FROM INNOVATION TO IMPLEMENTATION: EMERGING PRINT FOR PACKAGING TECHNOLOGIES, AND HOW TO APPLY THEM

A white paper from Smithers Pira, commissioned by Konica Minolta

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HOW TO CAPITALISE ON PERSONALISED PACKAGING

Abstract

There is no doubt that the ways consumer goods are presented and sold have changed dramatically. So too have the habits and expectations of consumers – whether they are viewing a range of products on store shelves; or browsing and buying products online (as they frequently do today).

In this context, the cutting edge of print for packaging is becoming particularly important, in delivering new capabilities for engaging consumers and developing a brand-customer relationship. Technologies like digital print are allowing packaging to be produced en masse with small variations and personalisation. Some recent commercial projects have demonstrated how these new print capabilities will further change how products are presented and marketed, giving a glimpse into the future of retail.

For this Konica Minolta white paper, Smithers Pira was commissioned to speak with key stakeholders in the print for packaging value chain about how they perceive the state-of-the-art of print, and how they foresee using these capabilities for brand packaging and in retail spaces in the coming years.

This white paper looks at the market drivers and emerging technology capabilities in print for packaging; outlines case studies for emerging print; and explains how brand owners and retailers plan to capitalise on this capability in the near- and medium-term.

Crucially, this new capability will create new business models; and will call on suppliers, agencies, and users to continually improve their methods of cooperation on new concepts. This paper looks at how the value chain can cooperate in this new atmosphere to more effectively translate innovations into commercial product packaging, across four key stages.

INTRODUCTION

Retail has been characterised by dramatic change and innovation for decades. Products have changed, to fit new lifestyles and aspirations. How products and brands are presented has changed with it.

Retail spaces and approaches have changed too. Outlets taking new approaches to engaging consumers and presenting products; while shopping online has, in a short space of time, progressed from non-existent to normal.

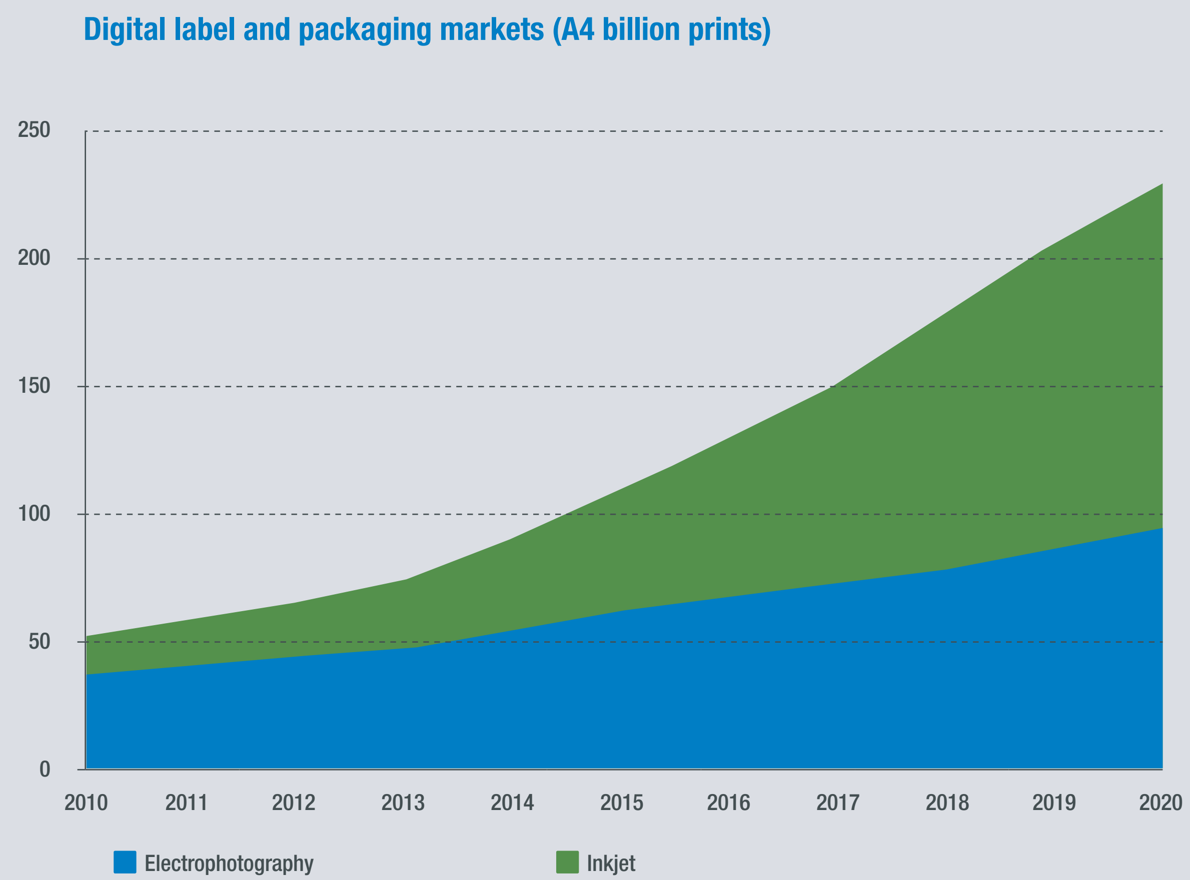
Not only that, but consumers have changed. E-commerce is just one example of how dramatically the way we shop has changed in recent years. More broadly, the online world has changed our expectations of physical products, and bricks-and-mortar retail spaces. Smartphones allow us instant access to this online world on the move – something that physical products must both accommodate and compete with.

Where do print and packaging technologies fit into this rapidly changing world of retail? New print capabilities are being used to enhance packaging, giving brand owners and retailers new ways to better connect with consumers.

Print for packaging trends

Print is rapidly changing, and in doing so is driving significant growth in packaging markets. A 2015 report from Smithers Pira, The Future of Digital Printing for Packaging to 2020, notes that digital packaging printing – using toner electrophotography or inkjet – is valued at $10.5 billion (€9.5 billion) in 2015, the equivalent of some 107 billion A4 prints. By 2020, the world market will have grown to $19.8 billion, at a compound annual growth rate of 13.6%.

By 2020 there will be much greater choice for converters, to buy turnkey machines or to integrate components into conversion lines. The rate of development for inkjet will be more rapid than for electrophotography for packaging applications, with more players across the supply chain improving their part of the system. Also, the non-impact nature of inkjet makes it easier to integrate into established packaging lines to provide variability than would be the case for electrophotography. All of these factors make digital print in particular one to watch for print users.



Global digital packaging and label markets by process, 2010–20 (A4 billion prints or equivalent)

Source: Smithers Pira

Brand owner adoption

With this trend developing, major commercial printers are moving quickly to become involved – noting the interest of brand owners and other users putting digital print to work. This means now is a prime time as a print firm to get involved, to capitalise on rapidly growing applications; and before the market becomes saturated as major commercial printers position themselves.

As part of the research for this white paper, produced on behalf of Konica Minolta, Smithers Pira was commissioned to speak with a range of major brand owners and retailers, to canvas their opinions on the near-term relevance to their businesses of the latest print technologies. A number are monitoring technologies like digital print, and direct-to-pack printing, as enablers of new applications. These emerging applications range from functional uses, such as more cost-effectively adding instructions or information to a pack, often in local languages; to exciting new ways to differentiate a product on the shelf, or encourage the consumer to interact with the brand.

What is apparent from speaking to these companies is that the majority are in the process of monitoring and evaluating specific, cutting-edge print technologies for new product developments and marketing functions. And many of these firms expect these emerging print capabilities being put to use in the near-term.

New print capabilities

Digital is a relatively recent entrant into the tool set of packaging converters, with limited format and productivity capabilities compared to the established analogue alternatives. However, these capabilities are changing rapidly as new presses, inks and systems are launched.

Short runs
Digital print offers a cost-effective way to deliver shorter runs, thanks in part to savings in setup time. This is fundamental to digital's offering of 'mass-customisation'.

Compatibility
There are now digital alternatives for corrugated (liner and post-print), cartons, flexibles on paper and film stocks, on rigid plastics, bottles and metal decorating. As end users work out new campaigns that strike a chord with consumers the use will proliferate, beyond short runs where digital can provide economic (and no minimum order quantity) benefits.

Label information
There is increasing legislation on the labelling of items; basically this demands accurate and easy-to-understand information presented in a legible way for consumers. There is no standard applied across all countries and regions. Digital print allows such information to be applied in many variations to a product, to meet the relevant requirements of a particular region.

Brand protection
Digital print can be used to provide secure features to packs and labels, aiding anti-protection counterfeit functions. The capability of printing personalised unique information onto a pack or label now provides new security capabilities, with validation that an identifier is genuine through a database look up.

Multi-channel marketing
Much as unique information can be applied for brand protection uses, personalised features could be added to packs for promotional and marketing purposes. These could leverage other interactive platforms, like augmented reality or QR codes, for specific marketing campaigns or for certain regions.

END USER NEEDS

The reasons why brand owners, retailers and other users of printed packaging are taking these new capabilities seriously is that they are fundamental to a competitive future business for end users of print.

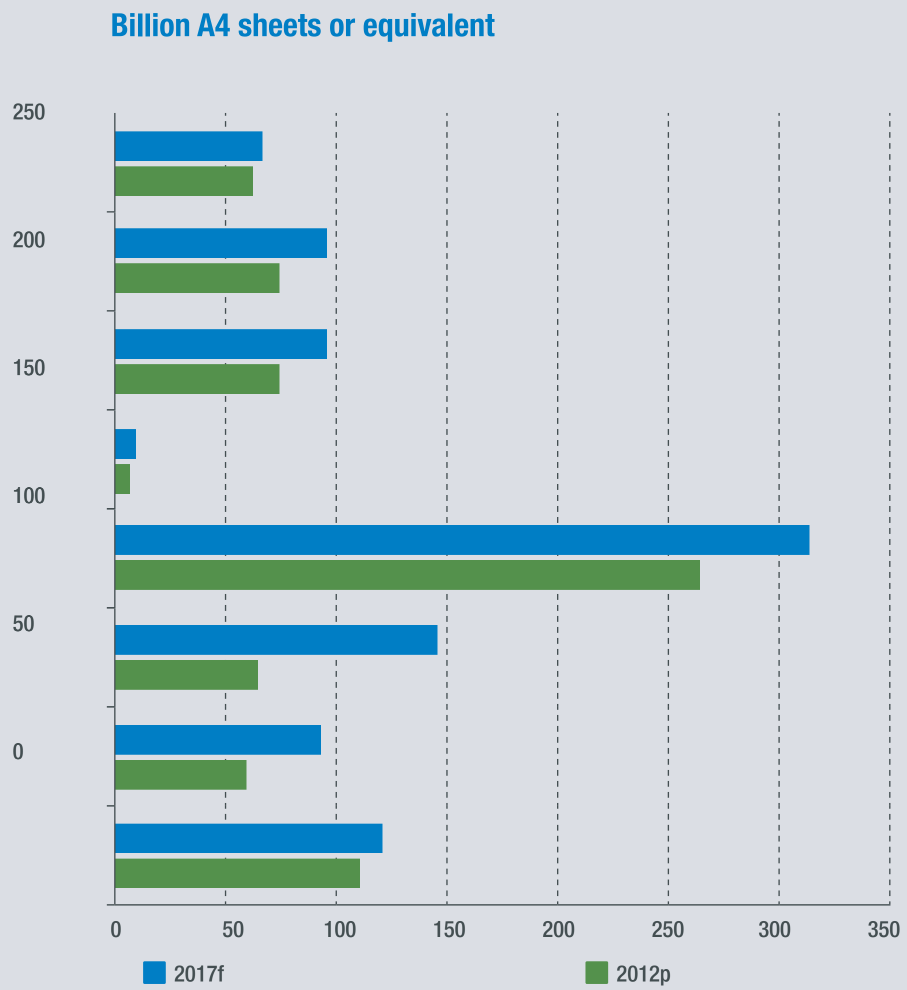
Marketing departments will be attracted by the expansion in marketing opportunities accessible through digital printing, such as versioning, targeted marketing, personalisation, customisation, regionalisation, special editions, consumer empathy, and interactive packaging such as QR coding.

Smithers Pira notes that digital is growing rapidly, accelerating many times faster than its counterpart analogue technologies. In doing so, it will increasingly secure traction in the packaging space – and its economics will become more competitive for a wide variety of packaging and retail requirements. Although the unit price of digital output is currently much higher than the analogue alternative, there will be significant reductions in this unit price in coming years. These are predicted to accelerate as higher performance digital presses enter the market.

And so while brand owners are certainly interested in the novel possibilities enabled by new print technologies like digital, they are also aware of the need to prepare for a future more heavily reliant on these currently emerging capabilities.

Of course, end users of printed products like packaging are less concerned about which specific print approach is used – rather, they are concerned with being able to deliver what consumers are looking for, and to gain a competitive advantage in retail. Again, this is where emerging print capabilities will need be relied upon more heavily in the coming years.

“There will be significant reductions in the unit price of digital print in coming years. These are predicted to accelerate as higher performance digital presses enter the market”



The recent rise in multi-channel marketing, as noted in a Smithers Pira study on variable data printing. This trend is likely to only accelerate in future

Source: Smithers Pira

A study by Smithers Pira found that personalised marketing delivers 31% greater profits compared to general marketing materials. Not only that, but customers also become more loyal through personalisation, leading to repeat orders – customer loyalty can often rise by over 40%. Variable printing has therefore become an exciting opportunity across a range of print products.

Cost is another key factor – and, thanks to improving (and increasingly cost-effective) capabilities in print, the worlds of packaging and retail are able to take advantage. One major cleaning products brand owner notes that its holistic cost comparisons of digital with other common packaging print processes, like flexo, have been getting closer to parity each time. An inflection point at which digital is the cheapest and most sensible choice is surely on the horizon for many applications.

Putting print to work

Digital print allows the print industry, packaging converters, and brand owners and retailers alike to take an entrepreneurial approach. New ideas can and more direct engagement of customers can be integrated quickly into a new product on the shelf. The value chain is taking time to react to this opportunity – but already there are signs that the trend is accelerating into the mainstream, to the benefit of major businesses.

One example comes from Erdington, owner of The Famous Grouse whisky brand. The Famous Grouse ran a 'Make Someone Famous' campaign, in which a personalised photo label could be applied to a bottle ordered online. The limited-edition campaign ran during 2013-14. The company's website still offers personalised gift packs, in which the recipient's name can be added to the front of the gift box, and a message to the back.

Late differentiation

Many end users of print are already planning for the use of technologies like digital. One brand owner, a producer of fast-moving consumer goods, highlighted the value of late differentiation of product labelling as one particularly compelling opportunity.

Thanks to the recent progress in print, supply chains could soon be set up to handle to process one of a wide range of different products and apply the product label at a later stage in much shorter runs, as required. This would mean that labelling would no longer require large quantities of labels to be stocked for each of a variety of products; but instead could be delivered more or less on demand.
For brand owners, the capability to rationalise the production line further and to reduce redundant stock would be another incremental but significant efficiency improvement.

Another way to capitalise on late-stage printing is the application of custom information. For a variety of home and personal care products, the number of warnings and quantity of safety information that must be presented on packs is considerable. Doing so across dozens of languages on each pack is becoming impossible in some instances.
One multinational brand owner in this field noted that short-run digital printing will allow on-pack information to be tailored – depending for instance on the region where the product will be sold and distributed. This is only cost-effective thanks to the late-stage packaging customisation that can now be done.

Fresh ideas

In the world of retail, the impact of late-stage customisation could be even more significant. One retailer is working on tailored packaging for fresh foods, responding dynamically to recent harvests. This would similarly allow the retailer to avoid sitting on large quantities of packaging stock; but would also have attendant benefits for differentiation. The retailer could promote on-pack the freshness and provenance of the food, making product claims that the conventional setup of a competitive brand or retailer would not allow.

“One retailer is working on tailored packaging for fresh foods, responding dynamically to recent harvests.”

Multi-channel marketing

Another perspective on the cutting edge of print is how it can help refresh brands and retail to catch up with the latest consumer trends. One retailer talks about how consumers use supermarkets as, essentially, an extension of the kitchen cupboard, visiting frequently for convenience purchases. This calls for considerable changes in how packaging is – or should be – presented to customers, for instance with new retail-ready and shelf-ready designs.

Supermarkets are also closely monitoring their role in the growing trend of ‘click and collect’ shopping, in which consumers order products online and then visit a store for more convenient collection, as compared to scheduled home delivery. This means retailers remain a destination for shoppers, but shifts the demographics and motivation of store visitors. In this way, tools like AR can become more than a limited-edition or novelty offer, and instead become part of a network of interactions that generate valuable data on consumers.

From a print for packaging perspective, the increasing normalisation of click and collect presents opportunities for versionalised packs. Consumers may be tempted to buy goods – particularly gift items, for instance – that are personalised.

If more consumers are ordering personalised goods online and then expecting to collect a product in-store, there are a number of potential future configurations for how the packaging can be printed and the product despatched. Retailers are interested in how late into the process the customised packaging can be delivered

Source: Highcon / BMW

Advances in package printing are allowing new approaches such as versionalised designs and experiential packs, like this car key pack design by Peter Dahmen

Augmented reality

A key element of this multi-channel marketing approach will be interactive features like augmented reality (AR). Working in combination with digital print, new capabilities like AR will gain pace in the coming years. AR has already demonstrated its advantages in a commercial setting.

Some firms are using AR as part of an anti-counterfeiting strategy, for instance, allowing consumers to play a part in verifying products by scanning them to ensure authenticity. This has initially been put to use in luxury goods, for instance, where brand owners are especially conscious of protecting themselves against the threat of counterfeiting; but companies in other sectors are also taking the brand protection potential of AR seriously.

This is just the start for businesses leveraging AR. The technology has a sophisticated role to play in broader marketing services. Information gathered via AR could, for example, establish value information about a consumer's shopping habits – and use those behavioural trends to direct future promotions.

Shopping habits

Take, for example, a customer at a supermarket who uses their smartphone to secure a discount voucher during a shop, or to otherwise respond to an on-pack call to action. The information on the type of products the consumer buys and when can be tracked and gathered in a meaningful way, by either brand owners or retailers.

Based on these common interactions, a profile of the shopping habits of a shopper can be built, and used to drive future offers tailored to their predicted behaviour – for example, sending details of relevant offers on products they like or similar at key times mirroring their shopping habits.

Other data based on their smartphone use could be added to the overall picture of the consumer. For instance, if they use their phone as part of their commute – to tap in/out on the rail network, or for their boarding card on a flight – then useful reminders or offers could be sent in a timely fashion, encouraging them to stop by their local supermarket on the way home.

Software development kits (SDKs) such as Wikitude have given brand owners, retailers and other organisations broad platforms to make use of AR, video overlay, and similar digital features. These systems allow brand owners and retailers to weave together various touch points, gathering a broad scope of data and putting it to use in engaging more meaningfully with their customers.

Source: Highcon

Etched packaging, produced using Highcon Euclid digital finishing equipment

These are just indications of what is possible today. More broadly, the ability to tailor and versionalise stock on the shelves has wide-reaching possibilities for brands. Similarly, applications of features like AR still offer only a glimpse of the world of multi-channel marketing that could be unlocked, to engage future consumers, generate valuable data and secure brand loyalty.

Guided by our interviews with major brand owners and retailers, this white paper outlines some of the future possibilities for smart, integrated and multi-channel marketing based on the rapid advance of print technologies.

Protecting products

One other important aspect of the retail experience that is changing is the approach to counterfeits, with the role of the consumer in authentication changing. Digital allows for variable features to be added, to uniquely identify individual products; while interactive features, like smartphone-readable content, encourage consumers to verify products for themselves.

> **"When just about every printing company with a digital machine can offer the option of brand protection, we will have created a new specialisation and form of return on investment."**

The shift to just-in-time printing already outlined above increases the challenge for counterfeiters considerably. Fraudsters either have to come up with all the artwork for all of the variants, or concentrate on copying just one of the variants – which lowers the return on their invested effort. If fraudsters have to work harder and see lower returns, they may well choose to copy someone else. Tony Calo, project director at brand protection firm Stampatech, comments: 'If we introduce interactive digital – as in the Cloud or the "Internet of Things" – functional print along with digital print – as in toner or inkjet engines – then we are really able to include a lot of variants and versatility, and this makes the fraudsters life harder."

Stampatech is working with Konica Minolta on a new standard for a combined effect brand protection solution that incorporates many of these trends in both package printing and consumer behaviour. Calo explains: 'We are suppliers of augmented reality; but as our background is specifically print, we try to distinguish ourselves by offering true print-based solutions, so we integrated these solutions in the printed material itself.'

This print-focused approach allows for the practical use of AR to protect a brand and connect with consumers. Connecting the qualities of digital print such as variable printing to digital functions such as CRM and data achieves a seemingly infinite combination of options. Calo adds: 'With appropriate guidance, printers can learn that interesting and difficult combinations can be offered directly from the printed material, without any real special knowledge. It might well be enough to discourage counterfeiting, and gives digital printers security printing capabilities they never knew they had that will attract brands, and bring greater trust from consumers.'

Work to use Konica Minolta systems for printed anti-counterfeiting include authentic parking permits for the University of California, as well as fashion clothing tags and anti-counterfeit stickers. Many other applications can be expected in the pipeline, as companies seek to make the most of digital print and online content to enhance their product and brand protection offerings.

Calo predicts: 'My feeling is that when just about every printing company with a digital machine can offer the option of brand protection, we will have created a new specialisation and form of return on investment. This could really be an easy add-on for existing printing company offerings.

'With the inclusion of data capabilities that a printer doesn't necessarily have in house – but Konica Minolta can provide – the printing company can revolutionise data both in and out. When this is done you can exponentially increase the information going back and forth. This is data which derives from the printed material, and locks down the security aspects – all without the printer needing special skills.'

Crucially, as outlined above, these features will be increasingly adopted by brands looking to make the task of counterfeiting their products more difficult. Companies that drag their feet could well feel the consequences in being increasingly targeted by fraudsters; while print firms that cannot accommodate such advanced features will appear to be lacking in their brand protection solutions.

THE FOUR STAGES OF REALISING INNOVATIONS

These various opportunities call for new thinking about print for packaging – and, more broadly, how a concept for new packaging is assessed and executed. Vital to realising the many opportunities offered by emerging print capability is the translation of innovative ideas into packaging on shelves, quickly and effectively.

Konica Minolta recommends taking any innovation through a process of four key steps. These are:

In the case of new packaging capabilities, the opportunity has been outlined earlier in this paper – and the rapid shift to technologies like digital print underlines that now is the time to innovate.well as fashion clothing tags and anti-counterfeit stickers. Many other applications can be expected in the pipeline, as companies seek to make the most of digital print and online content to enhance their product and brand protection offerings.

Identify

To effectively identify innovation opportunities in digitally printed packaging, companies across the value chain should look at what customers and targets it is focusing on, and what resources will be needed to address those customers. In particular, the setup of an innovation team should be considered, to identify and facilitate the progress of new ideas – whether they come internally, or via suppliers, partners, or customers.

Assess

The next stage is to assess. Here, the value chain should work together to establish what brand owners or retailers need, in order to make full use of emerging technologies like AR, for example; and the supply chain can feed back on what is possible, and how brand owners can change their approach to make better use of these capabilities.

While brand owners may have the setup in place to coordinate this activity, retailers in particular need to ensure they have the process in place to articulate their needs. Too often, it may be the preserve of buyers at a retailer to explain their requirements – and that can mean immediate decisions based on short-term budgets. The result is often a technical specification, rather than a strategic goal.
Retailers can learn from brand owners and agencies in giving a brief that reflects the customer experience they want to deliver, rather than the specific technology solution they have in mind – and allow the supply chain to provide meaningful input on achieving the former, and thus defining the latter.

Justify

After assessing what is needed to realise an innovative idea for a new packaging approach, the concept needs to be justified. It is arguably at this point that print capabilities have made the most progress of late. Emerging technologies like digital print increasingly offer a combination of speed, quality and cost that makes adopting them as an enabler of a packaging innovation feasible.

Working collaboratively, materials suppliers, print tool manufacturers, design agencies and brand owners should swiftly put together the business case for adopting a new approach. There is also a widening basis of data – and a strong rationale – to forecast the likely impact on consumer engagement, loyalty and, ultimately, revenues for a new packaging concept. Coupled with the industry's moves overall towards these new packaging features – and the risk of losing market share by falling behind – the business cases for a variety of new printed packaging approaches are becoming particularly compelling.

Here, print suppliers need to do a better job of transmitting the value of their technology and business. Too often, the pitch is along the lines of system specifications – when it should focus on the impact that it will have on metrics that matter to brand owners and retailers. Print firms should look at how their current capabilities can translate into new and improved customer experiences – and incorporate this into the justification for adoption.

Implement and nurture

Finally, there is the need to implement and nurture the innovation, to ensure it is well executed – and delivers the change that was promised in the business case. The maturation of digital print systems is making this easier to do – high-quality tools can be bought off the shelf, and suppliers will in many cases already have a track record of smooth integration into existing processes.

Konica Minolta, for instance, couples a range of proven digital print systems with a full programme of support services – including business planning, marketing planning, sales training and more – to facilitate the adoption of digital print for packaging applications.

The 'nurture' is part of this fourth stage is a nod to the need for innovation to be continuous. Ideas need to be considered, scoped, qualified and put into practice; but this is, in many ways, just the start for an innovation. Its progress needs to be tracked and reviewed. Further iterations and improvements can, and in many cases do, follow. In this way innovation becomes not linear, but circular.

TIME FOR ACTION

Retail continues to change at a dramatic pace. Factors such as the rise of e-commerce and demand for personalised experience call for new approaches to packaging. It is on this basis that technologies like digital print have emerged as enablers: allowing brand owners to offer the 'mass-customisation' of products, for instance. Other print for packaging technologies like augmented reality have also emerged, linking physical products with the digital world where many younger consumers are comfortable and more easily engaged.

Major commercial print firms are going to be diversifying in the coming years, and will move increasingly into packaging applications. There is an ongoing trend in the convergence of approaches like gravure and flexo, and the move to digital is accelerating fast. The reason for these changes is that end users are keen to plan for the new business models that will arise from new print capability. Customisation at later stages in the production and distribution process will become possible thanks to advances in digital print, and the benefits that it offers. Brand owners and retailers will therefore work with supply chains that can make the most of this late-stage capability for their products.

End users are making the move to digital, and the major players in commercial print are entering the space as solutions providers. The momentum is with this technology and the markets are fast developing – but not yet saturated, as they could become quite quickly with commercial printers present. Now is the time to get involved, and the approach outlined in this paper should provide a solid grounding in how to do so.

ABOUT THIS WHITE PAPER

This white paper is published by Smithers Pira and commissioned by Konica Minolta.

About Konica Minolta Business Solutions Europe

Konica Minolta Business Solutions Europe GmbH, based in Langenhagen, Germany, is a wholly-owned subsidiary of Konica Minolta Inc., Tokyo, Japan, forming part of its Business Technologies business area. As a leading global services provider in the field of IT- and document processes as well as digital production printing solutions, including industrial inkjet, the company excels in services-led business consulting, implementation and management and provides a range of world-leading printing systems and solutions. In this context, Konica Minolta's Optimized Print Services concept (OPS) combines business development services, consultancy, hardware, software implementation, and operation in order to enhance business process efficiency and cost-effectiveness. To support customers optimally with powerful and sustainable solutions, technology leader Konica Minolta continuously invests in research and development work and regularly sets new standards.

Konica Minolta Business Solutions Europe is represented by subsidiaries and distributors in more than 70 countries in Europe, Central Asia, the Middle East and Africa. With over 33,000 employees around the world (as of March 2015), Konica Minolta's Business Technologies business area earned net sales of over EUR 5.8 billion in financial year 2014/15.

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