

# Opportunities for Digital Printing in Packaging

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## Abstract

The world of packaging is a complex and diverse one. There are countless packaging applications, substrates and converting processes. Nevertheless there can be little doubt that the world of package printing is undergoing quite dramatic change. New demands of multinational brand owners and large retail groups, experiencing intensifying competition, rising customer sophistication and fragmentation, and converging product performance. Product life cycles are shrinking, and demand is becoming less and less predictable. In such an environment, delivery performance and customer service are becoming as critical as product performance and brands. One of the most significant evolutions in the packaging printing over the past few years, reacting to these packaging buyers demands, is the move towards complete digitalization of workflow and pre-press production – direct to plate production, direct-to-press and digital printing.

## Introduction

Digital technology is revolutionizing the way we produce packaging. This applies to both the digital printing of packaging and the development of global digital networks that reduce the approval cycles for new products and expedite global distribution of digital artwork under centralized control. This trend is being driven by the intensification of global retail competition, creating pressure for shorter lifecycles, higher impact and more varied packaging. The customer needs to feel the manufacturer is personally serving him or her with products tailored to individual lifestyles. Servicing the individual is key to this new era. People have different preferences whether this is low fat or organic, single-serve or multi-portion packs, low sodium or caffeine free.

Brand managers, designers, printers and logistic managers translate these different lifestyles and preferences into shorter runs of multi-design products, just-in-time delivery and the biggest challenge – customization or even personalization of mass-produced consumer goods.

Integrating constantly changing local or regional information into common packaging designs has a tremendous effect upon packaging production. Think of dietary information, government regulations, disposal information etc. The dangers are that the smallest change of information on a label or pack can render vast amounts of printed stock obsolete.

The advantages of digital printing are indisputable when short lead times, variability of content and short run economy are required. After the introduction of this

technology into commercial printing applications, where it now gained momentum as a proven technology, it is now available to packaging manufacturers.

Xeikon's digital printing systems are now used for producing short runs, sampling, extensive test marketing and promotions in many different market segments. Although it doesn't substitute the with conventional technologies produced mass commodity, fast moving consumer goods, it reduces significantly the time from idea to product and provides packaging makers and users with new opportunities in both existing and new markets.

## From Supplier to Customer

A supply chain is the process of transferring goods from their points of origin to markets or to end consumers. The supply chain of a packaged consumer goods manufacturer comprises manufacturing, packaging, distribution, warehousing and retailing. The concept of the customer's demand chain, which transfers demand from markets to suppliers, is less familiar. A retailer's demand chain would exist of assortment planning (deciding what to sell), inventory management (deciding the quantities of supplies needed), and the actual purchase. Together these two chains form the demand-supply chain. They are linked at two places – the order penetration point and the value-offering point.

The order- penetration- point is the place in the supply chain where the supplier allocates the goods ordered by the customer. Goods might, for instance, be produced after orders come in ("make-to-order") or allocated from a warehouse once the orders have been received ("ship-to-order"). Each order penetration point has different costs and benefits for the supplier and its customer. Rapid delivery depends on holding a large inventory, the wider the product range, the bigger the inventory and costs. It is possible to move the order-penetration-point back to packaging / assembly: the point when goods are turned into finished products. This approach ("pack-to-order") gives the supplier the benefit of lower inventory expenses.

The value-offering-point – the second place where demand and supply chains meet – is where the supplier fulfills demand in the customer's demand chain. Conventionally the purchasing department accepts an "offer-to-purchasing" by choosing the supplier and deciding when goods are needed. An "offer-to-inventory management" moves the value-offering-point further back in the demand chain: by carefully monitoring the customer's inventory levels. An "offer-to-planning" moves the value-offering-point back to merchandising. In other words, by analyzing the customer demand

categories served by products from the supplier, both retailer and supplier can avoid new products or promotions that lack a market. A fourth approach is the “offer-to-end user” which is a direct sales model and goes back to the end consumer by fulfilling their specific orders.

The power of the retailer is growing and therefore the need for more efficient supply chain management methods as described above. Therefore retailers are looking closely at digital technology developments giving them the possibility that individual stores receive highly customized products.

Digital workflows and printing offer a potential solution for this growing demand of raising customer efficiency by synchronizing demand and supply chains.

### New Value Propositions In Packaging

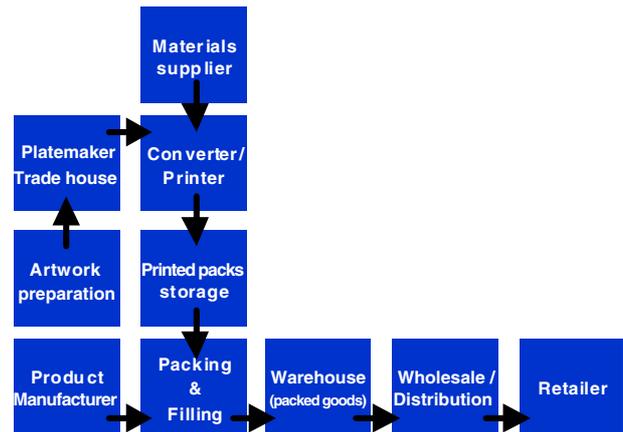
Manipulating the demand-supply chain does more than improve customer’s performance and benefit suppliers; suppliers can also use this approach to discover completely new value propositions to customers. Suppliers can thus extract new value from current accounts by escaping the commodity trap (and also find new customers).

Individual stores would have the possibility of receiving highly personalized shorter runs of packaging for promotional products, possibly tying into loyalty card databases to deliver personalized products. Imagine for example special occasion packs for local ‘event-marketing’ being a sport event, cultural / regional event, valentine, father/motherday, or the local introduction of a new movie or exhibition etc. Personalization could be applied for the ‘gift-market’, new opportunities for very personal events like, weddings, anniversaries, moves, etc. Group-characterization can lead to more advanced versioning of products increasing the so-called capture-rate of a product, packaging should be thought of as the poster of a product.

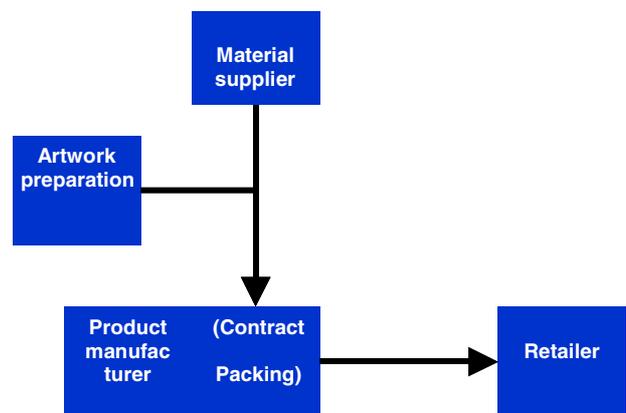
Smaller shops now have the ability to innovate or excite the packaging of their products. Smaller shop like departments, like the bakery café, in-store-bank branch, or drugstore complete with pharmacist, herbal remedies and other specialty products. Fast food stores excel at creative package deals (food plus movie tie-in toys), dynamic signage (a short, telegraphese sign in the window, the whole story at the register).

### New Business Models

The new requirements for certain packaging segments and its production processes are blurring the traditional boundaries between the different players in the value chain. Streamlining of the supply chain results in new configurations created by newcomers in the packaging industry and backward-integration by product manufacturers. This last group considers integrating the printing and packaging process in-house. In some cases the complexity of the packaging process offers new opportunities for outsourcing in-house by facility-management companies.



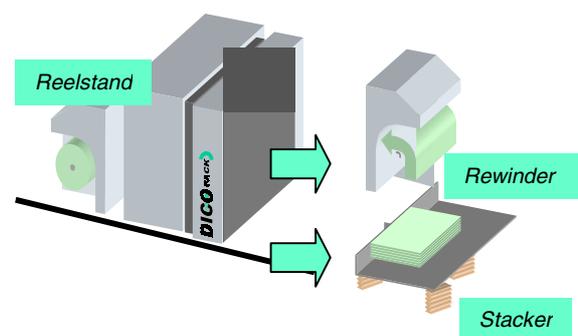
Traditional Packaging Supply Chain



Alternative Supply Chain with in-sourced printing & packing

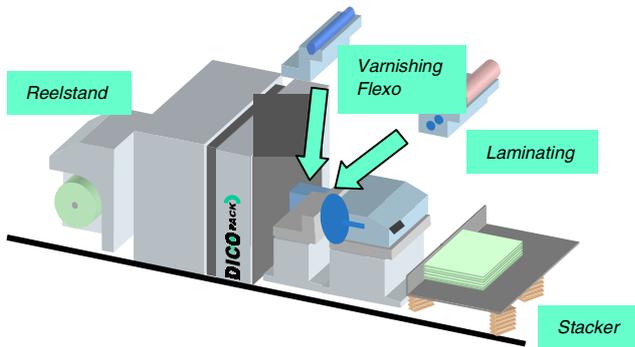
### Technical Solutions

Important in the packaging converting industry is the compatibility with specific substrates and post-press processes. Xeikon’s preferred partner in paper- and paperboard-based packaging, Man-Roland, is building several solutions for different demands. This inline finishing for digitally printed materials provides customers with solutions for their specific production environment. The standard configuration offers the customer a big unwinder for the industrial production of paperboard packaging together with a professional stacker for typical 50x70cm sheets or a rewinder.

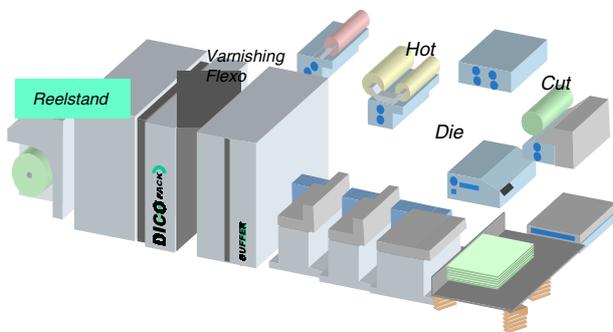


DicoPack “Standard”

The next configuration is the “Professional” one, offering inline water based and UV varnishing followed by a sheeter for offline flatbed diecutting and creasing.



*DicoPack “Professional”*



*DicoPack “Specialist”*

For the specialist market where the pack – format doesn’t change so often but the customer needs many different graphical designs the DicoPack “Specialist” also offers features like embossing, hot-foil stamping and rotary-diecutting inline, resulting in a complete solution for the specialist.

## Conclusion

With the rapid evolution of digital solutions throughout the whole design, pre-press, pre-production, archiving and supply chain it is inevitable that the printing packaging will increasingly be produced by digital printing solutions.

Digital printing offers many new opportunities to brand owners and retailers and they are now beginning to demand that their packaging printers install digital printing facilities next to their conventional printing.

For those package printers who do not move into this new future and offer customers the digital benefits now being demanded, they could well see their business being eroded as buyers switch to more enlightened printers or even start doing it themselves.

## Biography

Klaas-Jan Stol joined Xeikon in 1999 and is responsible for the business development in both packaging and labels. Prior to this he was working in France fulfilling several positions in the paper- and paperboard-business as well as packaging-systems.

Klaas-Jan Stol graduated from the Royal Dutch Military Academy and holds an MBA degree from the university of Bradford, UK.