



UNTANGLING THE WEB

For narrow web printers, 2023 has unleashed a tangled web of challenges, but also exciting opportunities. Baldwin Technology provides some expert advice.

The collision of consumer preference, forthcoming regulation and ESG commitments from brands large and small is powerful. And, ESG centric investment funds are looking to reward the winners and punish the losers.

Corporations and brands are awash in cash to invest in sustainably advantaged processes, materials and products.

According to Futurum Research's survey of global business leaders, 'more than 70% of companies say they are increasing sustainability spending over the next 12 months, while only around 2% are planning to reduce it'. Packaging Strategies forecasts that 'brands will look to find out more about the impact of their supply chains, and how they can optimise processes to reduce their environmental footprint'.

Key priorities include boosting energy efficiency and transitioning to less carbon intensive sources. Emission reduction, increased recycling and additional use of recycled materials have also gained momentum.

Sustainability sells while regulations are on the rise. Environmental claims, impacts and reporting requirements are tightening around the world.

The French Climate and Resilience Law now targets claims about 'the quantity, method and date of manufacture...in particular its environmental impact as well as the results and main characteristics of the tests and controls carried out on the relevant good or service'.

The EU's updated Directive 2005/29 on Unfair Commercial Practices includes a broad portfolio regarding sustainability claims, verifications and practices. Other proposed rules will require EU member states to reduce packaging waste per capita by 15% by 2040.

And not to be outdone, public companies will be required to provide 'certain climate related financial data, and greenhouse gas emissions insights, in public disclosure filings' under a proposed US Federal Trade Commission rule.

HOW TO STAY COMPETITIVE

Investing in energy efficient LED-UV curing systems, consumes approximately 65% less energy than a similar sized mercury arc UV system and provides considerably longer bulb life than conventional systems. In addition to boosting output speed and capacity, the instant on/off process of LED-UV substantially lowers the energy use and stresses on

lamp bulbs that is inherent with conventional 'always on' UV mercury lamp curing.

Taking it a step further, operators have the flexibility to programme the exact UV energy needed for changing process needs to reduce product waste, expand production capabilities and most efficiently utilise production lines. It is also possible to turn off individual modules in multiple unit installations to save energy without slowing production speed or compromising quality.

Corona treatment on the printing or coating lines is also a highly cost effective investment that helps to reduce waste and inefficiency. Many converters are switching from solvent based to solventless adhesives to minimise both energy consumption and emissions. Printers also tend to use more environmentally friendly water based inks.

However, the change of coating liquids requires a higher surface tension of the finishing webs, meaning the coatings have a harder time adhering to the surface. Corona treatment allows the converter to take this more sustainable path because it increases surface tension and achieves a good level of adhesion for these new inks and adhesives.

Advanced inspection systems and tools are able to provide early warnings that a process (or processes) is beginning to fail, alerting operators to take corrective action. This minimises waste and the need to overrun, saving energy, time and materials. Inspection technologies frequently lead to increased capacity and utilisation with a 30% leap in finishing as operators run machines faster knowing where the defects are.

OVERTLY COVERT

According to Markets and Markets' Anti-counterfeit Packaging Market Report, the use of encoding, RFID, tamper evidence, holograms, and forensic markers will leap from \$117.2 billion (2021) to \$211.3 billion by 2026. Talk about the \$100 billion question! In 2022 alone, the International Chamber of Commerce predicted that sales of counterfeit items would reach \$4.2 trillion by the end of the year.

Researchers from Michigan State University's Centre for Anti-Counterfeiting and Brand Protection programmes warn that brands need to implement 'anti-counterfeiting strategies in every link of the supply chain: design, assembly,



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You can find out more at <https://printenomics.com>

packaging, third party suppliers, transportation, distribution and return’.

As narrow web and label applications grow increasingly sophisticated, the latest inspection systems will be required to ensure that high standards are maintained from both a branding and anti-counterfeiting point of view.

There is a large grab bag of available security features. Brand protection labels and pharmaceutical packaging now often sport secure features previously reserved for high security printing. Depending on the level of security required, printers might incorporate features like holograms, covert ink features and numbering, security threads or fibres, and special codes.

Other available secure features include multiple methods of overlaying print, watermarks, microprint, UV fluorescent print, IR reflective and absorbent inks, additional coatings and varnishes, overt and covert serial numbers and barcodes, and more.

The inspection to verify accuracy and quality of these features in label and packaging presents the same challenges and requires the same advanced inspection systems typically used in high security print.

By design, all of these security features are difficult to produce and difficult to copy. Many features are difficult to see due to size or application, and in the case of covert features, can only be seen with the use of special wavelengths of light.

AN INSPECTOR CALLS

Printers need to rely on the use of advanced inspection systems to verify the accuracy and quality of this anti-counterfeiting arsenal. These high level inspection systems are equipped with capabilities that exceed what is required for typical label or packaging production.

Unique inspection algorithms are frequently designed for specific security features, often require high resolution cameras, and use special lighting units and other proprietary techniques. Companies that provide inspection solutions must be nimble and able to make frequent improvements to

their systems to meet the ever changing needs of the security printer and market requirements.

Some printers prefer to inspect their products in an off line process after printing. There are many reasons for this including the ability to run the output of multiple presses into fewer off line inspection machines, or the requirement to inspect the product after any post press converting and/or handling where non print defects could occur.

Optimal print inspection systems can arm printers with the high tech tools to eliminate every defect through an efficient, accurate, data connected process. These systems provide singular ‘object based inspection’ during the printing process, tighter tolerances and fewer false defects. Areas of concern on the job can be defined for enhanced or reduced levels of inspection.

And it is important to connect the digital dots. Now, printers are able to track and compare myriad production metrics. Press managers can monitor changes right as they occur, clearing the way for highly informed decision making around print quality, defect management, and operator to operator performance and efficiency.

Verifying that the files used for production – or the beginning of run press samples – match the customer approved master file 100% is another crucial component.

By comparing any pre-press file or scanned press sample to the customer approved original in a matter of seconds, advanced software automatically locates and highlights even the smallest of differences in print quality.

LET THE UNTANGLEMENT BEGIN

It might be trite, but in every challenge lies an opportunity for reinvention and growth potential. Counterfeiting up? We will create material, process, and inspection systems to combat it. New sustainability mandates from government and customers? We will deliver energy savings, waste reduction and greater efficiencies to meet the mark.

This industry is resilient, responsive, up for the challenges. Smart technology investments today can untangle the tangle in front of narrow web printers.