Cost-per-Print Methodology: HP Business Inkjet 1200 *vs.* Samsung ML-1740 monolaser

Cost-per-Print of four test documents

- ***Determine Ink/Toner Cartridge Yields – the average number of prints-per-cartridge for each cartridge***
  - Test files printed continuously, HP-supplied and *SpencerLab* Printer Test Suite
    - Black Text, *Dignissimas2*
    - Mixed Text & Graphics, *Erolm Msupi*
    - News Letter, *SpencerLab LC Newsletter*
    - PowerPoint Slide, *SpencerLab Boise 5a*
  - Cartridges judged to be at "end-of-life" at the earlier of an 'Ink/Toner Out' signal on the control panel or when test prints show visible defects attributable to ink supply
    - HP BIJ 1200: 'Ink Out' signal provided on printer control panel
    - Samsung ML-1740: 'Toner Out' signal *not* available on printer; in accordance with the ISO 19752,"end-of-life" occurs at the first visible defect following two iterations of toner redistribution per Samsung user manual
  - Testing is repeated over multiple cartridges to assure consistency
- ***Calculate ink/toner component cost-per-print***
  - Divide each cartridge cost by the corresponding cartridge yield (average prints-per-cartridge)
- ***Calculate other user-replaceable component pro-rata costs***
  - *HP BIJ 1200 contains user-replaceable printheads; therefore, include printhead cost in total Cost-per-Print*
  - *Although Samsung ML-1740 manual lists fuser unit, paper feeding roller, transfer roller, and pick-up roller as replaceable parts with average yields of 60,000 pages, Samsung "strongly recommends that items be installed by trained service personnel" and replaceable components are not readily available for typical user purchase; therefore, do not include in total Cost-per-Print*
- ***Sum these component costs to obtain total Cost-per-Print for the test document***

Methodology… (con't)

HP Business Inkjet 1200 *vs.* Samsung ML-1740 monolaser

° *Print Modes: default*

- Print in Grayscale/All Text in Black options for the Black Text document

° *Test Document Coverage Estimates*

- *Ink Coverage*: *the sum of the parts of the total page* covered by *each primary* – Cyan, Magenta, Yellow, Black
  - *Ink coverage varies considerably with each individual printer and mode – SWOP coverage is indicated for reference*
- *Page Coverage*: *the part of the total page* covered by *any color* (color can include multiple primaries)

SWOP Coverages	Page	cyan	magenta	yellow	black	Ink/Toner
Black Text	4.1%				4.1%	4.1%
Mixed Text & Graphics	9.6%	3.3%	2.4%	0.3%	8.3%	14.3%
News Letter	12.3%	4.5%	4.1%	2.9%	9.8%	21.3%
PowerPoint Slide	14.1%	10.1%	10.5%	7.7%	3.9%	32.2%

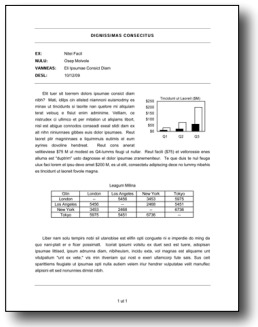
° *Cartridge and Printhead Prices*

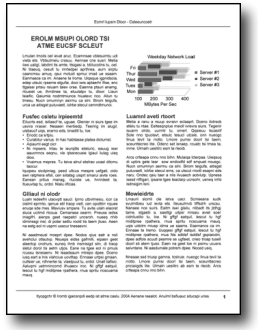
Component Costs		cyan	magenta	yellow	black
HP BIJ 1200	*Ink*	$31.49	$31.18	$31.28	$31.40
	Printhead	$32.45	$32.48	$32.54	$32.38
Samsung ML-1740					$80.58

US$ E-Commerce prices as of 8/16/04 per independent third party: Current Analysis

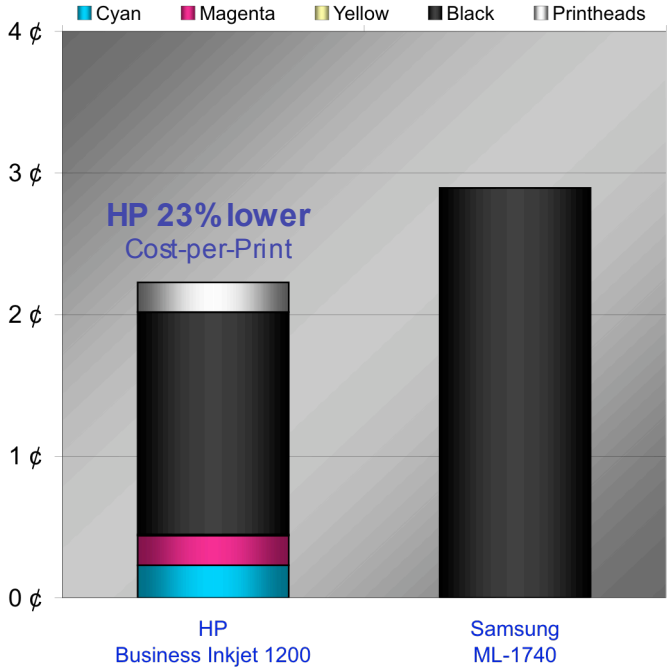
•Independent testing by *SpencerLab* Digital Color Laboratory was sponsored by Hewlett-Packard Company

Cost-per-Print: *U.S. cents* – HP Business Inkjet 1200 *vs.* Samsung ML-1740 monolaser

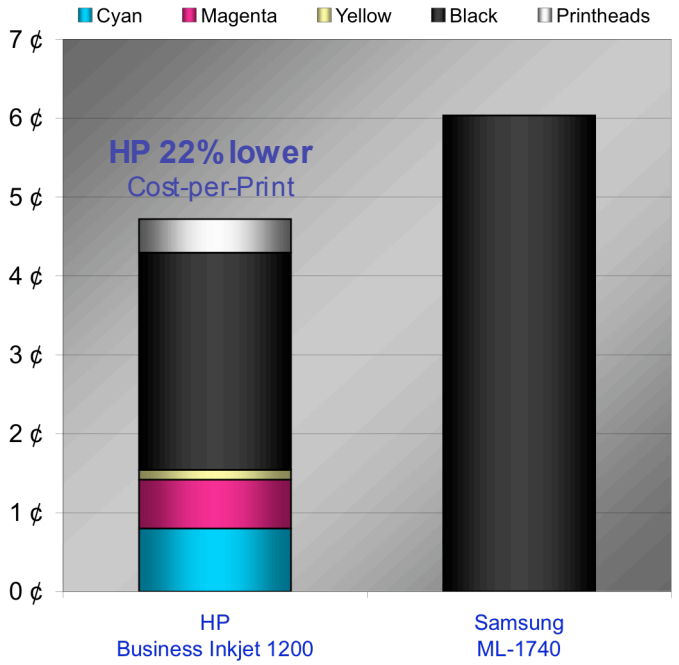




BLACK TEXT



MIXED TEXT & GRAPHICS



E-Commerce Pricing per Current Analysis 08/16/04. Cost-per-Print includes HP printhead costs. All testing performed using *default* driver settings.

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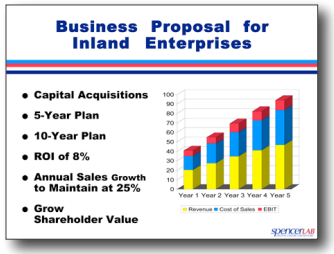
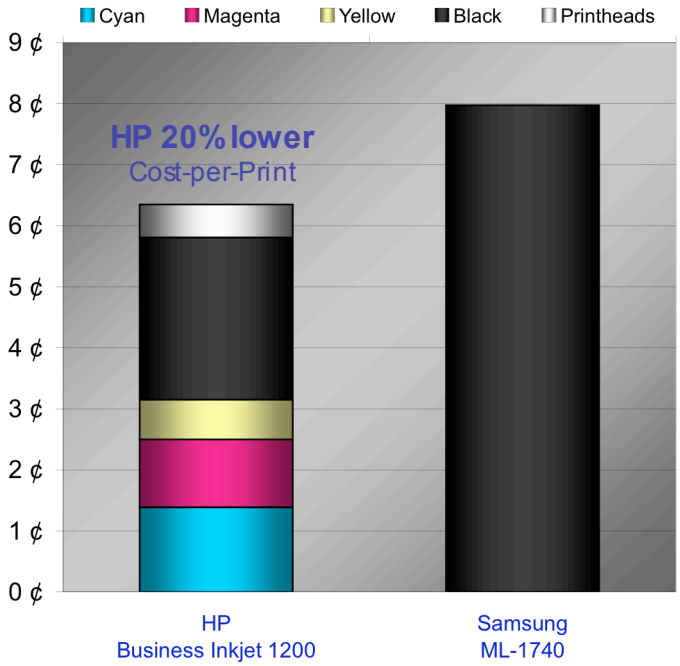
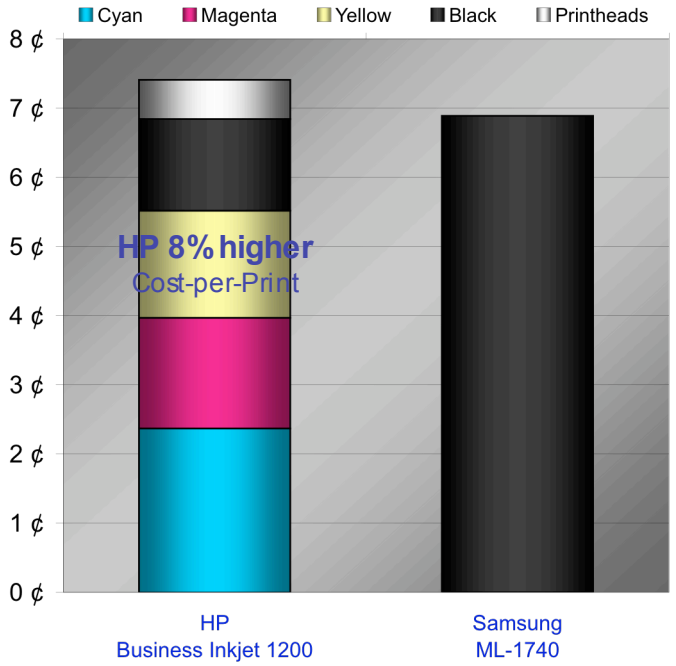


NEWS LETTER



POWERPOINT SLIDE



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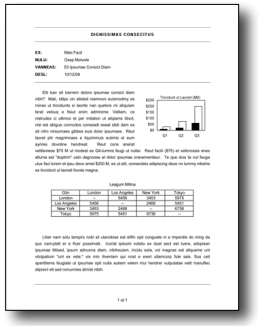

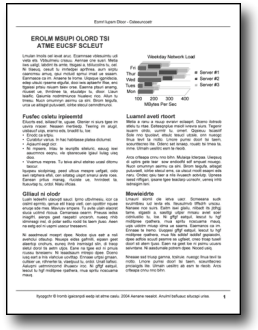

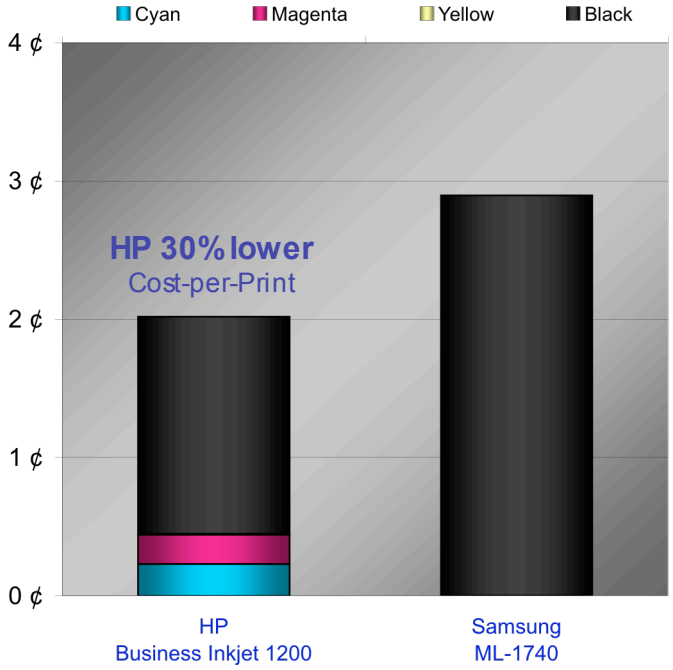

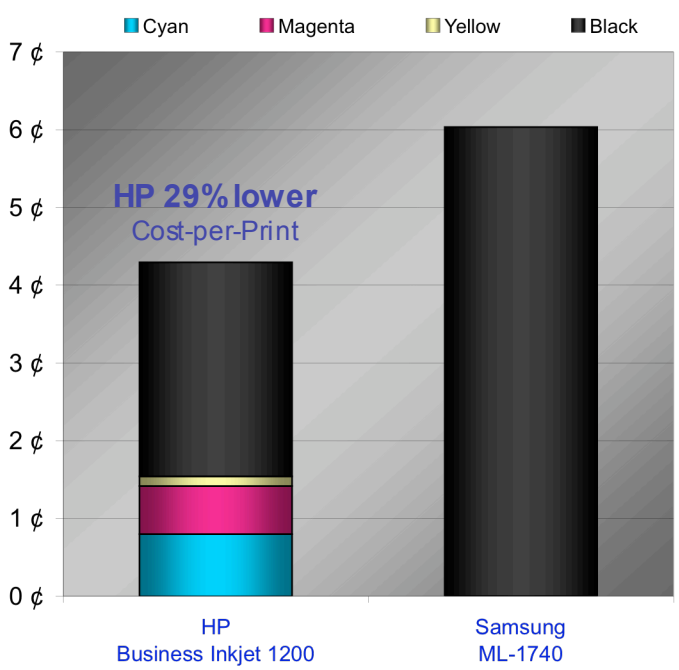

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Color Directions

Color from concept to market and beyond...

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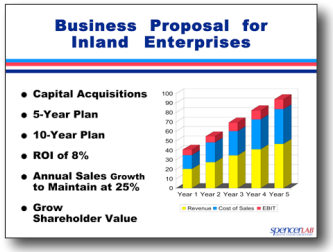

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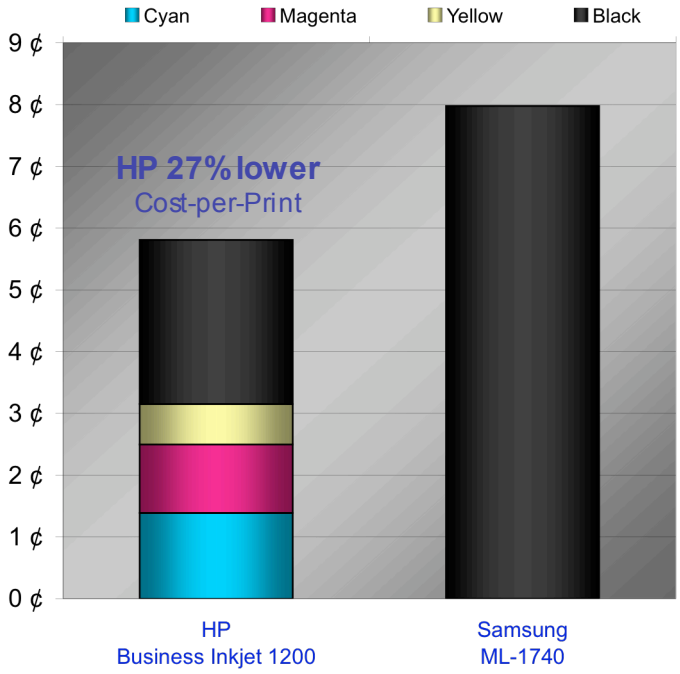

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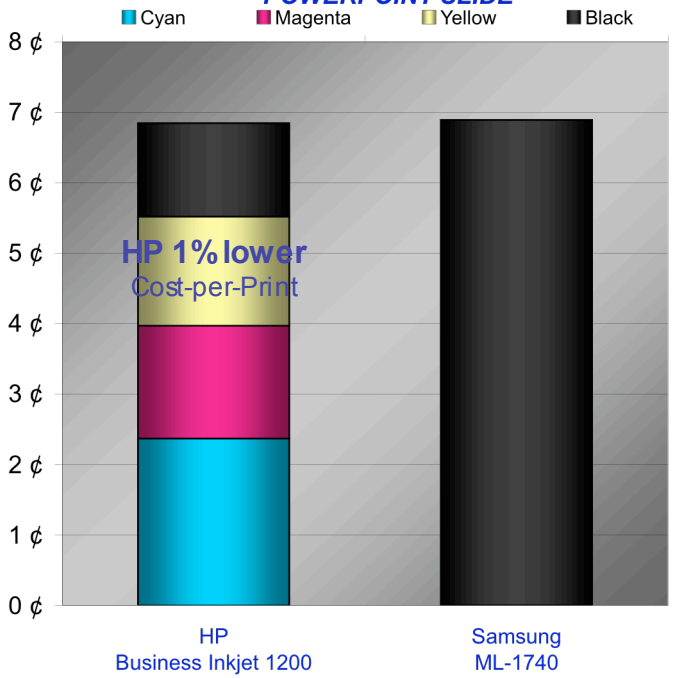

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