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Philip Morris International explores digital printing

The vision of a smoke-free future not only continues to radically change the product portfolio of Philip Morris International (PMI) in terms of alternative products to traditional smoking, it also places stringent demands on the supply chain in terms of flexibility, agility and speed to market. By Dieter Finna.

To meet these demands, PMI decided to invest in a Labelfire hybrid digital printing line from Gallus for its Swiss development facility in Neuchâtel, but the key question is how far can the company develop a digital end-to-end production line for all the smaller batch sizes within a production environment?

Designing the future

With its corporate strategic decision to replace conventional cigarettes with less harmful products, PMI finds itself in a transformational phase as it journeys towards a smoke-free future.

Tony Snyder, who is responsible for product portfolio management and deployment, said that the company is working on reducing approximately

40 billion packs of conventional cigarettes to zero. In the transformation of the business model, the company is confronted with new competitors, customer segments and it is certain that in the next 12 months, there will be more changes for PMI than there has been in the last 10 years.

Today, product launches or product modifications of conventional products involving two SKUs take approximately up to four months to get to market. For worldwide launches, the time to market can increase by up to two years. However, the company can't afford such a long introduction time anymore. With increasing number of items and SKUs, changing market and competitive environment, the solution is not to get just a little faster, disrupting speed to market requires a fundamental change in the complete supply chain.

PMI's First Folding Carton Digital Printer Press Configuration Gallus Label Fire Hybrid



PMI decided to explore the possibilities of digital printing with a Gallus Labelfire hybrid machine

Source: courtesy of Philip Morris International

It is clear that such a radical change is only possible with new technologies that allow changes to production schedules on the fly and that can quickly adapt production to consumer demand. The challenge is to identify beforehand which products consumers will like the most and which products need to be in the market tomorrow. In response to the need of accelerating speed to market, PMI has established the goal of seven days from catalogue to finished production.

Speed and agility are key

Digital printing already offers significant flexibility, agility and quick changes in label printing. The question is why has it not achieved the same in folding cartons yet? Depending on the portfolio and volumes, the answer is that digital printing is still missing capability and a competitive cost structure.

In the conventional printing processes, such as gravure and offset, very short runs are synonymous with high costs as pre-press and set-up costs are shared by a small volume, but for large volumes, conventional processes are very effective and economical. Up until a few years ago, digital printing was still low speed and therefore high cost, which meant that PMI only used it for special editions or individual local test markets. For PMI, runs of one million packs are still considered short runs.

In recent years, however, digital printing has continued to evolve, reaching a point in terms of print speed that means that today jobs of around 5 million blanks can be produced competitively.

Gravure printing is competitive for high volumes, but the industry is subject to the general development trend towards smaller runs. Capital tie-up and stocks that block or slow down the supply chain are no longer desirable. As a result, the run lengths have become smaller and smaller. And, as digital printing speeds continues to increase and costs go down, more and more of the PMI product portfolio could be considered for digital printing in the future.

Hybrid solution

What digital printing is missing today are solutions for metallic inks and other digital embellishing, which makes packaging stand out in an exclusive market. It is not enough to transfer the colour digitally, while the embellishing is done using either hybrid technology or a separate production step. In order to meet the market's demand for the greatest possible flexibility, agility and speed to market, the complete workflow must be digital.

PMI decided to explore and test the possibilities of digital printing itself. The modularity of the Gallus Labelfire 340 press was the decisive factor for choosing this technology with which the hybrid components for a 'Boardfire' line could be specifically configured.

The press line is equipped with an eight-colour digital printing unit for

In 1847, Mr Philip Morris opened a shop on London's Bond Street. Today, Philip Morris is a leading international tobacco company with a diverse workforce of around 81,000 people. In 1924, Marlboro, which has become the company's most famous brand, was introduced. In the 1950s, an internal operating division was launched to manufacture and market products around the world. The PMI operations centre was

transferred from Rye Brooks, NY (USA) to Lausanne, Switzerland in 2001, and in 2009, PMI unveiled its new research- and development facility in Neuchâtel bringing together over 400 scientists, specialists and staff in a new world-class facility dedicated to development of reduced-risk products. The company has made the far-reaching decision to build the future on smoke-free products and to replace cigarettes as soon as possible.

extended colour gamut printing and six flexo units including the option to apply cold foil. Today, the machine is much different from the original Labelfire design. Last December, an offline laser system for cutting and creasing was also installed, so bit by bit the test production line is being digitised.

Testing the solution

A clear awareness for PMI today is that digital technology will only bring the anticipated value if it is close to the finished good production (FG) process. As an end-to-end solution, ideally all production steps should be digital, including embellishing and finishing steps.

The line has already been utilised for digital colour standard settings of

more than 50 product and designs of over 200 SKUs have been printed. In addition, stress tests were carried out under the conditions that the machine is subject to in a factory and not in a development environment. So far, packaging for 100 million cigarettes have been produced and commercialised. This was the first step in confirming that the technology

works. Now PMI is investigating whether it is an industry-ready solution that can cover the full range and it will then enable finished production within seven days from receipt of design to FG production.

PMI has decided to install a digital line in a full industrial production environment during 2019 to gain insight into how the technology can be integrated into the production and planning systems. As a result, who knows, a digital printing line may be available at each production site in the future. •

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