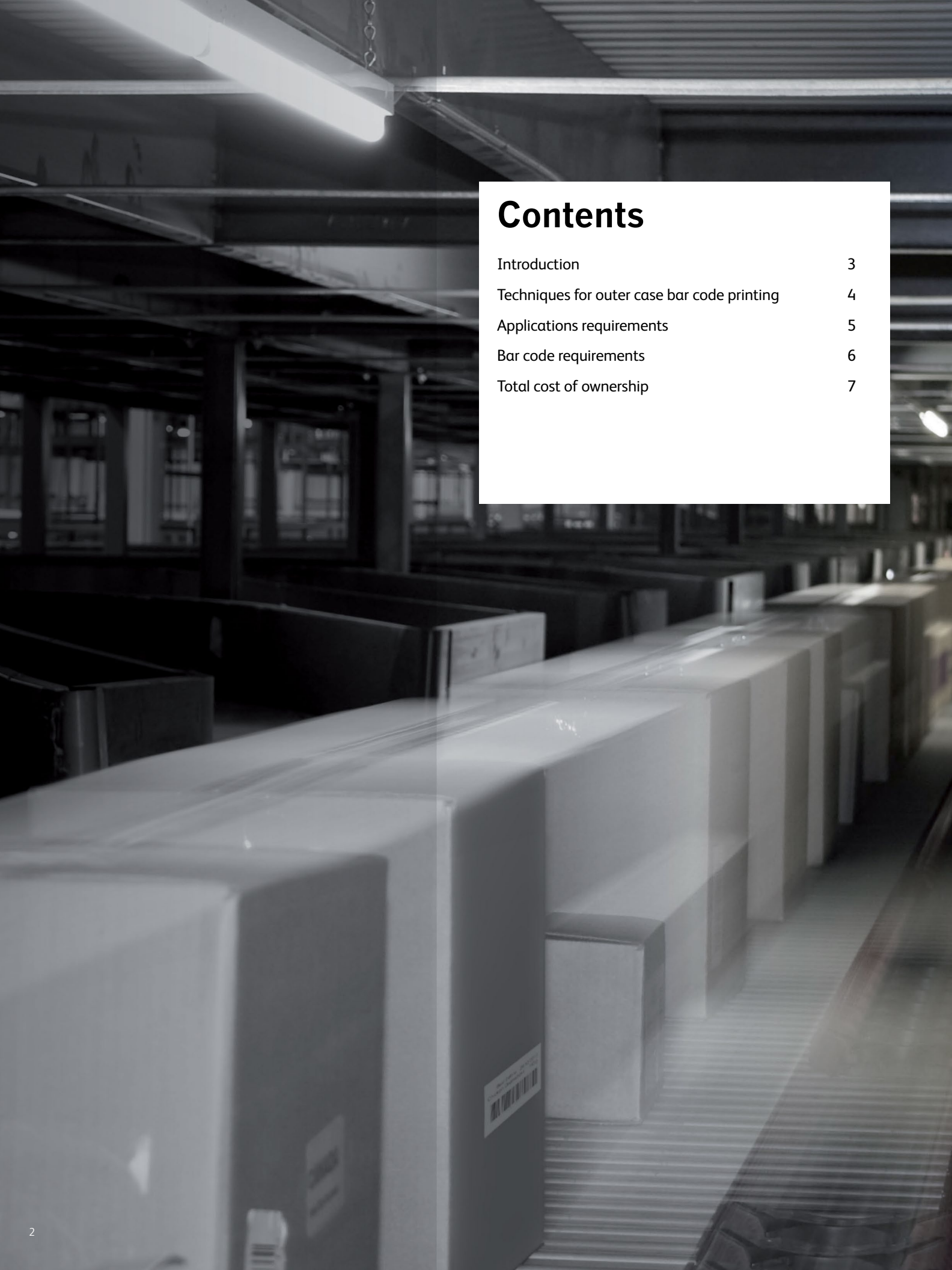
White paper

Selecting the right coding method for bar codes on cases, bundles and shrink wrap

Your guide for helping achieve optimal bar coding results

The trend towards increasing retailer and regulatory requirements and developing SKU complexity is a main concern for manufacturers seeking to safeguard their operations from costly labeling errors or unreadable bar codes. In order for manufacturers to improve quality and adhere to applicable standards, it is vital to select the right coding solution to match your business's operational needs.



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Among the solutions used in today's production facilities to put bar codes and product information on cases and cartons – labels and ink jet printers are the most common.

Labels can be printed offline and applied by hand, or they can be printed inline and applied automatically using a print and apply labeling machine.

Ink jet printers are used for direct case coding to print high resolution, variable data on the production line.

There are pros and cons to all three techniques and selecting the right technology requires full transparency of these. The chosen technology needs to be reliable, provide high quality readable bar codes and help maximize production line uptime.

This paper examines each technique in more detail and provides a simple three-step process for understanding important considerations in the selection process.

Techniques for outer case bar code printing

Pre-printed labels

Using pre-printed labels appears to be a very straightforward solution to meet the SKU coding requirements. However, this apparent simplicity is often deceiving and can come at a high financial cost. As the facility increases its number of SKUs, the demands on the label inventory increase as well. This can create high inventory costs, space concerns, label inventory management issues and label obsolescence due to product changes, which in turn will lead to waste from scrapped labels. There can also be significant changeover costs as labels need to be changed every time that the product on the production line changes. Last but not least, in addition to the pre-printed labels there still needs to be a method to apply variable data, such as the production date or batch number, to the packaging. This can be done through an on-line case printer, a hot stamp, or a variety of other ways. However each of these methods and systems carry costs as well. When all factors are taken into consideration, pre-printed labels are often the least (cost) efficient solution for case identification.

On-demand label printing

Printing labels on-demand resolves some of the drawbacks of pre-printed labels: inventory costs, space requirements, obsolescence and changeover costs are lower as fewer label types will be used. And variable data can be printed as part of the label, eliminating the need for a separate system. Additional costs, such as the acquisition of a Print & Apply labeler, and the expense of printer ribbons, will in most cases be less than the savings versus using pre-printed labels. Print & Apply labeling machines are well suited for applications on non-porous substrates, such as shrink wrap, as well as materials with dark color as labels provide excellent contrast between white labels and black printed content.

Direct case coding

High resolution, direct to carton ink jet printing typically consists of two to six high resolution (150 dpi or more) case printers, networked together. The number of printers depends on the height of the information printed and whether the box is printed on one or multiple sides. A common print height for high resolution case printers is 50-70 mm (2.0 – 2.8”). Because case printers are digital printers, variable data can be printed at the same time as the unchanging information. Unlike pre-printed labels, inline coding provides enormous flexibility. Messages are quickly changed, and new messages can be created and stored for immediate or future use. The printers are very compact and take up minimal space on the production line. They can print logos, graphics, large and small text and a wide range of linear and 2D bar codes, including the increasingly popular GS1-128 bar code. State-of-the-art printers feature the ability to automatically purge ink through the printhead as often as between every print, ridding it of contaminants to provide consistently clear, high resolution codes.

Three-step process for choosing the right method

It is recommended that three key steps be considered to choose the most suitable option. These are ranked in the order in which they should be assessed.

1 Applications requirements

Considering every aspect of your individual application is critical in selecting the optimum solution for applying important supply chain information onto outer product shipping cases.

Facilities running multiple lines with various product and packaging types, may need to apply bar codes to both porous cases and non-porous shrink wrapped products, may prefer to select a solution that is capable of handling all substrates.

		Ink jet	Print & Apply
Conveyor	Controlled	●	●
	Belt-driven	●	●
	Roller	●	●
Porosity	Porous	●	●
	Mixed	●	●
	Non-porous	●	●
Multi-sided coding	Adjacent	●	●
	Opposite	●	●
Substrate color	White	●	●
	Brown	●	●
	Dark	●	●
Environmental	Wet	●	●
	Cold	●	●
Maintenance rigor	Disciplined	●	●
	Occasional	●	●
	None	●	●

● Meets application requirements ● Validation required ● Does not meet application requirements

Three-step process for choosing the right method

2 Bar code requirements

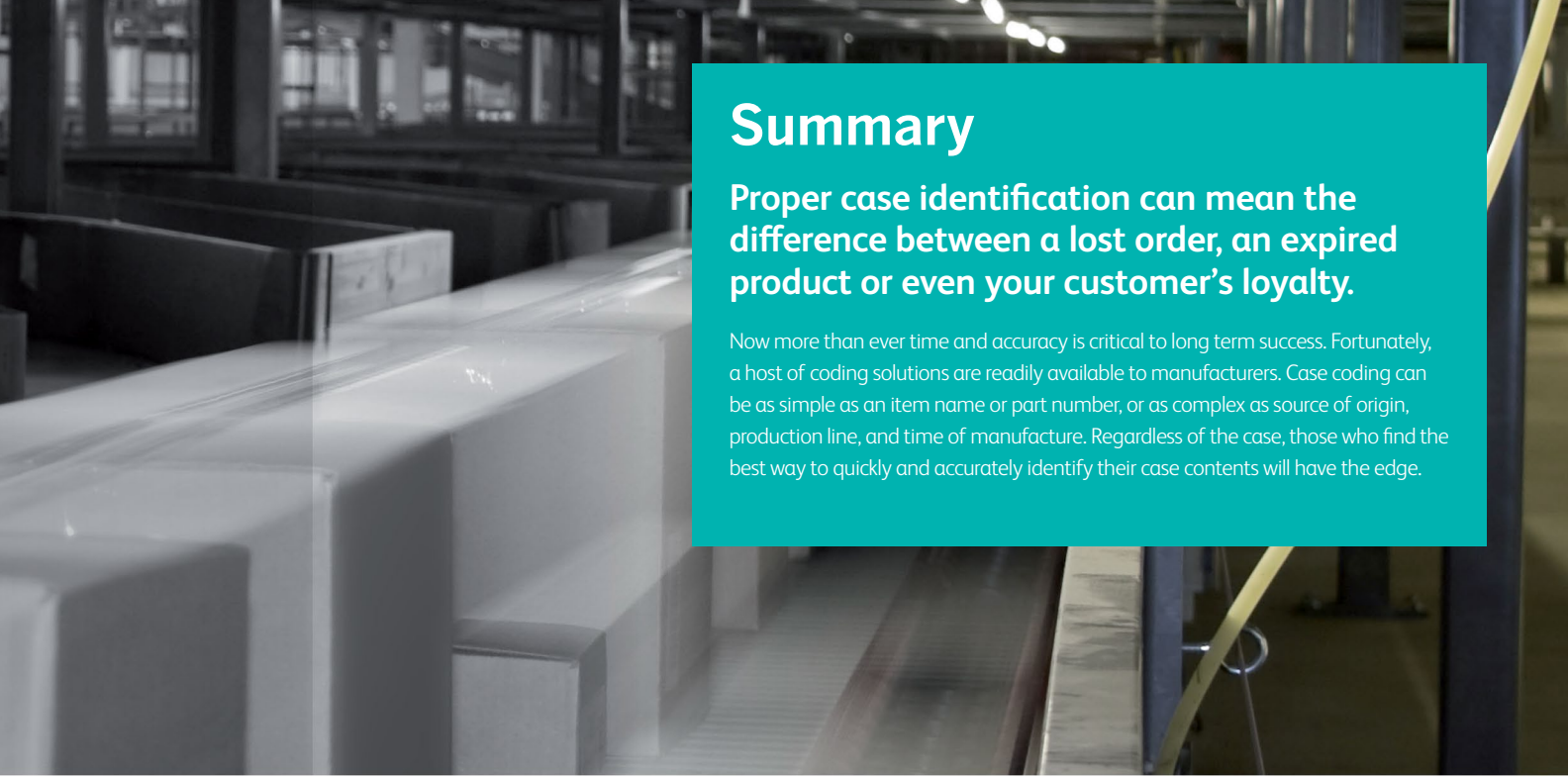
For supply chain integrity, the bar code scannability is the most important criterion. Ink jet as well as Print & Apply labelers can deliver scannable bar codes. In addition, both solutions can print bar codes according to GS1 standards, depending on the application specifics.

Consider ink jet especially if...

- Substrate is porous
- Substrate is white or brown in color
- Bar code required is ITF-14s
  (A 14-digit identifier following GS1 numbering)

Consider Print & Apply especially if...

- Substrate is non-porous
- Substrate is dark in color
- In addition to scannable bar codes, GS1 grades of C or higher are required (e.g. for compliance with regulatory or retailer demands)



Summary

Proper case identification can mean the difference between a lost order, an expired product or even your customer's loyalty.

Now more than ever time and accuracy is critical to long term success. Fortunately, a host of coding solutions are readily available to manufacturers. Case coding can be as simple as an item name or part number, or as complex as source of origin, production line, and time of manufacture. Regardless of the case, those who find the best way to quickly and accurately identify their case contents will have the edge.

3 Total cost of ownership

While cost is an important consideration, it is important that the application and bar code requirements be reviewed first, as these can position ink jet or Print & Apply labelers as the preferred solution. Cost analysis is beneficial in situations where both solutions can be used.

For ink jet, the key aspects to understand are...

- Capital investment
- Ink cost
- Maintenance cost including spare parts

For Print & Apply labelers, the key aspects to understand are...

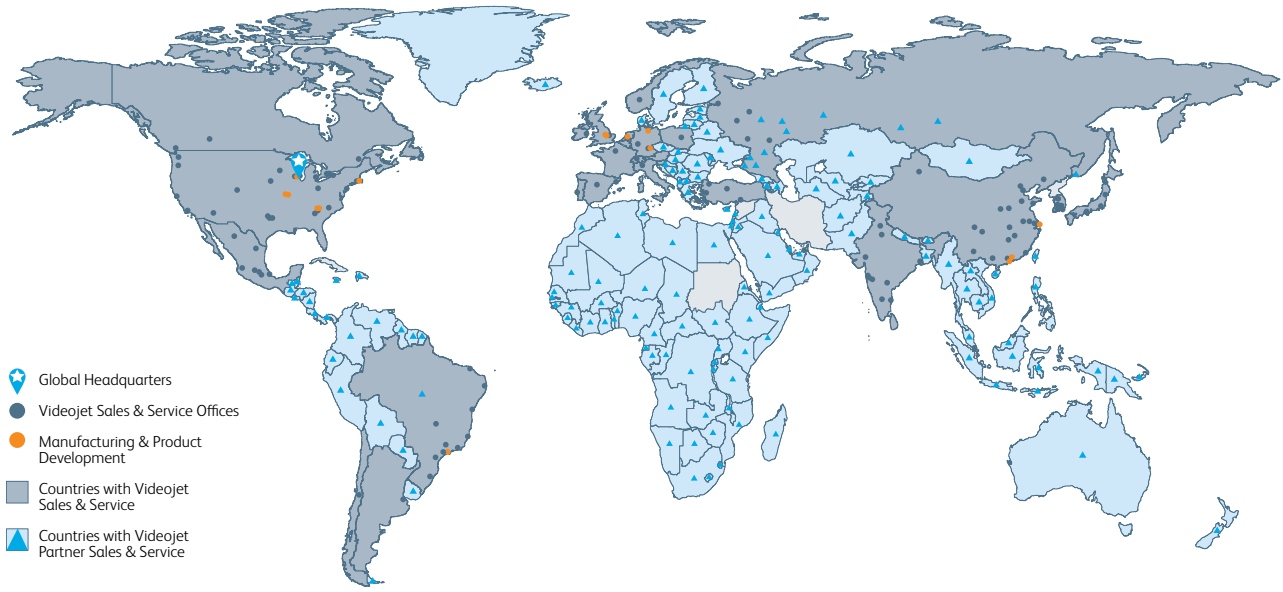
- Capital investment
- Label and ribbon cost
- Downtime and changeover cost
- Maintenance cost including spare parts

Peace of mind comes as standard

Videojet Technologies is a world-leader in the product identification market, providing in-line printing, coding, and marking products, application specific fluids, and product life cycle services.

Our goal is to partner with our customers in the consumer packaged goods, pharmaceutical, and industrial goods industries to improve their productivity, to protect and grow their brands, and to stay ahead of industry trends and regulations. With our customer application experts and technology leadership in continuous ink jet (CIJ), thermal ink jet (TIJ), laser marking, thermal transfer overprinting (TTO), case coding and labeling, and wide array printing, Videojet has more than 345,000 printers installed worldwide.

Our customers rely on Videojet products to print on over ten billion products daily. Customer sales, application, service, and training support is provided by direct operations with over 4,000 team members in 26 countries worldwide. In addition, Videojet's distribution network includes more than 400 distributors and OEMs, serving 135 countries.



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