

Digital Printing *today*

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Digital printing perspectives from two global brand owners

Mars and Nestlé provide an overview of the current state of technology

Dieter Finna

Mars and Nestlé, two of the world's leading food manufacturers, have explored the challenges of moving packaging print into the digital age. Alvise Cavallari of Nestlé and Jan Duffhues of Mars provided an overview of their efforts and the state of the technology at the "Digital Print for Packaging" conference in Berlin on 6th December 2016. They reported on how their companies started with digital print and what still needs to be done to make digital printing a serious supplement to conventional print processes.

View from the top

The two companies share the fact that they manage many international brands in the food segment, which in addition to foodstuffs and chocolates includes pet food and healthcare products. Additionally, during a product launch or a planned promotion, speed to market is of the upmost importance for both companies.

When digital printing was first introduced, Nestlé was initially very intrigued by this technology. According to Alvise Cavallari, head of the corporate digital printing initiative at the company, their first trials took place almost six years ago. Unfortunately the new technology did not perform as well as hoped mostly due to safety, compliance and odour issues. Nevertheless Nestlé has taken a second look at the emerging technology, this time with a much broader approach – evaluating all types of businesses within Nestlé, covering all types of applications, substrates, digital printing technologies and any type of ink. Throughout this

huge company, 35 projects were begun and, as a result, Nestlé gained a broader overview of digital printing and what the technology can deliver.

No compromise on quality

Mars also has a comparably long experience of evaluating digital printing. The team around Jan Duffhues in packaging graphics is responsible for transferring creative ideas from marketing into industrial printed packaging.

The goal is to manage an effective supply chain ensuring that products are delivered punctually at the agreed cost, quality and efficiency to the various production plants. Duffhues particularly highlighted the fact that Mars does not compromise on quality when it comes to the application of digital printing.

The quality targets are more or less set in stone as consumers recognise that the product and brand messages are communicated reliably by the print quality no matter which print process is used.

Main evaluation criteria

It is essential to a brand owner that converters ensure that the sensory experience is under control to avoid any foreign taste or smell. In digital printing issues and obstacles remain from a migration and aroma point of view. A consumer expects to taste only the product and nothing else. Pets are even more sensitive than humans in this regard—picture the storied finicky cat turning up their whiskers and refusing to eat what is normally a favourite flavoured product. Additionally, compliance with all legal and regulatory requirements is crucial.

For these reasons both brands have defined requirements for printing inks. The "Nestlé Guidance Note on Packaging Inks", combined with the "Swiss Ordinance SR 817.023.21", addresses chemicals of concern and the requirements contained therein which are non-negotiable.

With their "Printer Specifications", Mars gives guidance to all project partners, ensuring that all have a high level of expertise and play by the same rules in order to sing to the same tune.

Non-compliance with existing requirements is one reason why the penetration of digital printing in Nestlé's packaging consumption is extremely low and makes up considerably less than 1% of their packaging portfolio. If a product is introduced into the market, it must comply with all legal requirements to ensure the supplier can put it into circulation.

From static to customer-focused packaging

Brand owners are already facing a high degree of complexity in their design variants for a multitude of reasons. Firstly there are volatile volumes which are driven by the market: partially because of advertising campaigns, partially because of different retail channels such as e-commerce or certain outlet relationships. Indeed, it is this variability that digital printing offers in terms of increasing differentiation options, like regionalisation, localisation, customisation and person-



Source: Mars

Complexity in a product line

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alisation that makes it so attractive. This optionalisation leads to different packaging formats for one product and many market design varieties. However, this in turn often dramatically shortens the life cycle of packaging.

From upstream supply to lean factory

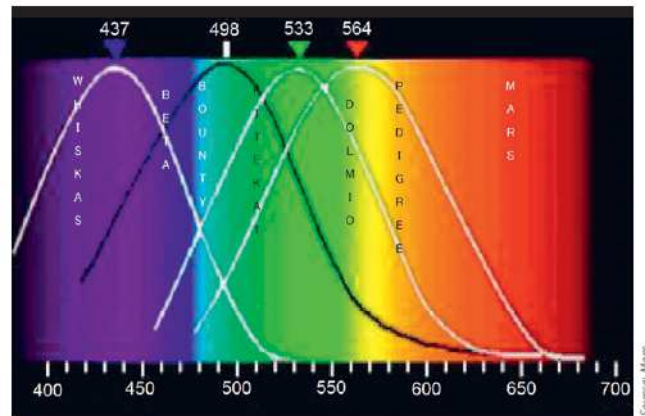
In their respective supply chains, brands are noticing a stronger, leaner approach with smaller order sizes that are supplied on a demand-oriented basis, i.e. "print on demand". Another brand driver is more operational, with the goal of facilitating the artwork in the direction of easier design changes. These two points can help reduce waste, another issue which is of growing importance within the supply chain.

Finally, another issue that is also becoming more important given

today's trends is print-in-production is how can print be brought physically closer to the operations, near-line or in-line?

Complexity of the packaging solutions

Other areas of increasing complexity within the printing and packaging sectors arise from the need for ink specifications for different print processes and different packaging materials. The limitations and demands of the print process and the different types of printing and packaging machines also need to be considered. The various substrates also have their own requirements and specifications. These all have to be integrated into the overall design and packaging processes. Moreover, there are products that are packed in an ambient environment and products such as ice cream, which requires special handling. Producing foods in a deep-freeze environment is completely different and, consequently, requires different specifications. Packaging and design variances



must be available in all run lengths not only for conventional printing but also for digitally printed products.

Defined brand colours for the product lines

Exploring the challenges of moving packaging into the digital age

The strength of conventional printing is its high efficiency over long runs. This is one of the challenges digital printing is facing. On the other hand, the cost of inherent waste is a good argument towards digital printing. Special print appli-

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cations like coatings can hardly be applied by digital print technology and are seen as limitations at the present time. Mars especially sees the lack of a cold seal and release lacquer application as an issue for their chocolate bar products. The same applies to additional lacquers such as matt/gloss combinations and COF improvement lacquers for the runnability on the production line.

The availability of solutions in all areas of application of packaging printing is one of the major requirements for digital printing.

Currently, Nestlé is looking closely at the lack of availability of some flexible materials because this segment constitutes 35% of the packaging expenses within the company. It can be inferred that any associated cost savings appreciated from new printing methods will eventually be transferred to investors and shareholders.

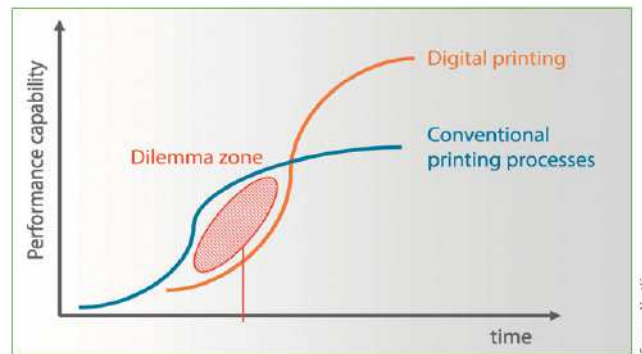
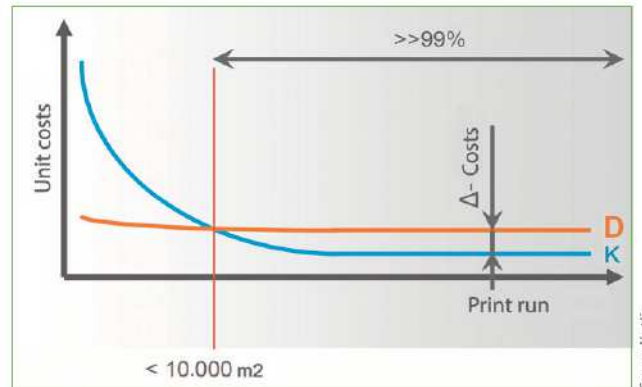
For this to occur, digitally printed flexible packaging must be

available for all applications and has to be capable of being laminated, stretched, shrunk, sealed and folded just like conventional flexible packaging.

It comes down to cost

An essential assessment factor for Nestlé is the cost calculations involved in digital printing. The imbedded expenses of digital versus conventional printing reflects a breakeven point directly related to overall print volume. Below this intersection point, digital printing is more cost effective above conventional printing. Presently, this intersection point is very low, in most cases it is below 10,000 sqm (100,000 sqft).

The lowest breakeven point is a further important rationale as to why digital printing has such a low penetration currently within Nestlé. Digital technology would become more interesting from the point of view of cost if the difference be-



Top: Cost volume relationship
Bottom: Dilemma Zone



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tween the two technologies were to be reduced, which would bring the breakeven point more towards longer print runs.

Where is digital today and what does the future look like?

For Nestlé it is clear that "going digital" does not simply mean switching from a conventional to a digital print process. Though over the long-term Nestlé is convinced that digital printing will become a disruptive technology and deliver much higher performances than conventional printing does today, the fact remains that digital printing is not there yet.

In Cavallari and Nestlé's analysis, digital print remains in this middle or transitional area that some call the "dilemma zone". In flexible packaging, they still need to find the proper application so that digital printing can make additional headway.

In their assessment of digital print's future, a uniform picture at both brand owners does, however, exist. Both have faith in the high development potential of digital print in flexible packaging and hold firm convictions that the future of packaging printing belongs to digital technologies.