EMERGING TECHNOLOGIES FOR PACKAGING INNOVATION

A research project from the Graphic Communication Institute at Cal Poly and Packaging World on emerging technologies changing digital printing, labeling, and packaging technologies.
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EXECUTIVE SUMMARY

By: Carl Joachim

California Polytechnic State University (Cal Poly) has long been a well-respected educational institution, focused on the intersection of science, technology and liberal arts, explaining how packaging and media shape society and influence the human experience. The Graphic Communication Department is known for print and e-media excellence around the globe, functioning as the academic entity in the university. Cal Poly’s Graphic Communication Institute (GrCI) operates as an extension of the university to work with commercial enterprises by providing training, testing, research and material qualification. Additionally, Cal Poly’s structural packaging program is well respected nationally, and works closely with the Graphic Communication group.

The role of print and digital media impacts virtually all industries, and this is particularly true of labels and packaging. How well the package communicates its intended message can determine the success or failure of a brand.

The intersection of consumer marketing, packaging, and graphic communication fueled by emerging digital technologies is the basis for this research. Recent experience in working with packaging converters, consumer packaged goods companies, and technology providers led us to believe that this research could serve the interests of numerous groups engaged in packaging and package printing, namely:

- Consumer packaged goods companies seeking to optimize the role of packaging in the marketing mix.
- Converters under pressure from SKU proliferation, seeking alternative processes while encumbered by legacy processes.
- Co-Packers currently providing a range of packaging services, with the potential to disrupt the supply chain.
- Commercial printers in search of print applications to offset declining volumes in traditional print.
- Technology manufacturers recognizing the opportunity for digital to impact the role of packaging in consumer marketing, and developing new products to capitalize on it.
- Material providers, with an eye on participating in the adoption of digital printing in packaging applications.

The purpose of this study is to quantify the use of various emerging packaging technologies and applications used by value-chain stakeholders.

This research is also intended to complement the “World-Wide Market for Print” study (NPES 2013), in which it is pointed out that global print is growing at just 1.8 percent CAGR (2007-2017), and in decline in North America and Western Europe. Packaging is virtually the only growth application in the printing market, expected to grow by 3.8 percent CAGR globally, become a $289B market by 2017, and comprise 45 percent of the value of all printed media.

Our partnership with Summit Media/Packaging World was critical to this project. Packaging World, and other Summit publications have an extensive readership among CPG brand marketers, converters, and co-packers. This represented three of the target groups our research was focused on. The fourth group we addressed is commercial printers, an industry with an interest in packaging but unsure of its role.

Thirteen sponsors from all parts of the packaging value-chain participated in the research, providing support and a highly diverse perspective. Sponsors ranged from industry associations supporting the print, label, and packaging industries, as well as suppliers of technology, converting services, and raw materials.
RESEARCH METHODOLOGY

Our research approach involved:

- Assembling a group of industry experts to create four research survey instruments, each focused uniquely on different market segments: Consumer Packaged Goods (CPG) companies, converters, contract packagers, and commercial printers.

- Engaging several industry trade association sponsors, who provided contact databases, which grew the target database to over 60,000.

- Defining job titles, responsibilities, and other criteria to filter the database of potential respondents. A particular focus was placed on brand marketing, and the ripple affect decisions made at this level have within the packaging supply chain.

- E-mailing all four surveys to the database in three cycles between July and August 2014.

- Filtering responses to ensure completeness, resulting in a net, non-duplicated response of 288 consumer-packaged goods end-user respondents, 51 contract packagers, 160 converters, and 56 commercial printers. used in the final analysis.

- Generating the final report.
SUMMARY OF RESULTS

This executive summary is organized in the same manner the research was conducted, by industry segment.

CONSUMER PACKAGED GOODS COMPANIES (CPGS):

A total of 288 responses were received from this group.

For starters, CPGs show no sign of letting up on SKU proliferation, thus exacerbating the impact of short runs on the supply chain. A quest for more product variations, sizes, tailored messaging, and promotions were all indicated as key drivers behind SKU proliferation. CPGs also show a solid understanding of the impact of SKU proliferation on converters, the technology they use, and seek-out those that can offer a competitive edge with new technology.

As it relates to digital printing, there is a high level of awareness of it as a technology with the potential to address CPG needs. Indeed, 71 percent of CPGs responded they actively seek converters/printers with emerging printing capabilities, such as digital printing. Nearly 11 percent of CPGs indicated they had acquired digital printers and used them in-house.

Meanwhile, CPGs continue to drive the growth of e-commerce, creating increased demand for short runs, quick time-to-market, and the need for “e-friendly” packaging that is economical and logistically advantaged.

In response to these business drivers, digital printing appears poised to accelerate its integration into the packaging supply chain.

There are other points that come out of the research that also merit noting, as they relate to CPGs:

On the issue of packaging as a cost, 64 percent agree that price per unit steers package-printing decisions, as opposed to taking into account all associated costs and benefits. One advantage of digital printing has always been its ability to lower cost in other areas of production aside from the print process itself. A full understanding of the cost vs. benefit of digital printing, combined with the technology’s ability to do more for marketing, will speed its adoption.

Despite this expected reply to the question on cost, 87 percent agree that time to market is a primary consideration in selecting packaging suppliers, creating an interesting dichotomy.

Related to the question of cost, 75 percent agree that obsolete printed packaging is a major expense that is focused on. This plays to one of the key strengths of digital printing, the elimination of waste and obsolescence.

One hurdle to digital adoption is how fast print manufacturers can help CPGs approve the transition to new print process for each and every material/packaging application. Nearly 85 percent agree that when moving from traditional methods of printing to digital, re-approval of all packaging will be required. This is an area of opportunity that technology and service providers will need to address.

Other forms of emerging “digital” technology were also included in the research, including: augmented reality, near field communication, QR codes, 3D printing, and printed electronics. Many of these technologies are often mentioned as enablers to the consumer brand and retail point-of-sale experiences, so we saw them as relevant to the research. While it appears there is modest interest in each technology surveyed, there is far less happening in commercial use today, or R&D for that matter. There is however, a strong interest in greater education in the use of these technologies.
CONVERTERS:

There were 160 responses received from converters.

Overall, converters indicated they did not play a significant role in working with their CPG customers to leverage packaging as a part of the marketing mix. They also overwhelmingly see their relationship with CPG customers as price focused, reinforcing the perception they provide a commodity. The conversation between converter and CPG will need to expand to include brand marketing, if converters hope to move from commodity to solution provider. Digital printing offers a path to achieve this.

Converters are mixed about whether or not their existing infrastructure can efficiently handle short runs, yet a majority of the responses suggest as a group, converters believe their existing traditional printing presses meet the needs of current customers. Meanwhile, 61 percent indicated that they have made investments in technology to more effectively handle short runs. However, the group also admits to faster time-to-market requirements by CPGs placing stress on the existing infrastructure.

As it relates to the issue of obsolescence of printed materials, converters indicated that this is indeed an issue. A related question on “who bears the cost” of over-printing elicited denial that any of this extra “cost” is passed on the form of prices charged. This points to another potential area of opportunity for technology suppliers who can dissect this argument.

We also asked what defined a “short-run”, in linear feet. While the replies varied, the most mentioned numbers 5,000 and 10,000, and 76 percent of the replies quoted run lengths of 10,000 LF or less. The mean response was 5,000. Tying this back some of the other responses seen in the research suggests there is an opportunity to fully understand the cost/value ratio for digital printing, and what really constitutes a short run.

In terms of competition, roughly 75 percent of respondents agreed that commercial printers and co-packers currently, or could, pose a threat to their business.

To summarize, 36 percent of the converters surveyed mentioned they had already invested in digital printing, and 68 percent expect to within three years. The barriers to adoption center around cost, how to sell the full value of digital, and the state of readiness of the technology. There is also a healthy appetite among converters to be educated on emerging digital technologies. There are numerous data points throughout the research that support the fact if converters do not embrace some level of transition to digital, erosion of the current business model is a concern.

CONTRACT PACKAGERS:

51 responses were received from contract packagers.

Our primary reason for including this group in the research was to test the hypothesis that they may be capable of disrupting the supply chain. In other words, given their relationship with CPGs, could they be in a position to serve as an alternative source for efficient short-run package printing through the adoption of digital printing?

It is interesting to note that 40 percent of co-packers were inclined to view digital printing as a service they would provide, while 75 percent of converters see co-packers as potential competition for short runs. While this may suggest a difference of opinion between the two groups, the fact that this question elicited a positive response suggests that co-packers could potentially disrupt the supply chain.
When asked what the impediments are to offering digital printing for short runs, 63 percent cited the cost of the equipment as the primary hurdle. Also mentioned was a lack of familiarity with printing, and insufficient demand.

COMMERCIAL PRINTERS:

We worked closely with NPES and the Graphic Arts Show Company (GASC) to ensure we had a representative sample of commercial printers in the research population. Over 6,000 commercial printers were invited to participate in the survey, with 56 responses received.

At first glance it could be assumed that this is a low response rate. However, when considering where commercial printers stand on packaging as an application, it is understandable. While there are indicators that suggest commercial printers are eying the label and packaging printing space for growth, as the research indicates, the complexity and cost associated with it are not insignificant.

Of the 56 respondents, 34 percent told us they were offering packaging or label applications, and the same number said they were into dimensional direct mail. Obviously there is a big difference between a direct mail application and commercial packaging, so it would be safe to assume this group as a whole is largely disengaged from packaging. This is not to say it won’t change. 18 percent of respondents said they are considering it, but more than double that number have no plans for it. If they do look into packaging, labels and folding cartons are the most frequently mentioned. This is understandable based on some similarities with the applications they currently handle, and what most currently available technology can handle.

Technology manufacturers focused on the packaging market should consider a business development approach to sales, as it is likely that current customers engaged in commercial printing will take a cautionary stance.

When looking at the reasons commercial printers are reluctant to step into packaging, obviously cost and familiarity of the business are mentioned, but the requirement for substrate testing/certification was also mentioned as a significant impediment.

While printers can and do adapt to new technologies, this is not the biggest challenge a commercial printer will face entering packaging. Two other areas need to be understood before a commercial printer takes on any packaging application:

- Where will the business come from; partner with a converter or marketing agency, or develop relationships directly with CPGs? How will the sales department sell it?
- What about post-processing equipment for functions like cutting, slitting, folding, varnishing, creasing, embossing, and die cutting? Can a partnership with a trade shop or converter address this?

Despite the challenges facing commercial printers interested in packaging, some do have the potential for engagement. The profile, we believe, looks something like this:

- Company currently offers packaging as a service via traditional printing technology.
- Company has digital printing assets in house, performs variable data printing, and has the skills necessary to manage short run variable data printing.
- Company is able to define its business plan for packaging, and has the ability to execute on business development. In other words, create the demand via direct sales and/or partnerships.
- Company has adapted to change caused by digital technology, and has evolved to become a successful
marketing service provider, where one of the offerings happens to be print. Success in this transition is indicative of a company that has learned to sell the value of digital.

While commercial printers as a group have a cautionary eye on packaging, the fact that so many converters view them as potential competition, and CPGs are actively seeking converters with digital printing capability (71 percent agree or somewhat agree with this statement), suggests that commercial printers may become a part of the packaging eco-system at some point, if packaging converters do not meet the market demand.
CONCLUSION

As mentioned earlier, this research was initiated to explore innovation in packaging as an element of the marketing mix. Our intent was to tie together the responses from CPGs, converters, commercial printers, and co-packers into a cohesive document.

If one conclusion can be drawn, it is that the business drivers (i.e. SKU proliferation) behind short-run, quick turn-around packaging will drive supply chain disruption. It can also be extracted from the research that awareness of these business drivers, and digital printing as an emerging technology, is high.

CPGs will continue to leverage packaging as an element of the marketing mix, and converters will maintain a keen eye on the development of technology.

Converters operate within the construct of a mature business model, which is being challenged by CPG requirements. Converters are under pressure to meet these requirements, while there is an emerging opportunity for other industries within the supply chain to compete, namely commercial printers and co-packers.

The packaging industry appears to be nearing a tipping point where digital printing technology, as it matures, will have a significant impact. Key to this transformation will be the packaging suppliers ability to relate to CPG brand marketing, and position their offerings in the context of the true value digital can deliver.
SURVEY RESULTS
RESPONSES SHOW FAIRLY HIGH AWARENESS of digital printing among CPGs. Surprisingly, 10% even have their own in-house digital press, most likely for test marketing and focus groups. With only 25% of CPGs using converters that have digital capabilities, the opportunity for competition to enter the supply chain with more efficient ways of handling short runs would appear to be substantial.
Our marketing/advertising agency understands digital printing

WITH ONLY 34% OF CPG COMPANIES agreeing that marketing agencies appear to be knowledgeable in the application of digital print for packaging, this would seem to be a significant market education opportunity.

My company uses packaging as a key marketing tool

NOT SURPRISINGLY 85% VIEW PACKAGING as a key element of the marketing mix. This fact alone will be a significant driver behind digital print, as package messaging can be efficiently tailored to well defined micro-markets without the overhead of long run production.

We research, use, and fund R&D for the following:

- None of the above: 42%
- Digital printing: 34%
- QR codes: 28%
- 3D Printing: 21%
- Printed electronics: 11%
- Augmented reality: 10%
- Near-field communication: 10%

THE SURPRISINGLY LOW LEVEL OF INTEREST in augmented reality, NFC, and printed electronics may be an indication of the relatively immature state of commercial-ready solutions where these technologies are concerned.

SOURCE: 178 respondents who use marketing/advertising agencies.
My company actively seeks converters/printers with emerging printing capabilities such as digital printing

My company actively tracks the capabilities of digital printing and its potential impact on package design

THE MOST COMMON REASON FOR PACKAGING SKU PROLIFERATION is the introduction of more product variations, cited by just under half of respondents. Pressure from retailers also scored high, cited by just over a third.
When selecting a printing technology we only focus on price per unit as opposed to taking into account all associated costs and benefits.

- 42% Somewhat agree
- 36% Disagree
- 22% Agree

The manufacturers of digital printing equipment understand food safety and regulatory requirements for food packaging.

- 62% Somewhat agree
- 13% Disagree
- 25% Agree

When moving from traditional methods of printing to digital, my company requires (or will require) re-approval of all packaging.

- 54% Agree
- 32% Somewhat agree
- 14% Disagree

Manufacturers of digital printing equipment are doing a good job of educating my company on their capabilities.

- 49% Somewhat agree
- 17% Agree
- 34% Disagree
Manufacturers of digital printing equipment do not understand the packaging supply chain

If education about marketing innovation through packaging technologies were made available, my company would consider participating

My company is actively researching the use of 3D printing for rapid prototyping of packaging

THERE IS LITTLE DOUBT, as this research bears out, that digital printing for packaging is high on CPG radar screens. If three things jump out from this the responses to this question, they are:

- Transition to digital printing will require re-approval of packaging materials. This is even more important when dealing with food safety and fit-for-use. Suppliers should seek solutions and partnerships to accelerate this process.
- There is low confidence that digital print suppliers understand the packaging supply chain.
- There is high interest among CPGs in participating in market education about innovation in marketing through packaging technologies.
My company is using or looking at digital printing so we can:

- Cost-effectively produce short runs (49%)
- Be faster to market (37%)
- Reduce packaging inventory (29%)
- We are not researching digital printing (26%)
- Be more sustainable (24%)
- Do more promotional items (24%)
- Other (7%)

• WITH ONLY 26% OF RESPONDENTS NOT RESEARCHING digital printing, it would appear technology adoption is not a matter of “if” but “when.”

Cost-effective production of packaging remains the leading reason why CPGs adopting digital printing technology by far, though it’s not the only reason.

We are aware of the impact that SKU proliferation has on the supply chain

- Somewhat agree (33%)
- Agree (57%)
- Disagree (10%)

Retailers have expressed concern to us about SKU proliferation

- Somewhat agree (41%)
- Agree (24%)
- Disagree (35%)
For each SKU we ship to our retailer customers we set a minimum-order quantity.

The minimum quantity per SKU is often dictated by the capabilities of our packaging suppliers’ printing assets.

Obsolete packaging materials is a major expense that we focus on.

Time to market is a primary consideration in selecting packaging suppliers.
Co-packers can meet our short-run packaging needs and become an alternative to traditional converters if they offer digital printing as a capability.

THREE THINGS JUMP OUT FROM THIS ANSWER and the six that precede it.

- 74% view, to some degree, that obsolete packaging is an expense that is focused on.
- 86% answered positively that time-to-market is a criteria for selecting a converter.
- 75% suggested that co-packers might be an alternative for short runs if digital printing were offered.

45% OF RESPONDENTS DO NOT view their packaging supplier as a resource to evaluate printing processes.

To determine the right package printing process, we rely mostly on input from:

- 56% Packaging supplier
- 47% Packaging team
- 35% Purchasing
- 27% Graphics agency
- 25% Technology supplier
- 22% Marketing agency
- 10% Advertising agency
- 10% None of the above
- 5% Other
Greater supply chain education is needed in the areas of:

- Electronically enabled packaging (45%)
- Interactive packaging (53%)
- Digital printing (58%)
- None of the above (16%)

While the level of research into areas such as augmented reality, near field communication, and printed electronics is low, there is a high level of interest in market education in all areas of electronically enabled, interactive, and digitally supported packaging as an element for the marketing mix.

Which industry do you most closely identify with at your particular plant or division?

- Food (27%)
- Consumer products (21%)
- Healthcare (pharmaceutical or medical device) (13%)
- Industrial products (11%)
- Other (10%)
- Personal care products (9%)
- Beverage (9%)

What type of packaging is used at your company?

- Labels (72%)
- Folding carton (69%)
- Corrugated paperboard (63%)
- Rigid plastics (53%)
- Flexible (51%)
- None of the above (6%)
### Job duties

- **33%**  
  Marketing / Brand management / Package design

- **26%**  
  Packaging development engineering

- **18%**  
  Production / Operations / Maintenance / Quality

- **7%**  
  Purchasing / Procurement

- **7%**  
  Packaging machinery engineering / Process engineering / Equipment project management

- **5%**  
  Regulatory affairs / validation / compliance

- **4%**  
  Supply chain

### Company size

- **48%**  
  249 or fewer employees

- **15%**  
  250 - 999 employees

- **37%**  
  1000+ employees
My company plays an active role with our CPG customers in package design and innovation

- Somewhat agree: 46%
- Agree: 35%
- Disagree: 19%

My company discusses with our CPG customers how they might improve their brand marketing

- Somewhat agree: 52%
- Agree: 43%
- Disagree: 5%

Our CPG customers ask us periodically about digital printing as a means of producing more market-relevant packaging

- Somewhat agree: 35%
- Agree: 31%
- Disagree: 19%

Our CPG customers are primarily price-driven when it comes to selecting packaging converters

- Somewhat agree: 52%
- Agree: 43%
- Disagree: 5%

**WHILE THE RESEARCH SUGGESTS THAT CONVERTERS ARE ENGAGED IN DISCUSSIONS WITH CPG CUSTOMERS about packaging design, consumer marketing, and digital printing, 95% of converters see their customers as price driven. Reading between the lines, one has to wonder if the complete value proposition offered by digital is part of the discussion between converters and CPGs.**
Top reasons for customer SKU proliferation

- 69% Our customers are introducing more product variations
- 42% Retailers want more package sizes and configurations
- 41% Our customers are pursuing private label business more aggressively
- 39% Our customers want to better tailor their marketing messages to specific demographic groups
- 36% Our customers are doing more promotional packages
- 19% Our customers are doing more test marketing
- 14% Our customers are not increasing SKUs

SKU PROLIFERATION WILL ONLY ACCELERATE. Converters will need an infrastructure and business model to efficiently handle short runs and quick time to market.

Traditional printing processes—flexo, offset, gravure—are not sufficient for meeting our customers’ needs

- 47% Somewhat agree
- 33% Agree
- 20% Disagree

My company’s current printing processes are not efficient when it comes to handling shorter runs

- 34% Somewhat agree
- 28% Agree
- 38% Disagree
SKU proliferation is showing no signs of slowing down

We are aware of the emergence of digital printing in packaging, and we actively monitor these technologies

We hold finished, printed packaging in inventory for our customers

We require customers to pay for obsolete inventory
We include obsolete inventory as a cost, and factor it into the prices we charge our customers.

The infrastructure in our plants would require change to support digital printing.

Lead time requirements from my customers are becoming shorter, placing stress on our infrastructure.

The digital printing vendors we have talked to understand the business issues unique to package converting.

WITH WIDE-SPREAD AWARENESS OF THE EMERGENCE OF DIGITAL PRINT EVIDENT, roughly 94% also realize their existing print infrastructure is to some degree not equipped for short runs and quick turn-a-round. Over-print, waste, inventory management, and obsolescence are recognized factors in todays business model, adding to process inefficiency and cost.
Our pricing is not competitive when it comes to short runs

Somewhat agree 36%
Agree 36%
Disagree 28%

What converters define as "short run"
Anything less than
5,000 lineal feet
(median answer)

We are concerned that commercial printers will enter the packaging business and become a new form of competition for us

Somewhat agree 43%
Agree 34%
Disagree 23%

We are seeing increased competition from contract packagers getting into the printing business

Somewhat agree 43%
Agree 29%
Disagree 28%
We have made investments to meet the increasing demands for shorter runs and faster time to market

My company engages with our CPG customers to explore innovation in the marketing technology through packaging in the following areas:

- **61%** Digital printing
- **42%** QR code technology
- **27%** None of the above
- **13%** Printed electronics
- **9%** Augmented reality
- **9%** Near field communication
- **8%** 3D Printing
My company will most likely invest in digital printing in the following time frame:

- **35%** We already have
- **21%** Within 3 years
- **14%** Don’t know
- **11%** Within 1 year
- **11%** No plans to invest
- **8%** Beyond 3 years

Type of converter:

- **59%** Labels
- **52%** Flexible
- **21%** Folding Carton
- **12%** Rigid plastics
- **11%** Corrugated Paperboard
Which best describes the role of your company with regard to contract packaging?

- **51%** Less than half our business consists of contract packaging for other companies
- **49%** More than half our business consists of contract packaging for other companies

Contract packagers: Stance on expanding into digital package printing as a service

- **25%** We had never considered this before
- **21%** We are actively considering it
- **20%** We are already doing some and have plans to increase
- **20%** We had considered it, but decided not to pursue
- **14%** We are already doing some but no plans to increase

THE FACT THAT ROUGHLY 40% OF CONTRACT PACKAGERS are either engaged in digital printing or are considering it suggests that a subset of this group may play a role in disrupting the supply chain by becoming an alternative source for CPGs seeking short run package printing.
The potential hurdles to entering digital package printing include:

- **Cost of equipment**: 63%
- **Insufficient demand**: 29%
- **Lack of familiarity with digital printing**: 25%
- **Unfamiliarity with the printing business**: 23%
- **Don’t know**: 12%
- **Other**: 12%
- **Too competitive**: 6%
COMMERCIAL PRINTERS

What type of printing services does your company mainly provide?

100% We mainly are a commercial printer

Commercial printers: Stance on expanding into digital package printing as a service

11% We are already doing some but no plans to increase
34% We are already doing some and have plans to increase
18% We are actively considering it
37% No plans to pursue package printing

ROUGHLY 63% RESPONDED IN A POSITIVE MANNER to having an interest in packaging to offset declining volumes of existing print applications.

Commercial printers: Type of short-run digital package printing service

45% Labels
43% Folding Carton
37% Not considering getting into package printing
25% Flexible
16% Rigid plastics
9% Corrugated Paperboard

LABELS AND FOLDING CARTONS SCORED THE HIGHEST, primarily due to the relative maturity of digital printing technology for these applications. Flexible packaging will be the next category to register an increase as technology evolves to address substrates and fit-for-use requirements.
The potential hurdles to entering package printing include:

- 45% Cost of equipment
- 30% Substrate testing and certification
- 29% Unfamiliarity with packaging
- 25% Cost/knowledge of post processing
- 21% Don’t know
- 14% Knowledge of workflow
- 14% Too competitive
- 11% Insufficient demand
- 11% Other

Types of printed material produced

- 78% Marketing brochures/product literature
- 70% Direct mail
- 57% Books/manuals
- 43% Bills/invoices
- 41% Magazines/catalog
- 34% Dimensional Direct Mail
- 34% Any kind of packaging (labels, cartons, film, etc.)
- 20% Other
- 5% Newspapers

Although 56 respondents are a small representation of the total commercial printer market, the fact that 34% of them are involved in some form of packaging suggests that this group indeed has an interest in packaging.
Types of printing processes currently utilized

- Digital Sheet fed: 77%
- Sheet fed offset: 73%
- Digital ink jet: 54%
- Web offset: 29%
- Digital continuous form: 16%
- Other: 7%
- Flexographic: 5%
- Roto Gravure: 5%
- 3D: 2%

Not surprisingly, commercial printers have augmented offset printing with digital and have been doing so for years.
COMMENTS BY INDUSTRY SEGMENT

CONSUMER PACKAGED GOODS COMPANIES (CPGS)

QUESTION: My company is using, researching or plans to research digital printing processes to enhance traditional packaging methods so we can:

“On shelf prototyping sooner”
“Not interested in digital at this time”
“None of the above”
“Region specific labeling”
“Don’t know”
“Find appropriate packaging”
“We want to enhance traditional packaging methods thru old packagings and labels.”
“Service”
“We’re not researching due to workload but know it’s an area we need to better understand.”
“Get prototype displays and other packaging.”
“Support client initiatives with most cost effective packaging with highest innovation potential”
“Research”
“As anti counterfeit measure”
“Now not thinking about it.”
“Customization”

QUESTION: Pick one of the following technologies and tell us what you think about its usefulness in packaging: digital printing, augmented reality, near-field communication, printed electronics, qr codes, 3d printing

“Important to improve reactivity of production and decrease stock”
“QR codes have the potential to give the consumer a better experience and education of the company and product than copy on the packaging. They also can help to clean up the design on packaging by using less copy. The challenge is getting the consumer to use it.”
“The best method to realize a prototype in cheeper form”
“Metrics for in-store execution of POS displays & visual merchandising”
“More Flexible, shorter lead times, cost effective, more options to convey marketing / product message to consumer, lower make ready costs”
“Gives us the ability to visualise the new packaging prior to tool development.”
“Speed to market”
“Cost-effectively in short runs”
“Not for massive production in recent years”
“Accelerarated prototyping and design sign off.”
“Digital printing allows smaller manufacturers to obtain high quality graphics at an affordable cost.”
“Save time and can lead to meeting organizational goals & objectives”
“More information on less space”
“It is faster, sharper and more acceptable”
“Digital Printing will help us in small run jobs resulting in reduction of scrap 7 time & increases profit
Improvement need in higher gsm print capability (350 gsm to 400 gsm ).”
“It's the great help to fast track the development & respond to customer needs”
“Product information beyond traditional printed methods.”
“My company is not using any of these technologies and I’m not familiar with several of these choices.”
“Hot to use”
“Benefits of the product, nutrition composition, price”
“This technology allows for the consumer to get a quick look at how to use and get the background of
the product through a coding scan application, available on most smartphones. It provides immedi-
ate impact on how a consumer responds to that particular product.”
“Easy to read labels are key in packaging”
“Quick prototypes to send to buyers.”
“Well, I think if Digital printing could be more affordable then it would be more used because there will
be shorter printing times, there will be more people interested in minimum-order quantity of material,
will have less waste material making it more ecological and so more industries will be interested in
buying that technology. The company in which I work, would be more interested in purchasing it.”
“Greater marketability.”
“More visual.”
“Would enable us to provide the end user with nearly unlimited information about the product without
the need for printing large booklets.”
“Would be very useful for reducing timelines of prototyping rigid designs”
“This printing will replace the pre-printed boxes and printing of labels”
“Extremelly useful to reduce obsolescence and to react faster”
“Digital printing is undoubtedly the way of the future. It will considerably increase speed to market
whilst reduce stock holding significantly. The quality, accuracy and diversity in terms of substrates is
most beneficial.”
“Allows us to track production times, dates, etc”
“Great way to more fully communicate product attributes and benefits without crowdingthe label.
Also encourages more direct interaction with the consumer.”
“We use lithograph labels which are then applied to cartons. This is a multi-week process which re-
quires prior proper planning to meet customer demands, both forecasted and un forecasted.”
“Allows for on demand printing and facilitates short turnaround times”
“NFC is clearly an innovative and conscious medium for current gen folks. I think this particular com-
munication medium will have a tremendous impact in the near future.”
“Very attractive for consumers”
“3D printing could be used to generate models to visualise how a product look and feel to customers
“GREAT FOR PROTOTYPES”

“Without committing to the expense of new equipment. If the customer is satisfied with the look and feel them commitment to purchase new equipment can be justified”

“We can easily rapid prototype then deliver custom packaging per market more quickly than relying on a vendor.”

“QR codes are popping up all over the place and the way that most people register the QR codes is on their cell phones / mobile devices. If the code leads to a company website, that website has to be formatted so that the view on the small screen is user friendly. The technology is getting there, but not there yet. My second point is the QR codes are more geared towards retail and not as successful in business to business relationships. That may eventually change. My wife is famous for going to a retail store, scanning the QR and going to the Internet to find the best price which is many cases in Amazon. If business to business operated in that fashion, most of us would be out of business.”

“2 years ago in a drive to become leaner I introduced digital printing into our supply chain.

“Shorter lead times, improved quality, shorter run quantities, increased flexibility, eliminated stock holding, zero origination costs and reduced units pricing were all incentives for the change.”

“Now as a business we have consolidated all our suppliers for labels, printed folding cartons and heat shrunk sleeves into 1 supplier.”

“Purchase prices have been improved and for the main part we hold little if any stock of the before packaging materials which means capital is available to be used elsewhere in our business.”

“In addition to external supply of digitally printed purchased goods we have an in house Primera printer allowing us even greater flexibility.”

“It’s Very Good Technology wherein lot of message can be put or even a link of website or email address of customer care or helpline no”

“Helps provide addition information on the product.”

“It’s really very much usefull. It helps us to get a view before we spent much on the actual. It sequires our investment. We really get that confidence before approaching for the finalization. Its really too much usefull for us....”

“Short runs, individual approach, test, market testing”

“A great opportunity offering a wide range of e.g. customer information services!”

“If it can provide instant printing then inventory can be reduced, apart from it, we have variation in batch no. in a single day we have to change lot of batch nos on same lables. If the batch no. can be printed along with the production of lables, then on-line printing machines being used for batch no. can be saved along with their consumable cost.”

“Scanability is better and more controlled.”

“Increasingly more useful - the sweet spot for where it makes sense to actually use it for production quantities is getting more & more suitable for our needs”

“Graphics jump out at you”

“Critical to reduce the amount of information that will be required to be placed on labels/packaging and allow for cleaner/simpler designs.”

“We could deliver the prototypes quickly”

“Reducing the cost per unit of low run packaging allowing us to test”

“Would enable us to print small runs for sales samples, control inventory levels, reduce obsolete pack-
aging materials, test market, could tailor packaging to market segments

“Digital Printing has improved to the point of challenging litho processes and accommodates faster turn around, lower runs, customization for the demands of the customer. It has enabled us to react to urgent demands, such as regulatory revisions, trial packaging, bonus packaging and promotional materials for shows, demos, focus groups, national meetings, training sessions, etc.”

“Certainly 3D printing would be more attractive.”

“I don’t see this technology as being useful in our field at this time.”

“Faster prototyping”

“As a government agency, we don’t package materials.”

“Interested in how it can potentially reduce inventory”

“Speed to market, geographical targeting, packaging on demand, variable data”

“QR codes minimally used so far in medical device packaging”

“Can offer low run size printing over a wide variety of surface types.”

“Bringing customers to website”

“Create mock up of the new pack design and development”

“I have nothing to comment on Printing because we are manufacturer of FIBC & WOVEN SACKS in which we are using Flex printing only tyvek lable we are using digital printing from other vendor.”

“Will be very crisp & clear, appealing and enhance brand image”

“Looking for appropriate packaging”

“The usefulness and applications of all of the above need to be communicated with more emphasis and cases; plus, how to integrate with social media.”

“Providing information to the consumer, QR codes are only a marketing tools among others.”

“Emerging trend that could have multiple applications and could open up new avenues in marketing.”

“I have heard a lot about digital printing but have not heard about the others”

“The possibility of going from 2D to 3D at a lower cost.”

“Better way do business in the new way and simple.”

“An excellent tool for market research and used to refine and optimise packaging design.”

“Short supply chain to fast track NPD”

“Economic advantages”

“3D printing enables preliminary design of packaging. However, actual manufactured items sometimes have variances that require structural package to be refined.”

“More than half of Americans are smart phone users. QR codes boost traffic to companies websites. QR codes encourage consumers to share feedback, to promote product etc...”

“Simplifies manufacturing and reduces lead time for printed components.”

“Great for mobile shoppers to find access to product.”

“Survey way too long. Very useful in packaging automation and creation”

“The introduction of digital printing in the market will offer the opportunity for short runs productions, speed to market, quick printing equipment set up / change over, reduction of operation complexity.”

“By far the most innovative technology to advance prototype manufacturing since stereo lithography”
“Easier for customers to get to the information they need”

“Making presentations to all stakeholders uses 3d items”

“Best of the one but now we need more education and help from the current supplier because they are afraid that with these knowledge we left them or will reduce the job quantity.”

“Ability to do mass customization”

“QR codes connects with Millennials which is important.”

“Allows for less expensive short run options to get promotional or limited production runs to market economically.”

“They have more and more demand about tracking chaîne from production, égare house, shopping receiving and security.”

“Customers have expressed concern to us about SKU proliferation and stock values.”

“Great for in store signsge”

“I am always trying to think what would attract peoples attention, I am in the potato industry and would like to learn more about the use of films.”

“Because it allows us reduce development time.”

“Enables quick prototyping of new packaging and saves production set up costs.”

“It could speed new products to market”

“None of this is important to us. Our products go direct to customers or to industrial distribution. Several of our customers prefer to have boxes with no marking other than a part number.”

“On demand packaging available or at least for prototypes.”

“Could provide interesting packaging designs for market awareness and customer acceptness”

“Reduce lead time, supports the need for shorter runs.”

“Most industries uses QR codes on their packaging to direct buyers to their internet sites, where they can find out more info about their product, the company, and other things.”

“The goal is to give more information and also to strengthen their brands.”

“Digital printing has allowed better, faster prototyping of displays and other marketing materials.”

“Very useful in communicating and refining innovative package concepts”

“Digital is good when it comes to doing labels but would be great if you can use digital on custom pouches.”

“Rapid, cost effective research stimuli generation, visualization and innovation tool”

“Hold much information in small area.”

“Lower inventory on labels”

“Being able to market product better by seeing what the results of those efforts are, You can give a code to each product”

“I am unfamiliar with some of the terms. I think digital printing technology is useful.”

“3D printing is an excellent means of prototyping new concepts. It is worth every penny.”

“Speed and short runs”

“Digital printing ensures proper tracking throughout the whole supply chain”

“Allows for physical samples of new bottles and structures, as well as showing areas for labeling. We
could spend weeks working on a prototype, or just digitally print it, saving cost and time."
“Allows for quick and easy maintenance of inventory.”
“Faster Turnaround time, lower runs, quick adjusting to market, flexibility.”
“Great for speed to market low volumes. I look forward to the day that it is more cost efficient.”
“This would be very useful to add specific product identification data to our products, and look more professional than ink jet printing.”
“Can be tracked easily or linked to a special sight.”
“Is an eye catcher to consumers.”
“It is great for small runs”
“Helps us with short-run production...new (new skus and samples)”
“Can be very useful”
“Love the fact customers with smart phones can instantly get more information on our product”
“QR codes were extremely popular several years ago but we are starting to see their success as a promotional tool shrink as consumers are sort of “over” the fad”
“When implemented with QR reader on key process clearance points, It makes the process more reliable (eg by checking automatically whether the right raw materials are set on right machine and batch, checking primary and secondary packing material codes and coders /labelers recipes.”
Is faster , economical for short runs and delivers the product in less time compared to other printing processes”
“Massive opportunity to manufacture short runs cost effectively and manage the SKU proliferation to our advantage... mass customization will grow”
“Much better quality than flexo but less expensive than best quality litho printing”
“Short runs below traditional MOQ benefit from the pricing that digital can provide.”
“If necessary but not”
“Really interesting and convinience during the design and development process, prior to the pilot mold building. “
“It's specifically interesting when dealing with complex and precise 3D geometries for injection molding or even blow molding.”
“Digital printing is a true asset for our industrie, in order to both ensure short time to market as well as face small quantity per order in our fragmented and seasonnal business.”
“Digital printing will help in producing short run packagings and also is a great useful tool for running promotional packaging. It will give liberty to have outlet specific packaging and even area specific promotional packaging. This can be used as an interactive tool to engage the consumer with your product.”
“Unfortunately, where we work is not so “developed” area regarding technologies and innovation... we still use silk screen printing printing because of small runs on cartridges. We also use digital printing but we outsource it. I have not tried other technologies (have only seen them on presentations and fairs) and it is hard to say anything.”
“Immediate relevant info can be display in the smartphone once the consumers scanned the codes.”
“Consumer engagement and excitement”
“Very useful for NPD projects.”
“My company recently introduced QR codes on labels as an experiment to enable digital marketing.”

“Convenient and user friendly for promotions”

“Scope still to explore”

“It enables some buyers to learn more about a product than what can be printed on a package.”

“It has huge potential to re-shape the way we interact with our customers/consumers. However, it hasn’t yet been scaled up enough to suit the beverage industry other than a few very niche applications.”

“Great way to engage the consumer without sacrificing real estate of the package. However, it requires education to the consumer (how to download the app, how to use which phone, etc). Also, though AR does not require an actual print, some sort of printed indicator on the package needs to give instructions to the consumer as to what they are supposed to do. Perhaps POP is one of the “low hanging fruit” for both AR and NFC... :)

“Provides options to be pursued/investigated using actual samples verses individual opinions on what someone may think it could be.”

“Still far from the mark, but has some interesting potential...”

“Small run capability - Customization - High end looking”

“Digital printing is customized , high speed, differentiated , more versatile and flexible. However cost per unit needs to come down. Also if this can be integrated with 3D printing it will be win-win situation.”

“Versatility in printing”

“Securing more short run projects, and sequential numbering options”

“Using it for short runs and promo items. As well as personalization of each item produced.”

“It is cleaner and quicker turn-around. As well as smaller runs capability”

“Provides maximum flexibility in extending the brand messaging on packages.”

“True interaction with the consumer at store level is the future in moving more product for brands and retailers.”

“I am not sure I even know what this means....???”

“Rapid prototyping, marketing test samples, product innovation/ideation. 3D printing is a strong agree of future interest.”

“Versatile, Flexible, efficient way to print packaging material.”

“The concept of being able to “print on demand”, do smaller runs, and quickly change graphics and product info is intriguing”

“In order to maximise the opportunity to engage with the customer (shopper) one needs to think out of the box, carton, crate, pallet, container or truck. Then spend time inside the supply chain. Then spend time in the store / online warehouse. Then watch and listen. Then you know what works and what doesn’t.”

“Cheaper brand marketing”

“Graphics. Catches customer’s eye.”

“Can reach out an grab the customer, as well as provide security/insurance to consumer that they are getting the real thing.”

“Useful for reducing purchase quantities”

“Allows for short run promotional or test market packaging.”
“QR codes seem to be the most informative for consumers IMO.”

“QR codes take you where marketing would like the consumer to go - more knowledge for the consumer.”

“Provides additional directions, recipes, cross-promotion of other brands. can increase consumer loyalty, provide avenues for surveys and brand research. Offers a unique promotional or contest vehicle.”

“It’s more informative about the products you are picking up in a store and looking at, most people have the capability of looking at them now.”

“Ability to vary quantities”

“With the broader trend of personalization and customization, digital printing makes sense. Integrating it into “the overall packaging process has been the challenge.

“Not useful at all. Consumers are not interested in an additional step to get more information. Only useful to offer discounts to consumers, which are expensive and not very effective.”

“It is the possibility to enhance and extend the consumer experience, being able to connect with emotions and create a stronger bond with shoppers.”

“Expensive”

“Enhanced traceability”

“With QR codes you are effectively creating an entire new marketing capability to directly engage with consumers or potential customer - prior to purchase!”

“Digital can be useful for prototyping, test marketing and for versions to specific final users and markets...”

“Helps generate SKU’s on minimal lead time and execution.”

“Very useful for showcasing the way a product works and its features without the need to remove product from packaging, and/or to enhance the packaging and make an interactive experience with features on screen.”

“Give a link to a website so that you can give more useful information on a product that you cannot fit on the label.”

“Good possibilities on this front.”
CONVERTERS

QUESTION: Pick one of the following technologies and tell us what you think about its usefulness in packaging: digital printing, augmented reality, near-field communication, printed electronics, QR codes, 3D printing

“Key to our business success.”

“A must for the future”

“short set up, graphic flexibility, not yet suitable for medium and high performance (like hot fill and retort - our main business). Slow printing performance.”

“We just ordered the first digital HP in South Africa. We envisage that 60% of our runs will be now done through digital. We will reduce capacity by two machines and increase productivity and efficiency and shorten lead times. Additionally, we will reduce overhead such as carrying costing, holding costs, time taken for online passing jobs, and most importantly reduce labour overtime.”

“Digital printing is useful for short run packages, quick promotions etc.”

“Have also found it useful to provide CPG customers with full printed mock-ups for major retail partners who require these for plan-o-grams, marketing etc.”

“Very convenient for short runs but the cost of (digital printer) inks, measured by click charge, is much more expensive than offset inks.”

“Digital can be a quick and easy effective solution, and enable tailor-made printing for small quantities.”

“We see digital printing as a potential additional supplement to our supply capabilities in particular for short runs. Being a predominantly manufacture of food packaging at this stage digital printing still has some limitations.”

“The high quality and low run capability of Digital printing is attractive but the cost onto corrugated is high. We use digital printing for our customers presentations to new markets, occasional point of sale displays and point of sale hangers.”

“It will be very effective for short run jobs and will also help in shorter turnaround time. Client will get his products faster and in smaller tranches, it will help him in easing his level of investment for procuring packaging material. Instead of buying a big quantity of the goods for the entire month he can probably buy in smaller quantities. Initial investment is also less as digital printing eliminates some of the investment required for pre-press work.”

“Digital printing is the future to meet the graphics requirement and short run capability. Even big printers are required to focus to meet the requirements of the clients who have short quantity requirements. This will help the big printers to have both markets segments for ex. big run and short quantity markets whose share is increasing and here the margins are high.”

“Digital printing allows customer to: 1. test market with a new SKU. 2. Reduce inventory for slower moving SKUs. 3. Launch short term promo.”

“For short run quality printing, promotions and variable printing”

“Cost effective “

“Shorter runs, quick to market”

“- SHORT RUNS - CHEAPER - EASIER - FASTER”

“Useful for short runs, mockups, prototypes and promotional items.”

“At the current time it is only useful for package prototypes. It represents the most savings due to the
fact that you don’t need to make printing plates to see how the package ill look.”

“Printed electronic is the future of packaging. It will allow the customer to reach out to customers at the store level and say pick my product while also adding the ability to track customer interactions and improve food safety”

“These oppinions are comming from a small comany working in the European market (Spain)”

“Giving the customers the ability to try things on in a visual arena that they can actually try it for their needs without investment of physically costing them first.”

“It has a place in printing roll labels and is trying to find a place in the folding carton market. The challenge for the folding carton market is the additional processing required after printing.”

“Excellent alternative for getting short run business.”

“Will handle multiple SKu’s and smaller quantities...Quality as equal or better than flexographic printing, and equipment is getting faster productions runs...”

“Just in time printing, short run, variable data and imaging, reduced prepress time and cost”

“This makes an item stand out compared to other items printed with regular flexo graphic printing. If Digital Printing is doubled up with flat top plate technology, this provides even more of a graphic “pop” off the package.”

“Testing new products/markets, promotional seasons and events.”

“Good for small qty’s using the same size tooling for multiple Sku’s.”

“Quick access to web site or coupons, etc.”

“Have quickly become a neccesity.”

“Short run efficiencies”

“We have bought the HP Indigo 20000 because we consider it will be the future and it will help our customers.”

“Fast design and turnaround for very short runs.”

“Short run for the healtcare market”

“Digital printing will become a large part of the traditional packaging printer’s production capabilities. Although some equipment vendors are addressing the needs of Packaging Printers, they still have a ways to go before it is truly a viable alternative for most.”

“Great for short run, unique packaging offers”

“Limited use”

“Proliferation of portable electronic technology will greatly increase the appeal of having active packaging. Imagine not jsut a recipe on package but a video taking you through he process.”

“QR codes have not been leveraged as the flexible marketing powerhouse they could be. The concept is so simple, but the breadth of uses quickly begins to overwhelm the “technically driven minds” in most printing and manufacturing entities. QR codes are linear to understand---their usage is not. Their usage is conceptual, so they get discounted as not real in our organization.”

“3D Printing would be a new way to innovate and making your product stand out on shelf. It would also be a means of investment for our company if we see that this becomes a common requirement for our clients.”

“We are looking at it for shorter runs and higher quality products”

“Shorter and customized runs”
“Short runs, possibility of printing on ready laminates to short production time, no curing time, perfect printing quality”

“It’s the near future for printing”

“I see digital printing useful not only as a short-run solution, but also as a solution to jobs that can be difficult to keep registered on press. For example, we have one client who combines shadow and highlight effects in Photoshop with very fine CMYK reverse text, and even with our laser CTP process we find it difficult to produce consistent results for the client. Digital would be a great fit for this job even if though it is not a short run.”

“It’s the future with ads seen from a tap of a smart phone”

“You can deliver a complete prototype parts including the label, pacakage, etc. all in one shot.”

“Helps to reduce time from conception to print”

“Allows customization”

“Flexibility”

“Digital is an easy means to get a small run of printing done without the additional cost of having plates made and allowing design changes to be made ‘on the fly’. theoretically, it provides for faster turn times allowing product to get to market faster.”

“Necessary for short run and proliferation of sku’s.”

“As digital quality and speed increase, it is becoming a truly viable alternative to traditional methods. I am particularly impressed with the quality of finished product produced by the HP 20000 digital press. Once a system exists that can economically produce print runs in excess of 15000 feet fast enough to compete with traditional methods, the pendulum will have swung and traditional methods will reserved for only the longest of production runs.”

“Great for short runs.”

“Digital printing allows customers to get exactly what they want and need in an efficient amount of time. Allows them to change graphics as they need to and as their customers demand.”

“Short run, reduced tooling and set-up material savings.”

“Allows us to produce short run quick turn at competitive prices”

“Not applicable to us, but from my perspective digital printing seems to be in a continual growth mode - our digital printing is sequential variable bar coding, different”

“This is underutilized technology today and most implementations overlook the true value of technology. To tell you more would give away our unique propositions to our customers.”

“Best solution for speed to market.”

“Can be a huge asset for short runs, but has its own set of unique costs that need to be absorbed. Also, not all flexo operators can operate digital, which is more computerized versus the older flexo presses which we have are much more mechanical in operation. Highly skilled flexo operators are not necessarily skilled digital operators. Raises the issue: who runs the digital press?”

“Allows short run or market testing of new products before huge production.”

“Our primary customers are in the Pharma industry and move very slowly and deliberately to make ANY changes. The market is not dynamic in the sense that fads or glitzy printing is appropriate. The print graphics are aesthetically pleasing but not flashy.”

“It can impact customer on a super market, to pick up the product”

“Allows for better customization and slimmer stocks”
“This will change the shopper’s experience in a monumental way. Technologies such as digital water-marking are going to allow shoppers to do things they never would have dreamed were possible, such as picking up coupons on their phone by scanning an in-store graphic with no QR code.”

“Short runs and prototypes can be made at a minimal cost and turnaround time is extremely quick.”

“I think Digital printing is an important factor and it allows the smaller start ups to get a high quality packaging without having to have the large quantities of an order to get into the start up market which in our area includes the farmers markets and local stores.”

“You can think of a QR code as a paper-based hyperlink that connects the physical world with the online world. The integration between print and web via mobile adds a new dimension of communication to any marketing or outreach effort.”

“Quicker turnaround time from concept through design to final product.”

“Provides ability to support short runs and samples”

“We see our customers using very small QR codes for internal verification purposes that the labels match the product inside. However, I am hearing that QR codes are losing popularity with CPG marketers trying to engage their consumers.”

“Viable for short run jobs and less wastage”

“Digital Print Technologies are evolving quickly and we are on the forefront of development in these areas with our digital print partners and supporting conversion equipment supporting the effort. The companies best poised to support the market will have a solid mix of capabilities to support production from prototype run / short run, through mid-to-long run production capabilities. Digital is a valuable and required asset to support the overall market, not just CPG.”

“I believe digital printing is not the future - is the present. Our company made huge investments no use this technology. But, due to several issues regarding Food Regulatory statements, we can not seize one of the most powerful improvements: flexibility.”

“This will take off as technology allows consumers to stand in front of a product and use their smart phone to create an unique informational experience.”

“The description of the product is detailed on the packaging material.”

“Digital printing would make possible to realize the following opportunities:to short significally a feasible run size; to make a personalized packaging; to increase the protection against counterfeiting; to short the lead time.”

Useful fir short runs as well as for personalisation and differentiation of packaging and design.”

“ Higher resolution, Improved quality, Improved productivity, Higher value, Weather resistant - Good outdoor applications”

“Digital printing will be an option to buyers in the near future, like Flexography became an option in the early days when it was introduced as an alternative to Gravure.”

“They need to enhance food safety for consumer. I think ot is much better digital printing for QR code system.”

“Great for short run and custom printing jobs”

“There are many benefits including :1. NO printing plate costs; 2. NO minimum order quantities on standard materials; 3. Reduction in inventories and working capital; 4. Shorter lead times; 5. Total overall cost savings”

“Expect it to be used for inventory control.”
“The world is going Digital - in everything. Print is no different. Order less material, more often. Competitive price, short turns, high quality. Changes in art and sku's as necessary and quickly. Flexibility without penalty”

“Serves the short run high quality customer requirements”

“Coke and Pepsi are pursuing this technology and have already implemented in on cans in some regions.”

“Digital printing allows the brand owner to be flexible and react to market conditions. It allows them to increase their speed to market, lower the total cost of ownership and utilize high end graphics without the limitations of flexo plates while at the same time obtaining the same quality at or better than gravure printing.”

“Digital printing provides an outstanding option to allow for short runs and highly customized printing. It opens up the market to new customers who would previously not been able to afford traditional printing.”

“It can really help to cement a concept, seeing in place.”

“Fantastic for POS”

“The increasing number of SKU’s and shorter lead time requirements makes digital printing a very colorfull option. New digital (offset) printing machines such as indigo 20000 allows gravure quality printing and wide web to satisfy shorter runs, somehow not affordable with gravure.”

“Digital printing is emerging and will be an important factor in particular markets and regions, in the near future. We see it impacting labels first, then flexible packaging.”

“As this technology matures, I think there will be huge opportunities to partner with customers to better meet their short run needs.”

“Very flexible, variable data Printing can be combined”

“Augmented can enhance the perception of a Package and allow the consumer to look beyond the box”

“Easy change over on graphics”

“It can reduces costs but does not really have a marketing impact.”

“For short runs and decrease of delivery time for our costumers”

“Opens up huge marketing opportunities. Needs to be better understood by CPGs, retailers, and converters.”

“Quick fast and short runs”

“Faster Lead times, reduced set-up and waste, shorter runs”

“Short runs, no plates or dies.”

“Ability to produce low cost samples and short run production with very short lead time.”

“QR Codes are playing a role in Food Service marketing where we specialize.”:

“Necessary in today's world of price pressure, on demand printing, and short runs.”

“Short runs and no plates.”

“Long ways from being mainstream, but custom communication will be the key to driving consumer purchasing behavior.”

“In this day and age information is key and the QR code offers the customer an avenue for interacting directly with the consumer instantly.”
“In one year, on a 9% increase in sales, our shipping events have increased almost 50%. People are ordering smaller lots, more often, and in greater variety. The shift has been underway for years, but seems to have accelerated lately. Hence the advantage of plateless printing with minimal make-readies. Short run capabilities seem to be a hot button in the market.”

“Better at providing tests and supplying short run needs.”

“The other items are further away. Digital is happening now.”

“Digital printing allows a great deal of flexibility that has not been available in full color in the past.”

“Allows access to additional product information”

“Our packaging is purchased. We print on film very limited.”

“Ability to give consumer access to additional product information”

“Quick change over on the fly”

“More Flexibility”

“Digital has allowed us to increase speed of delivery with less upfront work and better overall efficiency on short runs and large numbers of SKU’s.”

“Unbelievable potential applications in the packaging market. If the ink suppliers can be more specific in FDA/food contact safety/language, it would be even better!”

“To my knowledge, only HP and Xiecon offer wider web capabilities for packaging applications. This is bleeding edge at this point. The wide-web packaging printers should be making these investments, but they typically are not as profitable as our narrow-web segment so they may not have the appetite for the investment.”

“Short lead times and pre-press costs.”

“Nimble, flexible, infinitely variable, well suited for a quickly changing and fluid market place.”

“Provides an additional method for our customers to provide information to consumers, and thereby hopefully attaining a wider consumer acceptance”

“To become relevant, Digital must become a one step process that can print on all substrates.”

“QR codes have developed into significant importance with our clients”

“Short run trial packaging for design.”

“Can tell a customers story and the younger customers expect but on products literature and advertising”

“It can be useful for short runs as well as test marketing, but the CPG’s have a hard time understanding the benefit and willingness to pay a higher price.”

“The future of printing once the process works well on most materials, and can be produced with speed.”

**QUESTION:** What is the most pressing issue that must be addressed for your company to adopt digital printing, and why?

“Cost on short runs…”

“Suitable for retort and hot filling. (the problem is the inks and their bonding to substrate.”

“Shorter lead times, flexibility in capacity planning”

“Currently use partners for digital print. The rates charged for these services are outlandishly expensive in most cases.”
“In terms of adopting these technologies internally, cost of investment for digital printing technology as well as lack of current market size to justify purchase within our customer base are both major barriers.”

“Pricing by click charge should be changed to cost of ink in USD/kg or USD/mL so that the customer can not easily compare our cost structures.”

“The ability to provide laminated food grade packaging and the width of the print.”

“Cost and print speed”

“Investment in existing facility becomes redundant and we would have to further invest for this new technology.”

“To meet the challenging graphics requirement with min. cost and short quantity orders.”

“Cost of printing/pc”

“Tied down to the inks and chemicals to use by the machine maker, no option to buy from others.”

“Lack of knowledge of digital printing.”

“Cost of impresion”

“Having the right mind set of how to manage it so our customer gets the full benefit of our having it.”

“Cost effective equipment”

“Cost of entry”

“INVESTMENT”

“Speed”

“Equipment”

“Buying equipment”

“Cost? Lack of knowledge?”

“Cost, cost benifit analysis is difficult to determine which items would best suited for the company”

“We are very familiar with digital printing and have not yet proven the feasibility for folding cartons in a production workflow.”

“The demand for mock ups and short runs is increasing, we need to be able to keep up with the trends. Too many orders are short runs, so we spend a lot of time processing many small jobs rather than long runs which is more efficient and profitable.”

“We have been in digital for several years. Embrace it and grow. Ignore it and miss the boat!”

“$$$$$$”

“Capital investment in new equipment”

“Cost and space requirements”

“Speed and large sizes”

“Market and customers”

“Investment in the technology”

“Customer acceptance”

“They ability to print on the back (perfect) macking 2 sided work single pass. We print at least 1 color on the backs of nearly 90% of the items we print. The next issue would be to expand the ability to run spot colors or print expanded gamut”
“The cost”
“ROI”
“Increase in short runs”
“Lower price of equipment”
“Adhesive lamination in-line”
“Quick lead times on short run projects.”
“Change in infrastructure and procedures. We are used to offset printing and large runs.”
“Cost prohibitive.”
“The size of digital press”
“Customer base”
“Know how”
“Price and printing speed”
“Tackling the costs associated with digital. We’ve found that the low-cost solutions are impossibly expensive to operate, but everything else requires $500K - $1MM in investment. We would love a middle-market solution - print engine with finishing under $350K.”
“None. We have the latest HP equipment”
“The digital technology changes so fast - it forces a much shorter ROI payback, which is sometimes difficult to accomplish.”
“Packaging is not just Digital printing and the other parts of the packaging converting are still non-digital”
“Increased volumes of orders”
“Capital expense”
“Profitability”
“Cost”
“Customer education. Most of us deal with unsophisticated buyers who don’t understand the differences in technology.”
“We already have digital technology.”
“Speed due to narrow web affects performance at longer runs and color matching has been challenging.”
“We have adopted digital printing. Our most pressing issue is determining where our pricing needs to be to become more competitive.”
“Short runs”
“Not applicable to our markets”
“None - that’s all we do.”
“Technology limitations.”
“Cost up front and return on investment.”
“Interface with the outside world. Because it is not stable, always changing. Makes it difficult for a small company to stay in line with larger more automated competition.”
“Is it necessary for our market? How to incorporate this technology into the current processes”
“Not yet decided, too early to predict”
“Variable cost”
“We don’t have the capabilities to cost-effectively produce short runs.”
“Cost of equipment and consumables”
“Cost of start up and having enough jobs to keep such an expensive piece of machinery continuously running, day to day.”
“I’m not aware of any pressing issues.”
“Cost and training”
“Competition. We are losing market share in key segments to digital printing”
“Justifying the capital expense”
“Rotogravure printing is not viable for short run jobs and the initial wastage is high whereas digital printing is crystal clear.”
“...cost...”
“Already adopted, simply need the supporting finishing and converting partners to catch up to the print engines and output capabilities of the equipment.”
“Cost. Pure and simple. The cost of the devices along with the cost of materials, inks and other supplies compared to output do not add up to profit at this point given what you can charge for the product.”
“Not at present”
“1. Productivity of existing digital printers. 2. Price of the equipment.”
“Shorter runs - to avoid loosing customers and market position”
“Surface preparation and surface quality for digital print quality”
“Justification of costs per image”
“No planning. It’s better to set up filling line.”
“The cost versus using film vendors for printing”
“None - Nosco is actually leading the way.”
“We sell unprinted film, so the only print needs are for labels, which are already digital.”
“Cost of equipment. Management of digital process (HP) requires a different approach to make it workable & profitable. pennies, not dollars”
“Cost of equipment (becoming more affordable)”
“Upper management willingness to invest”
“We already own some digital printing equipment”
“Food contact inks, surface coats for metalized products.”
“Not an issue at this time.”
“Capital expense”
“Changing the concept of selling. With gravure, it’s mainly about price, with digital, higher prices must be satisfied with quality and quicker lead times.”
“Short runs, more SKU’s”
“We’ve already adopted digital printing.”
“Consumables cost”
“HP Indigo- most flexible and highest quality”
“Cost, relating to how it would be used”
“Line speeds”
“Unsure at the moment”
“Shorter runs”
“The problem about the ink is not yet FDA certificate and the principal customer is the food industry”
“Life cycle for digital equipment is much shorter than traditional equipment. We have gotten “burned” by our digital purchases - they are obsolete the day they’re delivered and being a lot more cautious as we move forward.”
“Affordable higher speed solutions. Under $250k”
“Long runs”
“Capital”
“Cost, huge investment in equipment such as Indigo. We do some very short run digitally printing now”
“We are a digital converter.”
“Learning the process”
“Capital investment”
“Volume of digital jobs.”
“ROI justifications”
“Volume of work to financially support a digital press system.”
“Press speed, width”
“We have already adopted digital printing”
“We’re already a leader. We Beta HP presses. We have the first HP 30000 in the Western Hemisphere.”
“Already adopted digital printing.”
“Unique set up. Different employees.”
“Cash for equipment investment. We are a start up so we do not have funds available for re-investment at this point.”
“Cost?”
“Already adopted”
“Appropriate equipment”
“We have adopted”
“Cost and return on investment. Also the anticipated life expectancy of critical integral parts.”
“We need to consider existing work as well as new work when justifying our investment strategy.”
“Wide web capabilities along with structure requirements.”
“Marketing and awareness to drive sales volume to support the need to pay for the technology... It’s darned expensive.”
“Currently no plans to adopt as digital does not provide financial advantages to our customers”
“Customers demand.”
“Cost”
“Equipment”
“Food Pkg FDA”
“We need a small printer for small jobs”
“We have already adopted it. We have success with industrial applications, but not as much with
CPG’s”
“Cost of equipment in relation to volume of small runs that must produced for ROI.”
CONTRACT PACKAGERS

QUESTION: The potential hurdles to entering digital package printing include:

“Validation Issues”
“We’ve had some big issues with equipment dependability.”
“High Cost. One of our printers now had a digital printer and we may use it for small jobs”
“We have found particularly with flexible the cost even for small runs”
“Up front cost without long term contracts”
“Runs are too small to be profitable in general.”

QUESTION: What is the most pressing issue that must be addressed for your company to adopt digital printing, and why?

“Specialized printing on ridged PVC/PET”
“Ease of use of equipment. Experience should not be required.”
“Cost is the only issue and it should be very competitive”
“Validation”
“Our Purchasing team needs to get more knowledge and training to understand it’s benefits and best applications. Color control and consistency are great with digital and the buyers don’t understand how this is different vs. flexo printing.”
“We’d expand our digital label printing if we find digital printers whose reliability is comparable to thermal transfer printers.”
“Budget for capital equipment purchase.”
“High cost if equipment and process woul keep us from looking at setting up our own print shop for IBel production.”
“Investment in capital must be justified by customer demand.”
“We are basically user company. we get printed labels from our vendors.”
“Customer demand, if our customers are not asking for it and there is not a competitive advantage we wont adopt it”
“Cost”
“So many changes to the presses which one to buy”
“Cost”
“We have not seen a demand for it.”
“Someone has to ask us for it.”
“Not realy sure if they want to get into more printing”
“Finding where it fits to improve economics versus very competitive and responsive suppliers”
“ROI on the equipment.Cost of the consumables and labor as opposed outside printing.”
“Understanding the cost of entry”
“Investment required”
“Cost mainly at this time for flexible it is great for getting product to market very quickly and gener-
ally for label runs up to a point but as a sustainable method in a challenging competitive market in anything other than very small volumes we have to be fair though only been using services from HP brand equipment and have not as yet fully considered purchasing equipment. Thanks Callum”

“Demand”

“How fast it can be implemented and qualified since we do not want a serious disruption of a busy packaging schedule.”

“Justifying the expense”

“We are running know would like to invest more, Cost per unit to high in mid-range runs. Need lower leasing options or long term customer contracts before investing.”

“High-end clients require specialty finishing beyond process color, such as: Spot UV, neon inks, PMS spot colors, and specialty UV finishes.”

“IT configuration”

“Balancing run sizes and cost of mfg.”

“Flexibility between cartons”

“Rapid change of ingredients.”

“Finding ideal equipment that will be a good match for our company and a good equipment-acquiring strategy.”

“We do not consider stand alone printing as one of our core competencies.”

“Increase in demand for short runs. most of our customers runs are long so it is more efficiently to get the cartons pre printed.”

“ROI. It needs to make financial sense to the Board before they take the risk.”

“Currently there is not enough demand to bring in house what we are able to outsource.”

“Keeping the cost of the short runs cost effective from both printing and production sides.”

“Lack of strategic vision and an unwillingness to invest in new technologies.”

“Learning the process for Digital print based on newly purchased equipment from HP. Then determining the target market.”
COMMERCIAL PRINTERS

QUESTION: What are potential hurdles in entering package printing?

“Not part of core competency or strategic focus”
“Sales wouldn’t know how to sell it.”
“Being competitive enough with outside converting.”
“No space to add the equipment.”
“Differs in scope too drastically to our core business”

QUESTION: What is the most pressing packaging issue that must be addressed for your company to adopt digital printing, and why?

“New equipment, cost, space, personal”
“Speed and cheaper substrates”
“Customer commitment in order to purchase stock in larger volumers”
“Variable Label printing with inline diecutting”
“Capital Equipment”
“Run length”
“We are not interested. no use for it. thank you!”
“Market share”
“Current capacity and current capabilities”
“Capital expenditure must be approved by the Board.”
“How we can produce quality, cost effective and eco friendly packaging”
“Demand and what we can charge”
“Determine if demand for product can meet the investment required”
“We currently run digital presses and are exploring types of papers for production”
“We already have digital up to 14 x 26. Larger format digital would be next, but for packaging world, that would only be for comps - so ROI would probably not be there.”
“The price of the equipment, it is outside of our current budget”
“Converting, I currently buy it outside.”
“The ability to print on heavier substrates”
“We are currently in packaging. The biggest issue(s) we have is with finishing packaging products. It seems that packaging is more difficult to complete finishing processes, all the way to product being ready for shipping.”
“We have digital technology in our HP Indigo press; the bonus is that we can print on several new & different substrates that we might not have considered before. With that said, now when we have an inquiry about packaging, we can offer the prototype and small - medium quantities.”
“Already in label printing”
“To see where the market is.”
“Space for the equipment.”
“Cost of equipment vs ROI”
“Costs”
“We are just starting to get into packaging. We have been doing mockups for various clients.”
“We do some digital printing in-house to preflight for production”
“Flexible Inks”
“Being able to support it quickly. Not enough salespeople on board to promote”
“Price”