A PIRA INTERNATIONAL SURVEY:

The Future of Anticounterfeiting Technologies in Folding Cartons

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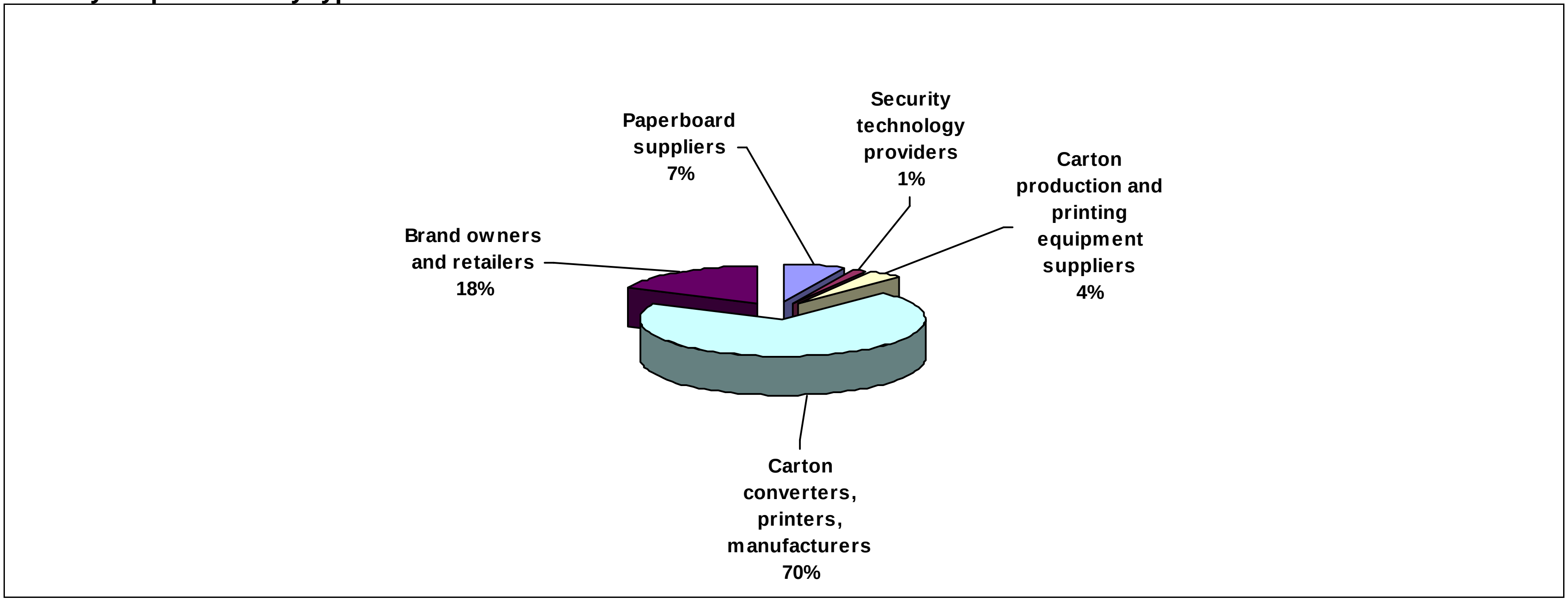
Survey respondents by type



Folding carton converters

TABLE 1: Folding carton supplier respondents' views on the degree of input of key players in the supply chain in decisions on the usage or otherwise of brand protection, security packaging and anti-counterfeiting features for products packaged in cartons

% respondents	No input	Small degree of input	Significant degree of input	Most input	Rating*
Security packaging technology suppliers	17.6	35.3	27.5	19.6	1.49
Cartonboard manufacturers	35.3	39.2	9.8	15.7	1.06
Production & printing equipment suppliers	31.4	39.2	17.6	11.8	1.10
Carton converters/printers	19.6	41.2	23.5	15.7	1.35
Packers	29.4	39.2	19.6	11.8	1.14
Brand owners	3.9	5.9	13.7	76.5	2.63
Wholesalers	39.2	25.5	25.5	9.8	1.06
Retailers	43.1	19.6	23.5	13.7	1.08

Note: *averaged response whereby 1=no input whatsoever, 2=small degree of input; 3=significant degree of input; and 4=most input

TABLE 2: Folding carton supplier respondents' views on the current level of awareness of, interest in and uptake of hi-tech anti-counterfeiting features in products packaged in cartons among key players in the supply chain

% respondents	Not at all aware	Aware, but not interested	Fairly interested, but continuing to rely on traditional security features	Adopting new anti-counterfeiting features, but unprepared to pay a significant premium	Prepared to pay a premium for new anti-counterfeiting features	Rating *
Cartonboard manufacturers	23.5	29.4	23.5	13.7	9.8	1.57
Production & printing equipment suppliers	17.6	23.5	25.5	23.5	9.8	1.84
Carton converters/printers	7.8	17.6	35.3	25.5	13.7	2.20
Packers (if applicable)	10.4	31.3	43.8	8.3	6.3	1.69
Brand owners	2.0	5.9	17.6	29.4	45.1	3.10
Wholesalers	29.4	17.6	19.6	15.7	17.6	1.75
Retailers	33.3	25.5	13.7	17.6	9.8	1.45

Note: *averaged response whereby 1=not at all aware of new anti-counterfeiting features; 2=aware of new technologies but not interested; 3=fairly interested, but continuing to rely on traditional security features; 4=adopting new anti-counterfeiting features, but unprepared to pay a significant premium; 5=prepared to pay a premium for new anti-counterfeiting features

TABLE 3: Folding carton supplier respondents' views on the proportion of their cartons incorporate incorporating now and also in five years' time any kind of anti-counterfeiting, brand protection or security packaging device

Year	% share
2006	16.3
2011	30.9

TABLE 4: Folding carton supplier respondents' intentions regarding expenditure on anti-counterfeiting, brand protection or security packaging devices in 2006 and in the longer term to 2011

% respondents	Grow	Static	Decline	Annual growth (%)
2005-2006	45.7	52.2	2.2	5.3
2006-2011	76.1	21.7	2.2	12.5

TABLE 5: Grades of paper and cartonboard employed by folding carton supplier respondents in their carton packaging

% respondents	Use	Supplied with anti-counterfeiting feature
Multipacks, shelf-ready and display packs	32.6	73.7
Folding boxboard (FBB: GC1 and GC2)	68.8	41.2
Cast coated board	30.6	23.8
Solid bleached sulphate board (SBB)	50.0	39.3
Solid unbleached sulphate board (SUS)	41.7	41.7
White lined chipboard (WLC)	42.6	31.8
Microflute (E, F, N and O flutes)	31.9	43.8

TABLE 6: Traditional security packaging features offered by folding carton supplier respondents, and views on their effectiveness

% respondents	Usage	Rating**		
		Not at all effective	Reasonably effective	Very effective
Tamper-evident devices	26.5	27.8	61.1	11.1
Perforated, etc tamper-evident openings	34.7	13.6	54.5	31.8
Film wrap	34.7	14.3	52.4	33.3
Shrink/stretch sleeves	16.7	41.7	16.7	41.7
Tags	47.9	12.5	62.5	25.0
Tear tapes	27.1	25.0	31.3	43.8
Super-strong adhesives	19.6	23.1	53.8	23.1
Synthetic* cartonboard incorporating special seals	6.8	33.3	66.7	0.0

Notes: *plastic-impregnated; **averaged response from 1 to 3 whereby 1=not at all effective; 2=; and 3=very effective

TABLE 7: Folding carton supplier respondents' current and future intentions regarding the incorporation of hi-tech anti-counterfeiting/brand protection technologies by type

% respondents	Use now	Use in future
Security inks	60.9	70.6
Optically variable inks (OVIs) (overt)	36.4	66.7
Pearlescent varnishes (overt)	29.4	50.0
Fluorescent and phosphorescent inks (overt)	33.3	70.0
Thermochromic inks (overt/covert)	26.5	66.7
Infrared up-converting inks (covert)	24.2	50.0
Tagged inks (incorporating micro-taggants; covert)	12.1	50.0
Machine-readable inks (covert)	15.2	63.6
Conductive inks (covert)	3.0	36.4
Intaglio inks (overt)	21.2	60.0
Photochromic inks (overt/covert)	21.2	63.6
Other speciality and coin-reactive inks	12.1	36.4
Microtext and custom fonts	22.5	47.1
Security papers	17.8	35.0
Mould watermarks (overt)	25.0	50.0
Coating watermarks (overt/covert)	20.0	54.5
Security threads (overt/covert)	16.0	53.3
Chemical sensitising (overt/covert)	8.7	40.0
Embedded security fibres (overt/covert)	13.0	50.0
Security taggants (covert)	14.8	63.6
Security threads	11.1	44.4
Security films	13.0	38.5
Holograms	15.6	41.7
Hot stamping	10.9	25.0
Anti-theft labelling	32.6	40.0
Acoustic magnetic (AM) labels	25.8	25.0
Radio frequency (RF) labels	22.6	35.7

TABLE 8: Folding carton supplier respondents' views on the degree of interest/nature of demand for hi-tech anti-counterfeiting, security packaging and other brand protection features by end-use sector

% respondents	Not at all aware	Aware but not interested	Fairly interested	Adopting new anti-counterfeiting features	Prepared to pay a premium	Rating*
Fresh food	29.5	31.8	18.2	13.6	6.8	2.36
Frozen food	31.8	31.8	18.2	11.4	6.8	2.30
Ready meals	40.9	29.5	15.9	13.6	0.0	2.02
Chilled food	27.3	34.1	22.7	13.6	2.3	2.30
Savoury snacks	43.2	27.3	15.9	11.4	2.3	2.03
Confectionery	43.2	31.8	13.6	11.4	0.0	1.93
Cereals & other baked products	38.6	34.1	6.8	15.9	4.5	2.13
Dried food	40.9	27.3	18.2	9.1	4.5	2.09
Soups & sauces	40.0	31.1	13.3	13.3	2.2	2.06
Milk	59.1	15.9	11.4	9.1	4.5	1.84
Cheese & other dairy products	47.7	25.0	11.4	9.1	6.8	2.02
Baby food	22.7	22.7	29.5	9.1	15.9	2.73
Tea & other beverages	34.1	20.5	22.7	18.2	4.5	2.39
Pet food	52.3	27.3	15.9	4.5	0.0	1.73
Fruit juice	36.4	27.3	15.9	15.9	4.5	2.25
Alcoholic drinks (single items)	8.9	13.3	33.3	15.6	28.9	3.42
Multipacks for alcoholic/non-alcoholic drinks	22.7	15.9	25.0	13.6	22.7	2.97
Fragrances, cosmetics and toiletries	4.4	0.0	13.3	24.4	57.8	4.31
Pharmaceuticals	2.2	2.2	11.1	20.0	64.4	4.42
Tobacco (cigarettes and cigars)	20.0	4.4	31.1	17.8	26.7	3.27
Toys and games	25.0	11.4	27.3	15.9	20.5	2.96

Note: *averaged response whereby 1=not at all aware; 2=aware but not interested; 3=fairly interested, but continuing to rely on traditional security features; 4=adopting new anti-counterfeiting features, but unprepared to pay a significant premium; and 5=prepared to pay a premium for new anti-counterfeiting features

TABLE 9: Folding carton supplier respondents' views on key drivers behind the growth in usage of anti-counterfeiting, security packaging and other brand protection devices in cartons

% respondents	Not at all relevant	Of some relevance	Highly relevant	Main reason	Rating*
Reduction in product counterfeiting	2.1	17.0	17.0	63.8	2.43

Reduction in parallel trading	10.6	19.1	29.8	40.4	2.00
Improved product tracking	6.4	29.8	29.8	34.0	1.91
Positive product authentication	29.8	19.1	29.8	21.3	1.43
Brand enhancement	10.6	46.8	21.3	21.3	1.53
Minimum cost	61.7	12.8	10.6	14.9	0.79
Ease of identification by customer of authentic product	19.1	31.9	23.4	25.5	1.55
Reduced liability	31.9	40.4	17.0	10.6	1.06
Customer demand	37.0	32.6	17.4	13.0	1.07

Note: *averaged response whereby 0=not at all relevant; 1=of some relevance; 2=highly relevant; and 3=main reason

TABLE 10: Reasons given by folding carton supplier respondents for not considering the adoption of hi-tech anti-counterfeit systems in carton packaging

% respondents	Not at all relevant	Of some relevance	Highly relevant	Main reason	Rating*
No perceived counterfeiting problem	47.7	18.2	18.2	15.9	1.02
Cost	20.5	15.9	9.1	54.5	1.98
Availability	31.8	27.3	22.7	18.2	1.27
Compatibility issues with existing packaging	52.3	20.5	15.9	11.4	0.86
Aesthetics	43.2	29.5	20.5	6.8	0.91
Lack of industry standards	47.7	25.0	20.5	6.8	0.86
Ineffectiveness of the current technology offering	36.4	29.5	22.7	11.4	1.09
Anti-counterfeit systems can easily be obtained/replicated by counterfeiters	43.2	22.7	20.5	13.6	1.05
Lack of information	43.2	27.3	18.2	11.4	0.98
No demand from customers	34.9	11.6	16.3	37.2	1.56
Recyclability	50.0	27.3	6.8	15.9	0.89

Note: *averaged response whereby 0=not at all relevant; 1=of some relevance; 2=highly relevant; and 3=main reason

TABLE 11: Folding carton supplier respondents' views on the amount by which the price of one carton can be increased when incorporating effective anti-counterfeiting features

Carton packaging price (Euro cents)	% respondents
Nought to 0.1 cents	30.4
0.1-0.5 cents	13.0

0.5-1 cents	8.7
1-3 cents	30.4
3-5 cents	17.4

TABLE 12: Folding carton supplier respondents' views on which party or parties in the supply chain should be able to detect an anti-counterfeiting system for it to be effective

	% respondents
Cartonboard manufacturer	45.7
Production & printing equipment supplier	50.0
Carton converter/printer	69.6
Packers (if applicable)	66.7
Brand owner	91.3
Wholesaler	78.3
Retailer	71.7
Consumer	19.6

Brand owners & retailers

TABLE 13: Brand owner/retailer respondents' views on the degree of input had by key players in the supply chain with regard to decisions determining the usage or otherwise of brand protection, security packaging and anti-counterfeiting features for products packaged in cartons

	No input	Small degree of input	Significant degree of input	Most input	Rating*
Security packaging technology suppliers	8.3	25.0	50.0	16.7	1.75
Cartonboard manufacturers	25.0	25.0	41.7	8.3	1.33
Production & printing equipment suppliers	25.0	33.3	33.3	8.3	1.25
Carton converters/printers	16.7	41.7	33.3	8.3	1.33
Packers (if applicable)	25.0	41.7	25.0	8.3	1.17
Brand owners	33.3	25.0	16.7	25.0	1.33
Wholesalers	58.3	8.3	8.3	25.0	1.00
Retailers	75.0	0.0	0.0	25.0	0.75

Note: *averaged response whereby 0=no input whatsoever, 1=small degree of input; 2=significant degree of input; and 3=most input

TABLE 14: Traditional security packaging features offered by brand owner/retailer respondents, and views on their effectiveness

% respondents	Usage	Rating**		
		Not at all effective	Reasonably effective	Very effective
Tamper-evident devices	45.5	25.0	62.5	12.5
Perforated, etc tamper-evident openings	18.2	40.0	60.0	0.0
Film wrap	54.5	22.2	55.6	22.2
Shrink/stretch sleeves	18.2	66.7	33.3	0.0
Tags	63.6	0.0	57.1	42.9
Tear tapes	36.4	0.0	80.0	20.0
Super-strong adhesives	27.3	20.0	60.0	20.0
Synthetic* cartonboard incorporating special seals	27.3	33.3	66.7	0.0

Notes: *plastic-impregnated; **averaged response from 1 to 3 whereby 1=not at all effective; 2=; and 3=very effective

TABLE 15: Brand owner/retailer respondents' current and future intentions regarding the incorporation of hi-tech anti-counterfeiting/brand protection technologies by type

% respondents	Use now	Use in future
Security inks	60.0	80.0
Optically variable inks (OVIs) (overt)	12.5	50.0
Pearlescent varnishes (overt)	22.2	50.0
Fluorescent and phosphorescent inks (overt)	11.1	50.0
Thermochromic inks (overt/covert)	12.5	50.0
Infrared up-converting inks (covert)	33.3	50.0
Tagged inks (incorporating micro-taggants; covert)	12.5	33.3
Machine-readable inks (covert)	11.1	50.0
Conductive inks (covert)	11.1	50.0
Intaglio inks (overt)	12.5	50.0
Photochromic inks (overt/covert)	11.1	50.0
Other speciality and coin-reactive inks	22.2	25.0
Microtext and custom fonts	27.3	25.0
Security papers	18.2	25.0
Mould watermarks (overt)	25.0	25.0
Coating watermarks (overt/covert)	12.5	25.0
Security threads (overt/covert)	37.5	50.0
Chemical sensitising (overt/covert)	12.5	25.0
Embedded security fibres (overt/covert)	12.5	50.0
Security taggants (covert)	25.0	50.0
Security threads	45.5	40.0
Security films	18.2	50.0
Holograms	27.3	25.0
Hot stamping	9.1	0.0
Anti-theft labelling	27.3	60.0
Acoustic magnetic (AM) labels	25.0	40.0
Radio frequency (RF) labels	37.5	60.0

- According to brand owner/retailer survey respondents, on average about 38% of all carton packaging employed currently sports some kind of anti-counterfeiting, brand protection or security packaging feature, with this figure set to rise to just over 50% by 2011
- The vast majority (almost 90%) of brand owner/retailer survey respondents expected to increase their expenditure on such features during the next five years

TABLE 16: Grades of paper/cartonboard employed in carton packaging used by brand owner/retailer survey respondents

	Use	Supplied with anti-counterfeiting feature
Multipacks, shelf-ready and display packs	44.4	40.0
Folding boxboard (FBB: GC1 and GC2)	80.0	33.3
Cast coated board	11.1	20.0
Solid bleached sulphate board (SBB)	11.1	20.0
Solid unbleached sulphate board (SUS)	11.1	0.0
White lined chipboard (WLC)	66.7	28.6
Microflute (E, F, N and O flutes)	44.4	33.3

TABLE 17: Brand owner/retailer respondents' views on key drivers behind the growth in usage of anti-counterfeiting, security packaging and other brand protection devices in cartons

	Not at all relevant	Of some relevance	Highly relevant	Main reason	Rating*
Reduction in product counterfeiting	10.0	10.0	20.0	60.0	2.30
Reduction in parallel trading	30.0	20.0	40.0	10.0	1.30
Improved product tracking 1	20.0	70.0	10.0	0.0	0.90
Positive product authentication	20.0	30.0	40.0	10.0	1.40
Brand enhancement	10.0	30.0	40.0	20.0	1.70
Minimum cost	55.6	22.2	11.1	11.1	0.78
Ease of identification by customer of authentic product	10.0	50.0	30.0	10.0	1.40
Reduced liability	20.0	50.0	30.0	0.0	1.10
Customer demand	50.0	20.0	30.0	0.0	0.80

Note: *averaged response whereby 0=not at all relevant; 1=of some relevance; 2=highly relevant; and 3=main reason

TABLE 18: Reasons given by folding carton supplier respondents for not considering the adoption of hi-tech anti-counterfeit systems in carton packaging

	Not at all relevant	Of some relevance	Highly relevant	Main reason	Rating*
No perceived counterfeiting problem	22.2	22.2	33.3	22.2	1.56
Cost	20.0	20.0	20.0	40.0	1.80
Availability	33.3	22.2	33.3	11.1	1.22
Compatibility issues with existing packaging	44.4	33.3	22.2	0.0	0.78
Aesthetics	70.0	30.0	0.0	0.0	0.30
Lack of industry standards	55.6	33.3	0.0	11.1	0.67
Ineffectiveness of the current technology offering	33.3	44.4	11.1	11.1	1.00
Anti-counterfeit systems can easily be obtained/replicated by counterfeiters	33.3	44.4	11.1	11.1	1.00
Lack of information	33.3	66.7	0.0	0.0	0.67
No demand from customers	66.7	11.1	11.1	11.1	0.67
Recyclability	71.4	28.6	0.0	0.0	0.29

Note: *averaged response whereby 0=not at all relevant; 1=of some relevance; 2=highly relevant; and 3=main reason