed.). Berkeley, CA: Peachpit Press.

Francer, C. (2017, January). Digital Packaging: Always More to Explore. Package Printing, 64(1), 4.

Francer, C. (2017, January). Digital Packaging: The Time Is Now. Package Printing, 64(1), 18.

Hensley, K. (2016, September). The New Narrow Normal. Flexo: The Flexographic Technology Source, 41(9), 48-54.

Levi, A. (2016, September 1). Make Products That Pop at the Shop: Are You Paying Attention to the In-Store Shopping Experience? Brand Packaging, 20(08), 44-45.

Light, N. (2016, September 1). Who Is the Package Designer? Creating the Ideal Package Usually Calls for More Than One Design Role. Brand Packaging, 20(08), 16-18.

Myers, B. (2016, September). Digital & Flexo Makes It Better. Flexo: The Flexographic Technology Source, 41(9), 40-46.

Quigley, P. E. (2016, September). The New "Have It Your Way". APICS, 26(5), 21.

Roberts, A. (2017, January). Getting Down With Digital: As digital package printing continues to improve, brand owners are exploring the technology's benefits and opportunities. Package Printing, 64(1), 30-32.

Ross, D. F. (2016, September). Cycle Counting. APICS, 26(5), 37-42.

Wilkins, D. (2017, January). Sponsor Vision for Success. Package Printing, 64(1), 28.

Young, S. (2016, September 1). Designing for the System One Shopper: Applying Behavioral Economics to Win at the Shelf. Brand Packaging, 20(08), 30-36.