



Introducing the exciting new world of digital solutions

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Digital printing and finishing technologies today are not just about short runs

- ✓ **They are more to do with re-thinking the economics of the label and packaging supply chain**
- ✓ **Finding creative new ways to make labels and packaging more exciting, more visual and more tactile**
- ✓ **Offering new possibilities for brand protection and traceability**
- ✓ **Improving the bottom line – for both converter and customer**



Where did it all begin?

- ❑ **Print-on-demand digital color label printing had its beginnings in the mid 1990s**
- ❑ **The early success of digital label printing was limited**
- ❑ **Less than 200 digital label presses had been installed in the global label industry by the end of February 2003**
- ❑ **Converters required some performance and technical issues to be resolved**
- ❑ **End users were still cautious about greater use of the technology**
- ❑ **Growth was not matching forecasts of late 1990s**

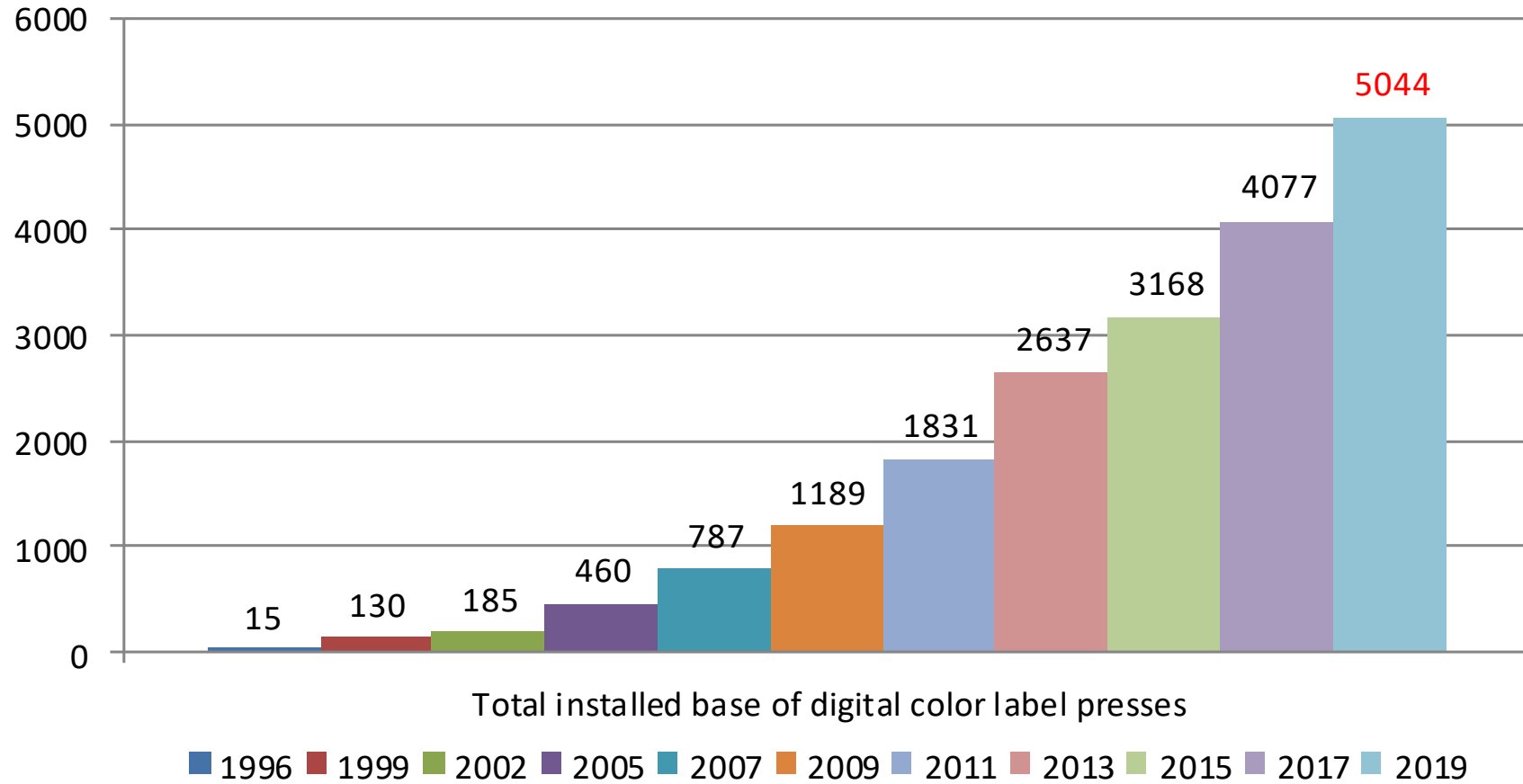


What happened next

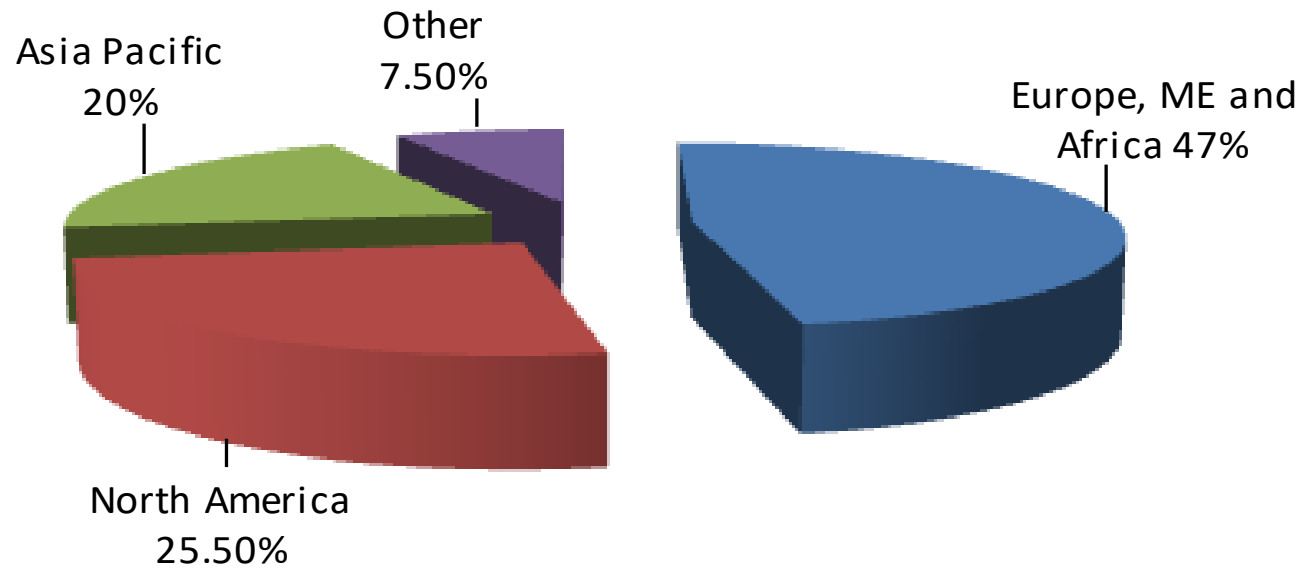
- ❑ New generation (HP Indigo and Xeikon) presses introduced from 2003
- ❑ Digital presses now built more like conventional label printing machines than office machines
- ❑ Digital presses became faster and more reliable
- ❑ They offered enhanced output and a higher breakeven against conventional printing
- ❑ They now started to be accepted as a viable and profitable label printing process



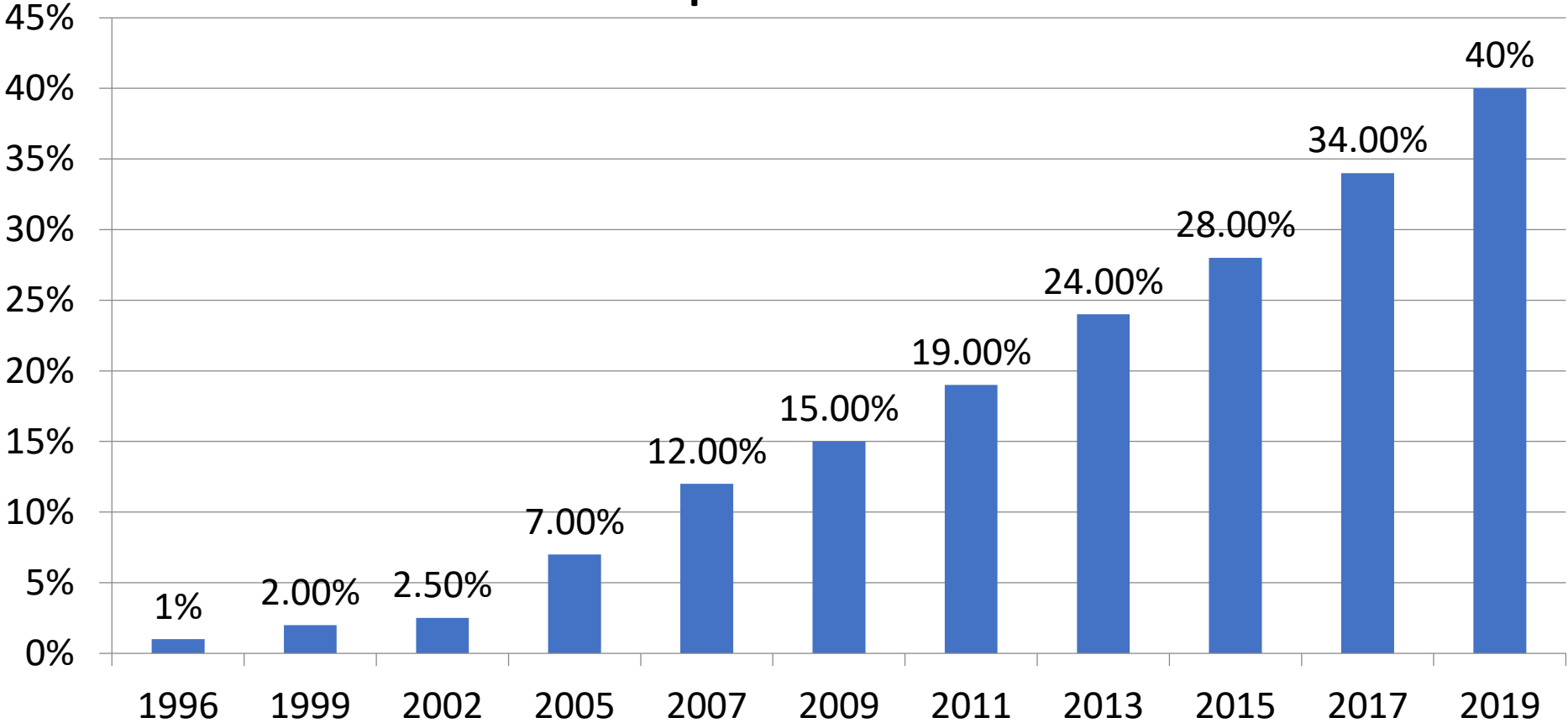
Total number of digital color label presses installed in roll label industry from 1996 and estimated to 2019



Location of total installed base of digital color presses by region at end of 2018



Market share of annual digital label press installations as a % of total press installations



Digital printing technologies

What are the main digital POD color printing and ancilliary technologies available today?

Electrophotographic printing

- Liquid toner, offset
- Dry toner

Inkjet printing

- UV Inkjet
- UV LED Inkjet
- Water-based Inkjet

Hybrid analogue/digital

Laser finishing

Digital security features and digital watermarking

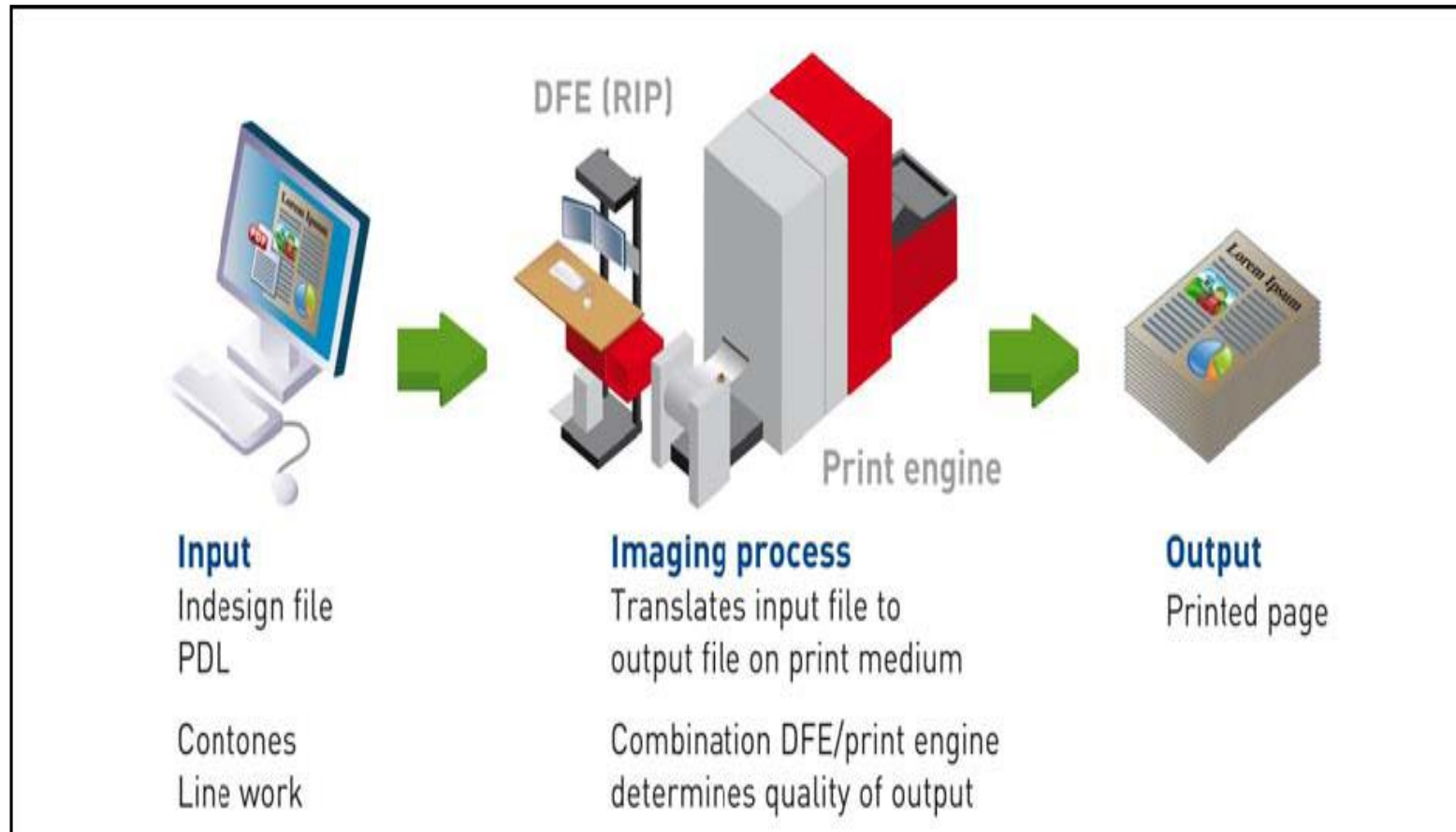


KEY FACTS TODAY

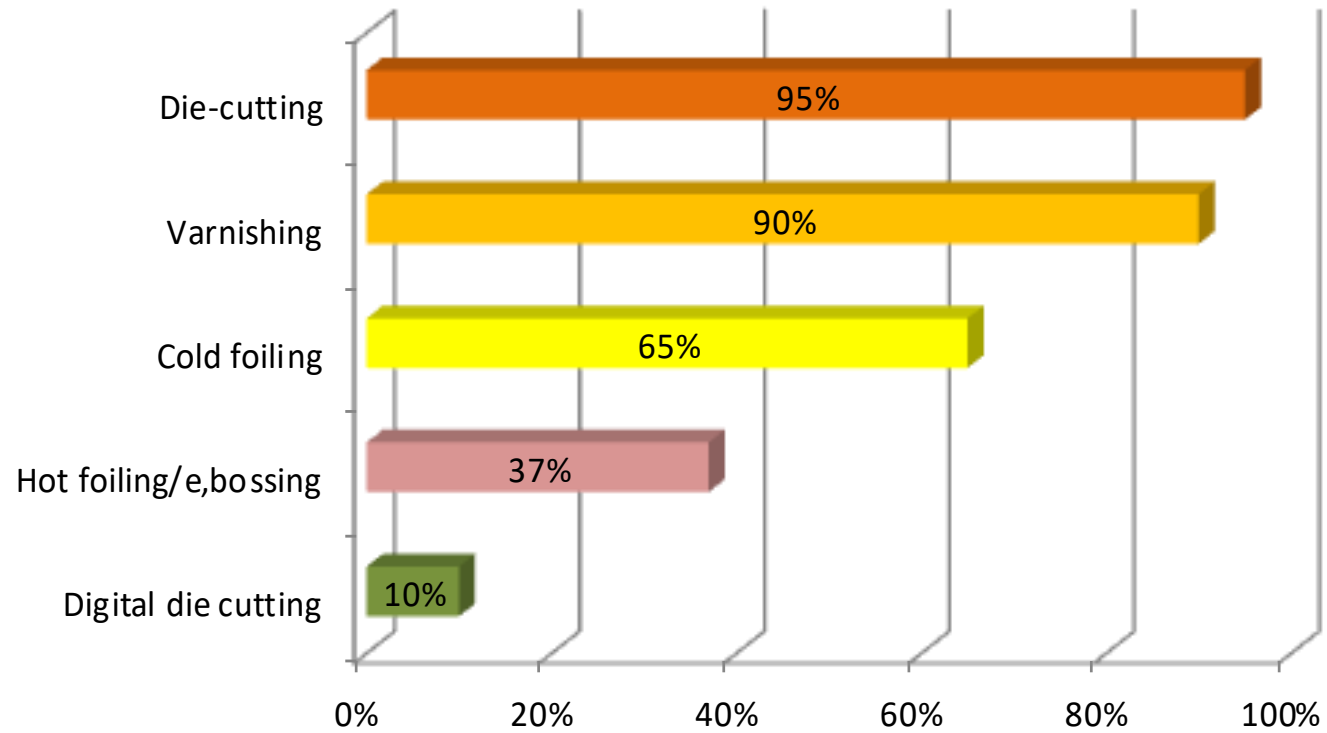
- ❑ Electrophotographic toner technology makes up over two-thirds of the total current installed base of digital color label presses
- ❑ HP Indigo has the largest installed base of toner-based presses, followed by Xeikon
- ❑ Inkjet units from Gallus, EFI Jetrion, Durst, Domino, Epson, Screen Europe, Xeikon Panther, Astra Nova, KPG, etc, make up most of the remaining base of color POD presses
- ❑ There is a growing, market for hybrid conventional/digital presses – Nilpeter Panorama, MPS EF Symjet, FFEI Graphium, Focus Label D-Flex, Gallus LabelFire 340, Mark Andy Digital series HD, Omet/Durst XJet, Bobst Mouvent, etc
- ❑ Global digital label and package print market now estimated at over \$10 billion
- ❑ Value of digitally printed labels and packs growing at 21% per annum



What are the key elements of the digital printing process?



Usage of finishing capabilities on installed base of full-color digital label presses

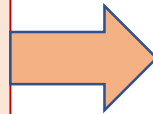


What other factors need to be considered when buying a digital press?

Additional investment

Investing in a digital press and finishing line is often only the first step in building a successful digital business.

Investment may also be required in the press-press department, in a more sophisticated Management Information System (MIS), and in building an integrated and more sophisticated and seamless digital workflow

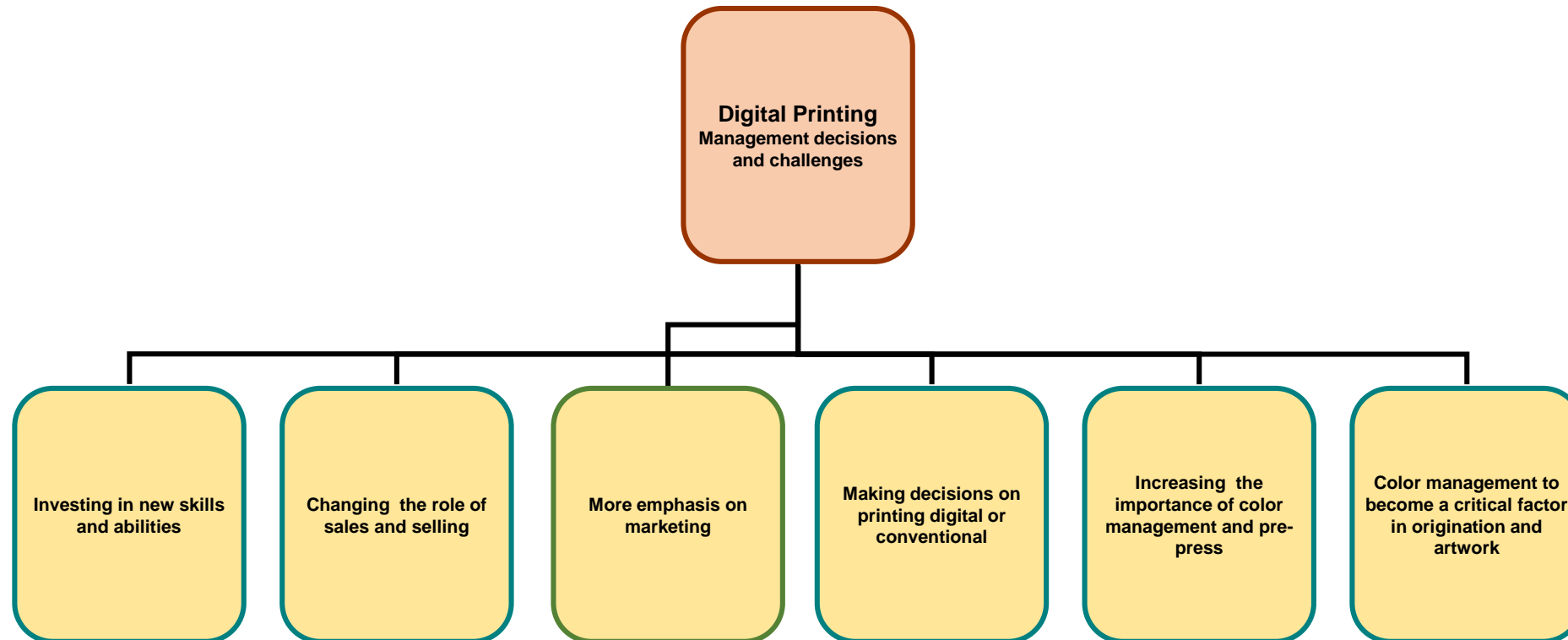


Benefits of additional investment

- Improved production efficiencies
- A reduction in errors
- Faster and more accurate workflow throughput
- A quicker response
- Overall cost and waste reductions
- Enhanced management information
- Better customer information



What are the management challenges and opportunities when investing in digital printing?



Why invest in digital printing?

- ❑ To meet the changing market, technology and production demands and requirements of customers
- ❑ To reduce costs while improving margins, so as to be more competitive and profitable on shorter runs.
- ❑ To be more innovative and to offer customers new added-value solutions and opportunities that may include personalisation, sequential numbering, versions, seasonal promotions, coding, etc
- ❑ To widen the converter's capability and provide an enhanced level of service and solutions to customers.



Deciding what label press to invest in 40 years ago was relatively simple.

- 70% of all machines installed in Europe were rotary letterpress
- Some flexo and flatbed screen
- Some hot stamping

Today, the decision is much harder, with a choice of:

UV Flexo Offset Litho Letterpress Screen Process
Combination process Digital Dry toner Liquid Toner
UV Inkjet Water-based inkjet Hot stamping
Hybrid



What other press and finishing line options need to be considered to add value or new opportunities?



Depending on the manufacturer, other options can include:

- Hologram stamping
- Screen printing
- Carton converting
- Coding and numbering
- Missing label detection
- Waste shredding
- Folding
- Turret rewind
- Coating
- Hot and cold lamination
- Fully integrated camera inspection systems, etc
- Laser engraving, perforating and cutting



Points to remember

- ❑ Digital label presses are now being installed at their fastest rate ever
- ❑ Digital design and printing offers many and varied opportunities for the future
- ❑ Planned and targeted digital investment can provide for a successful, more profitable, future
- ❑ The future for digital label and package printing looks assured

