Future technology

- Harnesses future electronics technology
- Maximises brand presence
- Engages the consumer with interactivity
- Graphics updatable until point of purchase
- Potential to access additional information
- Indicates optimum freshness
- Built in RFID
- Re-usable through multiple return cycles

Electronics in packaging
As electronic technologies continue to advance and solution costs continue to tumble, there is little doubt that the full integration of electronics into packaging is only a short step away. By 2020, packaging that incorporates low cost, intelligent and interactive technologies will offer significant benefits to the consumer, the manufacturer, the distributor and the retailer.

Intelligent packaging
The E-milk carton concept is manufactured with a fully interactive and animated graphic label, to provide the ultimate in 'shelf shout' value and brand differentiation. The use of layered menu structures allows the pack to offer extensive information whilst maintaining a clean, uncluttered graphic design.

A small selection of features that the graphics panel could offer include: displaying animations of usage or promotions, affiliated sponsor messages, information on health initiatives, use by date alert and price updates. The E-Milk pack is designed to be returned, cleaned and re-used over several cycles. The intelligent pack counts each instance of re-use and presents an end of life graphic indicating when it should be recycled.

Global application
The use of active digital displays on packaging allows for easy graphic layout, labelling or language updates for specific markets during production, and for consumer configurable graphics. Therefore, such technology offers the manufacturer the opportunity to produce a universal product for worldwide consumption and digitally post customise the graphic to suit specific market requirements.

The technology
The E-milk carton concept employs refined versions of printed active matrix display and printed paper battery technologies, to provide a high level of electronic functionality in a flexible and cost effective way. Current bistable reflective displays, driven by an inkjet printed backplane, will have increased resolution and be applied to flexible plastic substrates by 2020. Paper batteries consist of cells printed onto a flexible plastic substrate to create a power source. As the cells contain no heavy metals or caustic chemicals, they are easily disposed of at the end of the carton's life cycle.

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