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Hewlett-Packard enhances functionality on new Officejet AiO range – including Tabloid – while retaining proven cost-effectiveness of HP920 engine

Hewlett-Packard's new Officejet product range for 2010 not only includes wide-ranging functionality enhancements, making the most of its network interface for internet connectivity, but is also the company's first venture into the tabloid inkjet All-in-One arena. All of this is built on the engine using the HP920 cartridge series with its class-winning Total Cost of Printing. The only print engine to provide lower Total Cost of Printing for small businesses is the Hewlett-Packard's own HP940-based Officejet Pro range (which provides color printing at up to 65% less cost than comparable laser-based products – see TCPglobal Issue #0907).



Three models are involved in this year's September Officejet launch by Hewlett-Packard:

- Officejet 6500A eAiO
replacement for the current Officejet 6500
- Officejet 6500A Plus eAiO
replacing the Officejet 6500 Wireless
- Officejet 7500A eAiO
a brand new category for Hewlett-Packard attacking the tabloid business inkjet class, currently occupied only by Brother

For competitive comparison purposes, these devices have been categorized as:

- Mid-Range Business Inkjet (Officejet 6500A)
- High-End Business Inkjet (Officejet 6500A Plus)
- Tabloid Business Inkjet (Officejet 7500A)

Professional Business Inkjet, as a class, is reserved for the Officejet Pro range.

There are, of course, a number of features that are common to the new range and these will be reviewed first. Each model will then be considered for competitive advantage within its category, together with an analysis of Total Cost of Printing and overall value proposition.

As always, specifications have been made available by each of the manufacturers concerned and a Median Street Price for each hardware and supplies unit has been obtained by means of primary research. Further notes regarding Total Cost of Printing computations will accompany subsequent tables and charts.

Note that comments here are comparisons with competitive color inkjet devices and no comparison to color laser technology is made. However, information detailing the benefits of inkjet technology over laser technology for small businesses can be found in TCPglobal articles #0907, #0921/1 and #0803/1.

Hardware/Software Functionality

As indicated, the new letter size models are based on the existing Officejet 6500 series AiOs, utilising the HP920 series ink cartridges and permanent (but user-replaceable in the event of need) print head and enabling use of both standard and XL Officejet ink cartridges. The new tabloid model also utilizes the same cartridges and print head and is based on the existing single-function Officejet 7000 Wide Format printer.

In brief, enhancements (compared to existing Officejet 6500 products) include:

- ISO print speed up to 10/7ppm (mono/color) from 7/7ppm
- 4800ppi optical scan resolution – up from 2400ppi
- 802.11n wireless networking (6500A Plus model)
- * ID Copy
- ICC profile for Macintosh users
- 2.36” TouchSmart color LCD touchscreen display
- Web Apps
- ePrint

Print Speed

In addition, models claim a faster set-up time. By all accounts (based on experience of the latest iterations of the Officejet 4500) this is likely to be in the order of 15 minutes, which is a tremendous improvement on previous models and will certainly enhance the user experience.

An increase in print speed places the new Officejet 6500 models towards the top end of the speed spectrum for inkjet devices and ahead of most of the competition (where ISO speeds are quoted) in the classes represented by these models. This is the result of Hewlett-Packard’s advance print head design that enables the creation of large print heads with a high native resolution (resulting in single-pass printing for many document types). These inkjet print speeds are comprehensively beaten only by Hewlett-Packard’s own Officejet Pro range.

Scan resolution

Similarly, an increase in scan head resolution to 4,800ppi enables faster scanning at high resolutions for detailed acquisition of fine graphics.

Wireless-n networking

Where wireless communications are concerned, the 'n'-class wireless interface (6500A Plus and 7500A) is a significant advancement, enabling typical communication speeds of around 110-125Mbps (and up to a theoretical maximum of 300Mbps). This pushes wireless speeds above the 100Mbps level generally found in small business wired networks.

While those businesses that have invested in Gigabit networks will still experience slower data transfer from wireless-n capable devices than they will from their wired networks, the availability of the wireless-n standard in a printer improves general print performance considerably - especially for those using the devices in a home office environment.

ICC Profiles

Macintosh users have tended to feel that they have been treated as second class printer users with printers not providing adequate support for that operating system. With the provision of ICC Profiles for Macintosh, Hewlett-Packard is providing as much

support as possible for graphics intensive environments where the Macintosh is the computer of choice. The profiles will enable precise colors to be achieved from the inkjet printer where color accuracy is critical (e.g. corporate color schemes) and accurate proof prints where material such as marketing collateral is being placed with a commercial print shop for high volume printing.

ID Copy

ID copy functionality enables a double-sided ID card (or similar) to be scanned for single-sided copying without the need for re-feeding the paper and undertaking a second copy operation. The ID card is simply turned over and the scan process restarted, upon which the device compiles the two sides of the card onto one side of paper. This is ideal for all sorts of environments, such as vehicle hire, where copies of drivers licences need to be taken for ID purposes, or property purchases and creation of bank accounts where formal proof of identity is required.





Discover
&
Learn



Touchscreen LCD Display

It is the inclusion of the 2.36” touchscreen, together with direct internet connectivity, that enable some of the most interesting enhancements for this new range of AiOs, however.

Discover & Learn

Firstly, at a purely ease-of-use level, to help users get the most out of their four-function AiO, Hewlett-Packard is introducing an all-new learning and discovery mode. The touchscreen makes it easy for users to take a product tour, obtain eco tips, Work Smart tips and discover the benefits of the digital office.

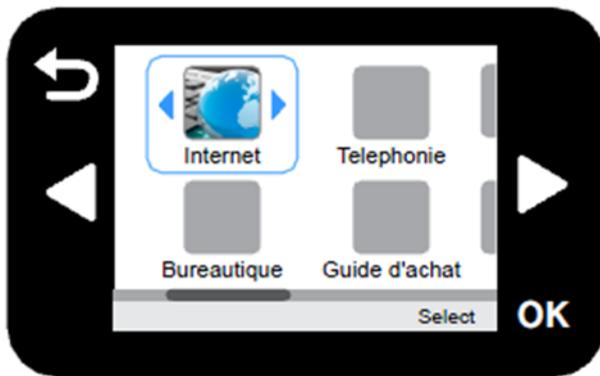
A constantly growing list of partnerships will enable business and consumer AiO owners to obtain rapid print output of business, news, weather, directions and entertainment items without committing their PC to a boot/shutdown sequence, together with the time that takes.

Web Apps

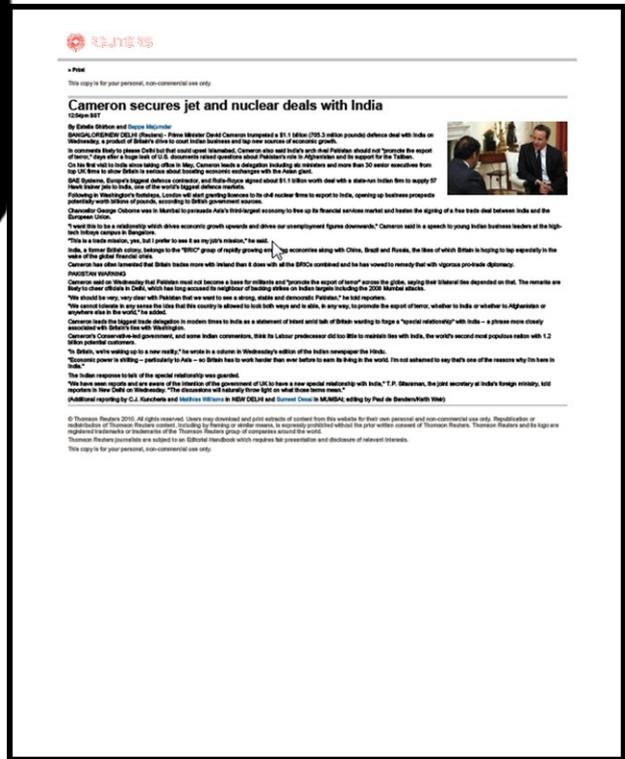
Secondly, as with selected members of the existing Photosmart range (September 2009 launch), the 6500A and 7500A eAiOs will be able to communicate with the internet for direct printing of internet content without the need for live PC connectivity. As on a smartphone, apps are very quick to select, with just a couple of clicks, using the touchscreen.

Apps range from those with global relevance to those with relevance to specific regions or countries, e.g.:

- Dreamworks - entertainment
- Nickelodeon - entertainment
- Weathernews - weather
- Reuters - news
- Google Calendar - schedules
- Snapfish - photos
- WebSudoku - entertainment
- Tabblod - news



However, internet connectivity now goes much further than this. First of all, Hewlett-Packard has taken existing scan-to-web functionality and extended it into a full-blown cloud storage and archiving capability. Users can scan documents to the internet, where they can be stored for immediate use from any location, and can be retrieved and printed not just from an internet PC but also directly from a Hewlett-Packard internet-enabled eAiO.



And secondly, *Scheduled Delivery*, using the *ePrintCentre*. Here, users will be able to set criteria for a specific web information mash-up that they want to have delivered to them on a regular basis. So, for instance, a businessman might want to have a piece of paper delivered into the printer's paper output tray at 06:30 every morning providing the latest exchange rates, stock quotes, weather forecast and top news stories.



Just when you think printer technology is on the verge of stagnating again, a new surprise awaits!

Cloud printing



ePrint

Also featured on the new 6500A and 7500A eAiOs is Hewlett-Packard's ePrint function, primarily designed to enable documents, PDF files and photos to

Because this email account is accessible directly through the device's network/internet connection,

Just when you think printer technology is on the verge of stagnating again, a new surprise awaits!

be printed directly from smartphones to either the user's own eAiO or to any ePrint enabled device. This is achieved either by using simple email as the carrier or by downloading the ePrint app to the mobile device and searching for the closest enabled printer.

EPrint enabled AiO devices will offer to establish an opt-in email address (assigned by the device) at device setup. Users can then email their eAiO at the allocated email address (hosted by Hewlett-Packard's IT infrastructure) and the email, and any attachment, will be printed.

access to this feature is not restricted merely to mobile phones. The device can be emailed from any internet connected email device, thus allowing users to print to their own eAiO or to print important documents either through a bureau service while on a business trip or even on a customer's device. There are no limits to where a print job could be sent from.

For instance:

- Photos could be emailed to non PC owning relatives, even from the other side of the world. ... or ... print photos on your home

- eAiO while on holiday or a business trip
- Purchase orders could be printed directly on the suppliers ePrint enabled eAiO
- Written confirmation of a future hotel booking could be printed straight to the hotel's device
- Quotations could be printed easily and quickly to the customer's eAiO while on-site



MarketSplash

Always with an eye on enabling business users get the most out of their printers, and produce professional output, Hewlett-Packard has taken the production of marketing collateral one step further with the introduction of MarketSplash.

MarketSplash is an online service available to owners of Hewlett-Packard internet-enabled eAiOs that offers access to professional marketing designs, templates and logos, etc., from leading designers. These can be customized online with the user's own content for production of the highest quality materials.

All via a simple email. All it requires is the owner's permission to print to the eAiO in question.

And ... this opens up the market further for Hewlett-Packard - an ePrint AiO owner does not have to own a computer to make good use of all this functionality!



But ... users can rest easy. Spam filtering and an approved senders list (white-listing and black-listing) will protect them from unwanted or unauthorized communications and wasted paper and ink.

A much more important development than it might at first seem, MarketSplash will help serious small businesses combat the substandard DIY marketing materials syndrome symptomatic of the universal availability of computing power and page layout applications that mean anyone can throw together

a page of information with little or no thought to design principles and effective use of design, layout and color.

Finished results are printed directly from the MarketSplash web site (www.marketsplash.com) using the Hewlett-Packard internet-enabled eAiO , meaning that, once created, they can be printed easily and quickly at any time, again without the need for PC to be started and connected.

Supplies

In terms of supplies for these models, as with existing HP920-based models, black ink is pigment, for maximum text print quality and durability, while color inks are dye-based for highest quality photo reproduction.

High capacity (XL) cartridges are available for all devices, in line with Hewlett-Packard's policy of offering maximum flexibility of choice - between low out-of-pocket

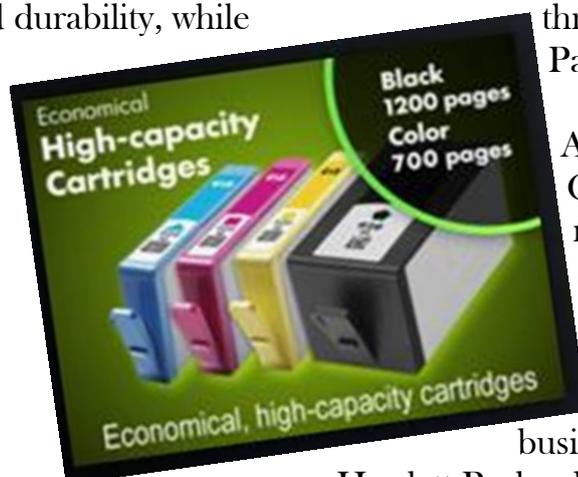
expenditure and low long-term Total Cost of Printing. While ink yield is rated at 420 pages and 300 pages from the individual black and color standard cartridges, XL cartridges yield an impressive 1,200 and 700 pages respectively. Even in the tabloid inkjet AiO category, there is no other printer that offers a higher black ink yield per cartridge than the HP920XL black.

Competitive comparisons

So, to move on to direct comparisons with the competition, the line-up has been selected to compete on price and specification and ordered into three categories, one for each of the three new Hewlett-Packard AiOs.

As, by definition, the Officejet range does not in any respect apply to the low-end consumer category, many of which are also used in small businesses, the new

Hewlett-Packard Officejet 6500A is described as mid-range rather than low-end.



Therefore, we start with letter size - the 6500A, classed as a mid-range business inkjet AiO, moving on to the Officejet 6500A Plus, classed as a high-end business inkjet AiO and finally the tabloid business inkjet AiO class for the Officejet 7500A. The term 'professional' is reserved for the Officejet Pro range, for which there is still no direct competition.

Mid-range Letter size Business Inkjet

All of the other major inkjet manufacturers (Brother, Canon, Epson and Lexmark) are active in both the mid-range and high-end segments but none offer the breadth and depth of functionality found in the new Officejet 6500A.

There are really only two hardware features missing from the 6500A - auto-duplex printing and wireless connectivity - but, as no other AiO in the group offers auto-duplex as a feature (Canon MX310 offers manual duplexing), this is entirely in keeping with the class of device.

A slightly different prospect though, Brother's MFC-490CW, Canon's MX310 and Lexmark's S405 all offer wireless networking as standard, while all devices in the group apart from the Lexmark offer wired network connectivity.

From Hewlett-Packard's perspective, reserving wireless connectivity and auto-duplex printing for the high-end 6500A Plus, ensures a suitable degree of differentiation in the range and choice for the prospective buyer. Clear differentiation is always a good



Officejet 6500A

move to assist the customer in making the best purchase decision and Hewlett-Packard has definitely hit the right note in the Officejet range.

Paper input capacity is frequently an issue with inkjet devices, often limited to just 100 or 150 sheets - while adequate for a home environment, this is not a suitable capacity for a business device.

<p>Brother MFC-495CW</p>	<p>Print speed Network Interfaces Paper input ADF Display Scan to Supplies</p>	<p>33ppm black / 27ppm color / 10x15 photo 30 secs Wired and Wireless USB 2.0 / PictBridge / Memory Card Slots Up to 100 sheets / 20-sheet dedicated photo paper tray 15-sheet 3.3" wide-screen color LCD PDF / File / Email / Application / OCR / USB / Memory Card LC-1100 series (K = 450 pages, C / M / Y = 325 pages)</p>
<p>Brother MFC-5490CN</p>	<p>Print speed Copy speed Network Interfaces Paper input ADF Display Scan to Supplies Other</p>	<p>35ppm black / 28ppm color 23ppm black / 20ppm color Wired USB 2.0 / PictBridge / Memory Card Slots 150 sheets 50 sheets 2-line LCD PDF / Image / File / Email / OCR / USB / Memory Card LC-1100 series (K = 450 pages, C / M / Y = 325 pages) Ships with Scansoft PaperPort 11SE</p>
<p>Canon PIXMA MX350</p>	<p>Print speed Copy speed Network Interfaces Paper input ADF Display Scan to Supplies Other</p>	<p>ISO 8.4ppm black / 4.8ppm color / 10x15 photo 43secs ISO 3.4ipm Wired & Wireless USB 2.0 / PictBridge / Memory Card Slots 100-sheet rear feed 30-sheet 2.44" color TFT PDF / USB / Email PG-510BK, 220 pages / CL-511, CMY = 244 pages PG-512BK, 401 pages / CL-513, CMY = 349 pages Manual duplex printing / Easy-WebPrint EX / N-up Copying / External TAD interface / Manual fax switch</p>
<p>Epson WorkForce 310</p>	<p>Print speed Network Interfaces Paper input ADF Display Scan to Supplies Other</p>	<p>38ppm black / 20ppm color (16/5.5ppm ISO) Wired USB 2.0 120 sheets 30 sheets 2-line LCD Details not quoted T0711H (K = 830 pages with 2 cartridges) T0711 (K = 465 pages with 2 cartridges) T0712-4 (C / M / Y = 350 pages) T1002-4 (C / M / Y = 840 pages) Ships with Presto PageManager</p>
<p>Hewlett-Packard Officejet 6500A</p>	<p>Print speed Network Interfaces Paper input ADF Display Scan to Supplies Other</p>	<p>32ppm black / 31ppm color (10/7ppm ISO) Wired USB 2.0 / Memory card Slots 250 sheets 35 sheets 2.36" Touchscreen color LCD Internet / PC / Network folder / Email HP920 series - K = 420, C / M / Y = 300 HP920XL series - K = 1200, C / M / Y = 700 ePrint / Web Apps / MarketSplash / ID Copy / Smart Web Printing</p>
<p>Lexmark Interpret S405</p>	<p>Print speed Copy speed Network Interfaces Paper input ADF Display Scan to Supplies</p>	<p>33ppm black / 30ppm color / 10x15 photo 24 secs 25ppm black / 21ppm color Wireless USB 2.0 / PictBridge / Memory card slots 100 sheets 35 sheets 2.4" Color LCD Details not quoted #100 series (K = 170 pages, C / M / Y = 200 pages) #100XL series (K = 510 pages, C / M / Y = 600 pages)</p>

Hewlett-Packard's Officejet 6500A stands out head and shoulders in this respect with an input capacity of 250 sheets - greatly appreciated, especially in conjunction with the device's ability to accept XL cartridges with black yield rated at 1,200 pages! None of the other machines in this class offer input capacity higher than 150 pages and then only Brother's MFC-5490CN matches this capacity - but, this device is limited to use of standard capacity ink cartridges with rated yields of only 450 pages for black and 325 pages for each of the colors.

Although quoted draft black print speed for the 6500A is not the highest in the group, quoted draft color print speed is the fastest. It is Epson's draft



Brother MFC-5490CN

black speed, quoted at 38ppm, compared to the Officejet's 32ppm, that takes first place

here. This speed is achieved by the use of twin print heads and two black ink cartridges.

However, experience with Hewlett-Packard print heads (with native 1,200dpi nozzle density) tells me that draft print quality will almost certainly exceed that available in draft mode from the other manufacturers.



Epson WorkForce 310

This means that draft mode, or at least 'fast normal', may be used on the Officejet 6500A as the default setting for many print jobs, thus ensuring the fastest possible delivery of high quality documents not destined for delivery to customers.

Not all manufacturers yet quote print speed to the ISO standard. Of those that do, Hewlett-Packard's Officejet 6500A (at 10ppm) again falls a little short of the speed offered by Epson's WorkForce310 (16ppm). However, Epson cannot match the speed offered by the 6500A for color printing - 5.5ppm against 7ppm.

Epson is, however, the manufacturer most closely challenging Hewlett-Packard in this sector, with ink yields

as high as 830 pages from the two black cartridges (sold in twin-packs) and 840 pages from each of the color cartridges.

On top of the hardware implications of buying the Officejet 6500A come the internet connectivity and software functionality described above. And, it doesn't end there. Hewlett-Packard may be asking buyers to pay a little more for the device than its competitors are asking is are certainly not asking its customers to spend more than its competitors in the long-term!

With an average purchase price of \$146.50, the Officejet 6500A is the most expensive device in the group to buy, but only by \$1, while Lexmark's Interpret S405 is the least expensive

by a considerable margin - coming in at 7% less than Epson's WorkForce 310 but 19% less than the Officejet 6500A.

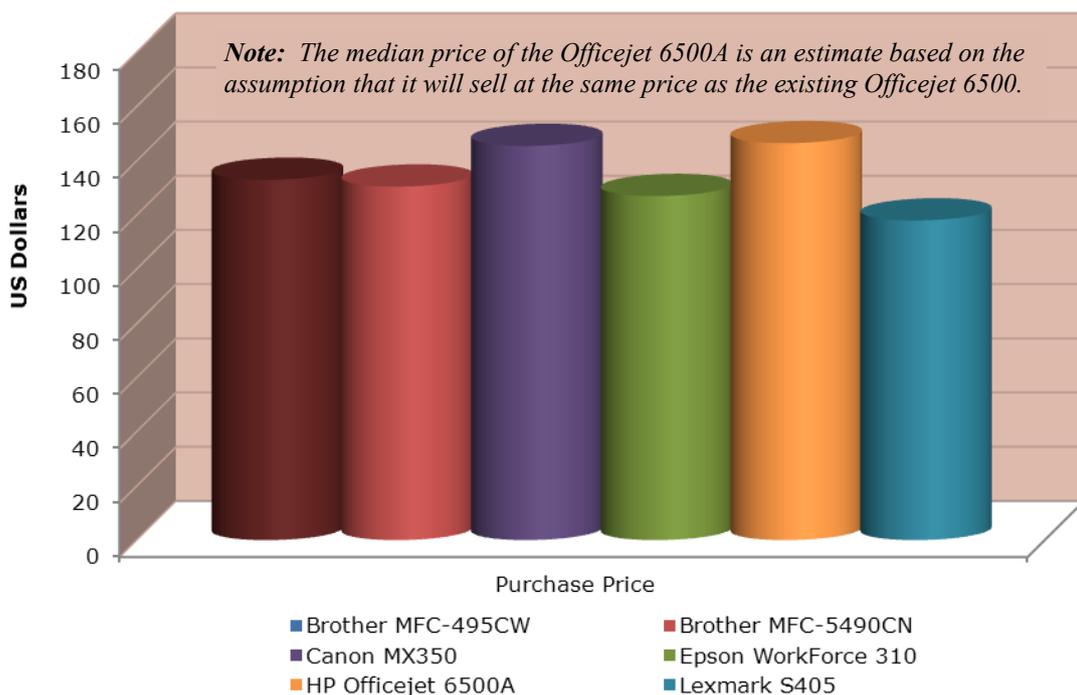
Brother's two models fall in the middle ground but it is Canon's MX350 that takes the other position at the top end of the price scale with a price that is only \$1 lower than the Officejet 6500A.

What does this mean in terms of running costs and overall Total Cost of Printing though? Purchase price is only the beginning of the story and is never the whole story in itself.

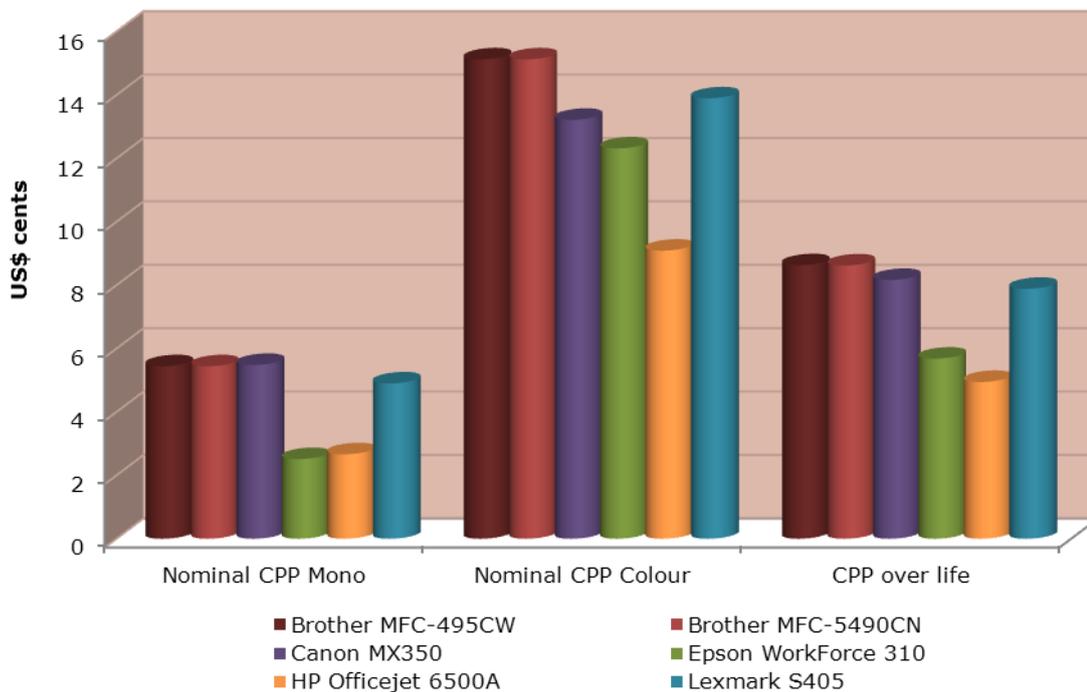
Let's find out why?

In the chart on the following page we see the basic nominal Cost Per Page

Median Purchase Price Mid-Range Letter Business Inkjet AiO



Total Cost of Printing Mid-Range Letter Business Inkjet AiO



Note that for this level of machine, the mixed mono/color CPP over three years shown in the accompanying table and charts is calculated on the basis of 1,000 pages per month; 70% pages in mono and 30% pages in color; is based on the use of maximum capacity supplies; takes into account any standard, or starter, supplies shipped with the device; and also includes the cost of purchase. All prices are average street price and, supplied by GAP Intelligence.

of cartridges for each machine – one group of columns for black cartridges and one group for office color printing using all cartridges together (CMYK).

These are simple calculations based on price of a cartridge divided by the number of pages the manufacturer says the cartridge should produce. The final group of columns is a much more complex calculation based on the number of pages printed per month over a three-year lifetime and reflects the amount of money a user will actually part with in order to print that number of pages – even if some ink is left in some cartridges at the end of the printer’s life.

Typically, high yield cartridges are more cost-effective than low-yield cartridges (more ink but only one

cartridge to be manufactured and transported!). However, it is a marketing decision as to where the cartridges will sit in terms of positioning against the competition and therefore what prices will be assigned. Ultimately, cartridge price is assigned by the manufacturers to give them the payback they need in order to be profitable, based on an expected level of hardware sales and pages printed. Users are always paying for the page and not for the ink!

So, it is here that we see how hard Epson is competing against Hewlett-Packard, not only presenting a low-priced hardware unit but pricing the black ink cartridge at a level that puts the nominal mono CPP slightly lower than Hewlett-Packard’s but balanced by a rather high color CPP.

Canon PIXMA MX350



Lexmark Interpret S405

That said, color pages from Epson are far from competitive against the Officejet nominal color CPP. In fact, although it is lower than the CPP from any of the other manufacturers (by nearly 7% over Canon), it is a massive 35% higher than the Officejet.

It is Brother's AiOs, however, that warrant a brief mention here. There appears to be no attempt at competitive (let alone aggressive) pricing from Brother in the US. Nominal CPPs in both black and color are higher even than Lexmark's (by 11% and 9% respectively). This leaves the nominal black CPP from Brother slightly higher than double the cost of the Officejet black and 66% higher than the Officejet color.

Referring to the CPP over life portion of the chart, much of this balances out to the point where there is little to choose between the cost of running the Brother, Canon or Lexmark machines. It is only the Epson WorkForce 310 and Hewlett-Packard Officejet 6500A that stand out for cost-efficiency.

And, even then, Hewlett-Packard's Officejet 6500A, despite having the highest hardware purchase price in the group, succeeds in pushing Epson's WorkForce 310 into second place by as much as 13% - a difference of \$265 over three years or 81% more than the initial cost of the Officejet hardware!

As the chart on the previous page gives a snapshot picture based on a throughput of 1,000 pages per month, it is helpful to consider whether the situation changes with different monthly volumes.

With many groups of printers it is possible to see dramatic changes in competitive positioning according to monthly page volume. However, in this instance, because of the consistency of hardware pricing with supplies price, the chart on the next page shows that there is no change at all in overall picture, even taking a wide range of page volumes from 500 to 2,500 per month. Brother models are persistently high up the scale of cost, closely followed by Canon and Lexmark, while the new Hewlett-

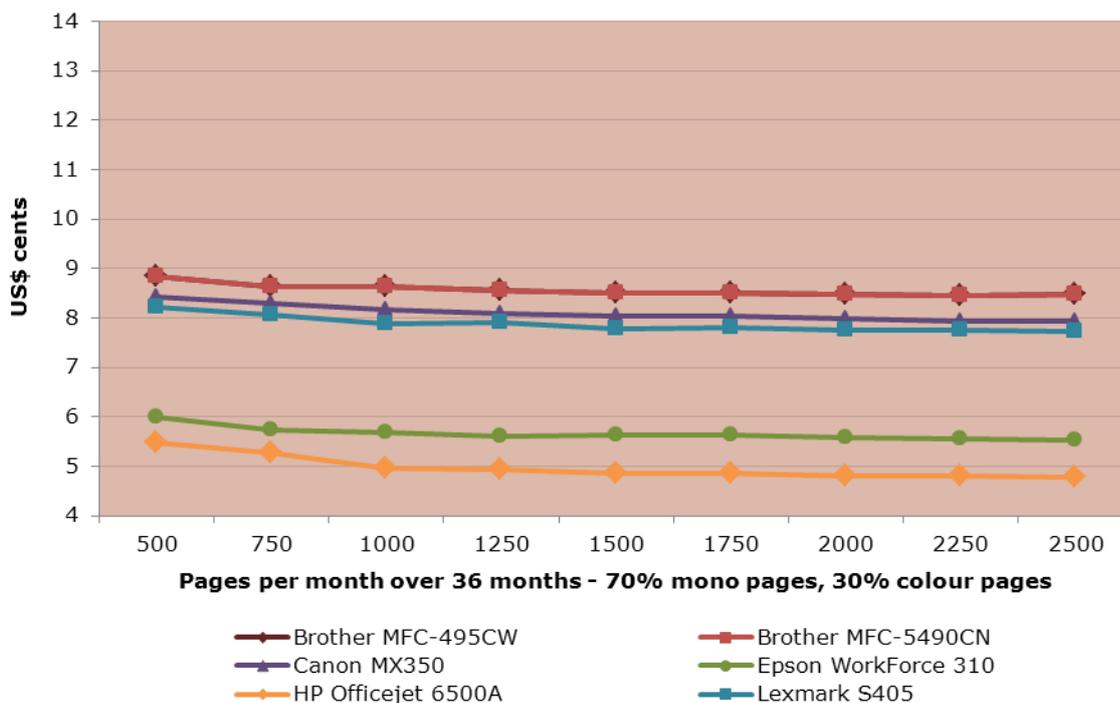
Packard Officejet 6500A is clearly most cost-effective, never even coming close to being touched by the Epson WorkForce 310.

Printing based on a mono to color page balance of 70/30% while the chart on the next page shows the balance reversed to 30/70%.

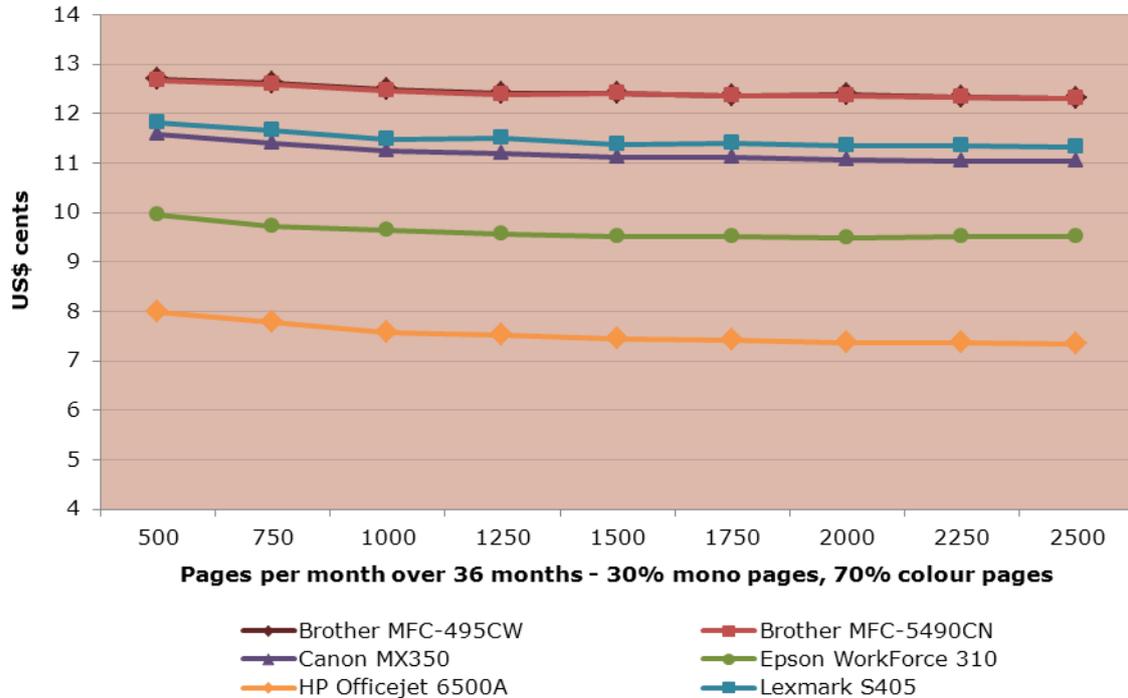
Where we do see a change is in the balance between printing a high proportion of color pages as opposed to a high proportion of mono pages. The chart below shows Total Cost of

Because Brother's black and color inks are exceptionally high-cost in comparison to the cost of inks from the competitors, both of the Brother models now stand out well above all

Total Cost of Printing Mid-Range Letter Business Inkjet AiO



Total Cost of Printing Mid-Range Letter Business Inkjet AiO



other models at the top of the cost scale. In fact, the cost handicap against the Officejet 6500A is an alarming 68% and falling 8.6% above the level of the Lexmark S405.

High-end Letter size Business Inkjet

Moving up the range to the high-end models, represented by the Hewlett-Packard Officejet 6500A Plus, we might expect to begin to see the dynamics of serious competition playing a more significant role. But, in fact, despite major changes in hardware pricing, there are few changes in relative overall costs between competitors.

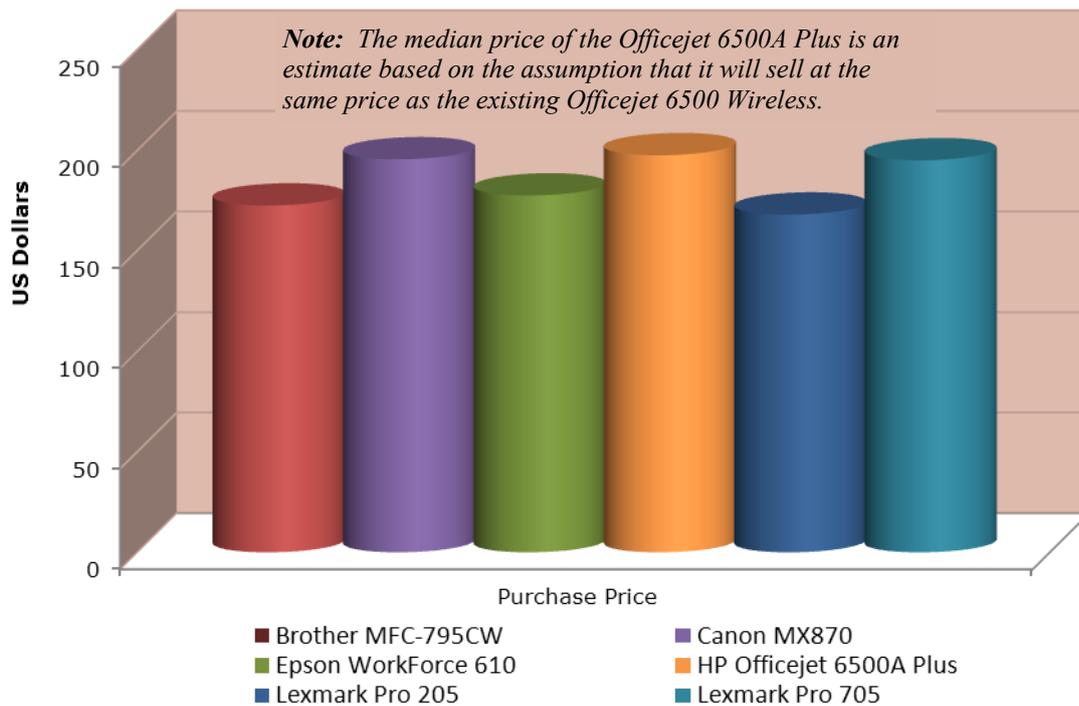
Hardware purchase prices fall within tight \$30 band from \$168 to \$198, with Canon, Hewlett-Packard and

Lexmark's Pro 705 almost level-pegging at the top end while Brother, Epson and Lexmark's Pro 205 are priced close to one another at the low end of the group.

Hewlett-Packard's Officejet 6500A Plus is again the highest-priced model within the group.



Median Purchase Price High-End Letter Business Inkjet AiO



Relative positions of ink costs also change little from the mid-range group (see chart on next page), with the main difference being caused by Canon's use of individual ink cartridges in the MX870 instead of the tricolor cartridge used in the MX350. This pulls the cost of black ink down below the level of both the Brother and Lexmark black inks and the 4-color nominal CPP is actually below the level of the Epson color CPP. This leaves the nominal CPP of Brother color printing standing out

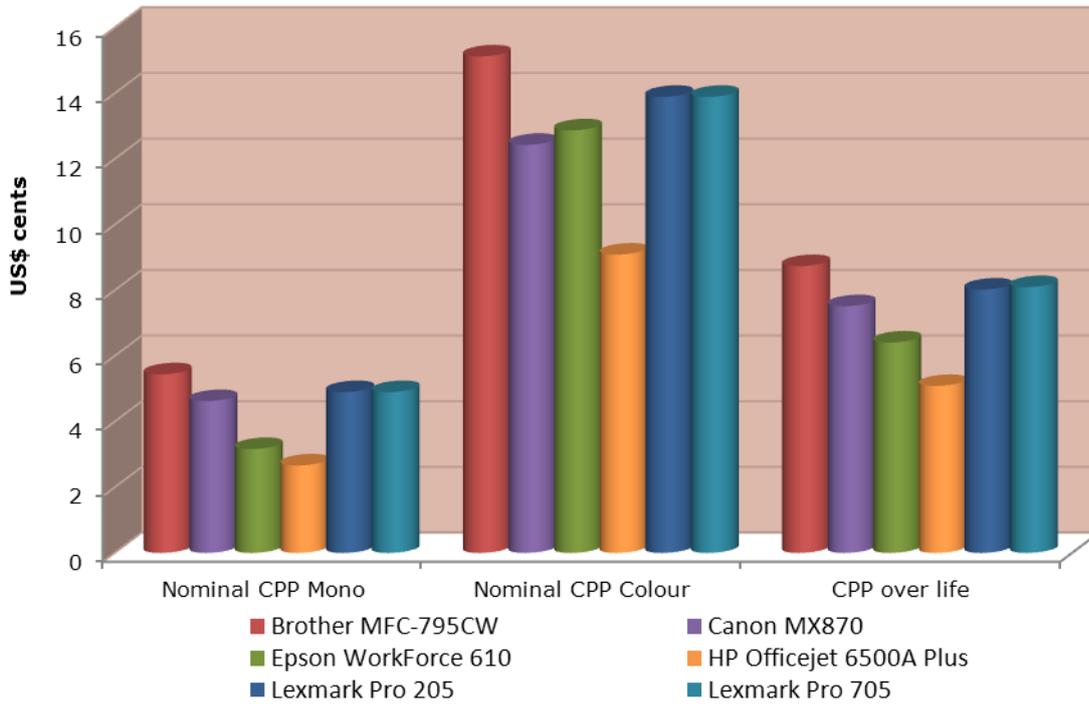


Canon PIXMA MX870

on its own at a level some 8.9% above the nominal color CPP of even Lexmark.

Epson's WorkForce 610 benefits from a single high capacity black cartridge, quoted as yielding 1,035 pages, resulting in a fiercely fought battle for the lowest nominal black CPP between Epson and Hewlett-Packard where the same HP920 cartridges are used in the Plus version as in the base Officejet 6500A. Hewlett-Packard's nominal color CPP is an even healthier 30% lower than Epson's nominal color CPP.

Total Cost of Printing High-End Letter Business Inkjet AiO

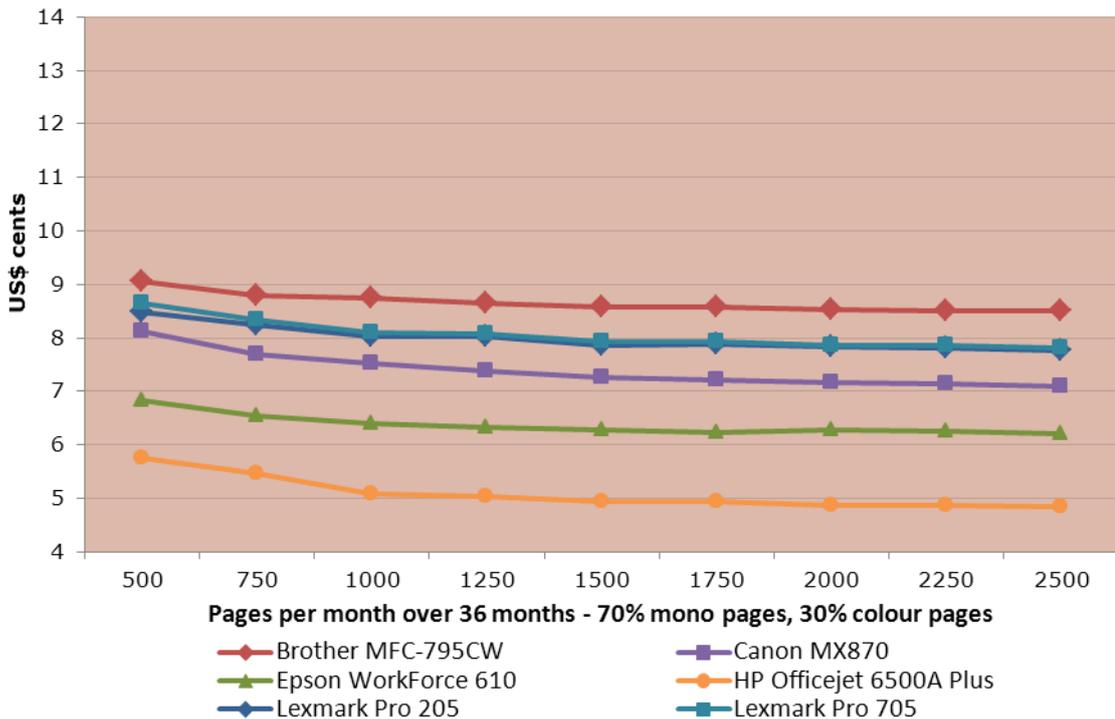


Note that for this level of machine, the mixed mono/color CPP over three years shown in the accompanying table and charts is calculated on the basis of 1,000 pages per month; 70% pages in mono and 30% pages in color; is based on the use of maximum capacity supplies; takes into account any standard, or starter, supplies shipped with the device; and also includes the cost of purchase. All prices are average street price and, supplied by GAP Intelligence.

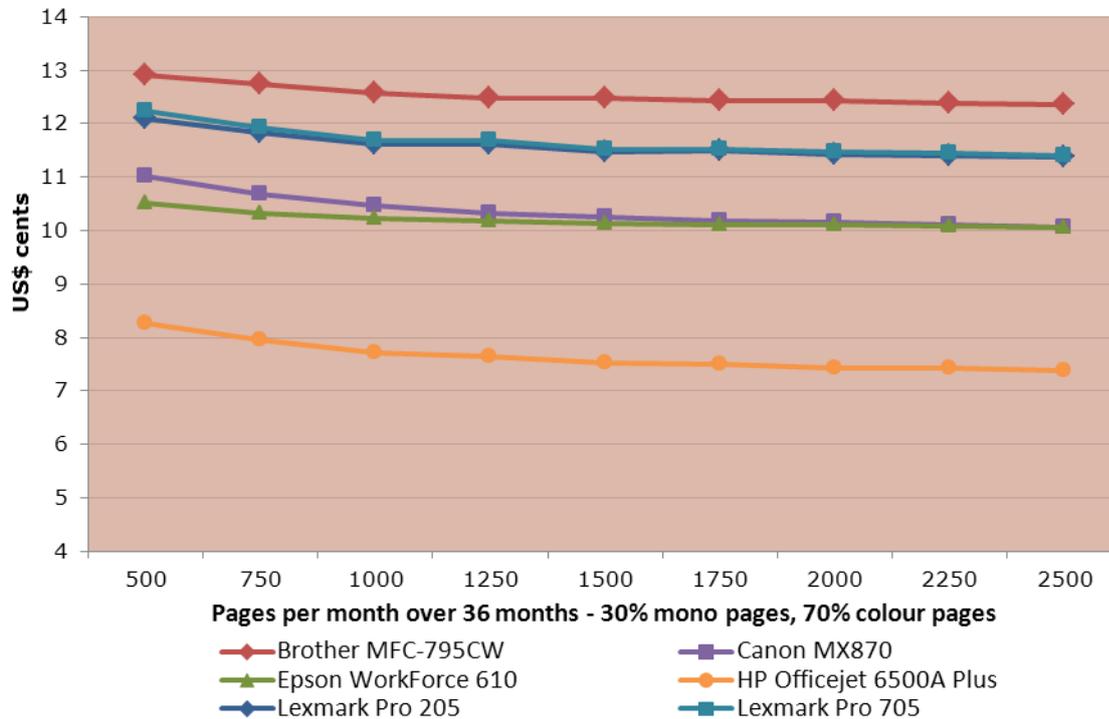
Pushing this through to a long-term CPP over three years, Brother's MFC-795CW stands out clearly from the Lexmark and Canon models at the top end of the Cost of Printing scale

while Epson loses out by a bigger margin to Hewlett-Packard's Officejet 6500A Plus - where the gap has widened to 33% from 27% between the mid-range models.

Total Cost of Printing High-End Letter Business Inkjet AiO



Total Cost of Printing High-End Letter Business Inkjet AiO



This still leaves Hewlett-Packard justifiably claiming lowest Cost of Printing for the class. And, not even modifying the number of pages printed per month or the balance of color to mono pages printed changes this situation (see the two preceding charts).

In fact, changing the balance of color to mono pages to reflect heavy color usage only goes to push the Epson WorkForce 610 up to the level of the Canon MX870 because of the high nominal color CPP of the Epson and low CPP of the Canon.

The saving afforded by the Officejet 6500A Plus over the Stylus Office WorkForce 610, over three years at 1,000 pages per month, represents a massive \$908 or more than 4x the initial Officejet hardware cost.

On the hardware front, we see all models with wireless networking – but only the Hewlett-Packard Officejet 6500A Plus and top-end Lexmark Pro 705 offering the faster wireless-n standard. We also see all but the Lexmark Pro 205 offering wired networking in addition to wireless.

Print speeds change little, except that the ISO speeds from Canon push closer to the 10/7ppm we see from the Hewlett-Packard model and, more importantly, the color ISO print speed from Epson’s WorkForce 610



Brother MFC-795CW with telephone handset

<p>Brother MFC-795CW</p>	<p>Print speed Network Interfaces Paper input ADF Display Scan to Supplies Other</p>	<p>33ppm black / 27ppm color / 10x15 photo 30 secs Wired and Wireless USB 2.0 / PictBridge / Memory Card Slots Up to 100 sheets / 20-sheet dedicated photo paper tray No 4.2" wide-screen touch-screen color LCD PDF / Image / File / Email / OCR / USB LC-1100 series (K = 450 pages, C / M / Y = 325 pages) Telephone handset with auto fax switch and 29-minute tele- phone answer machine</p>
<p>Canon MX870</p>	<p>Print speed Copy speed Network Interfaces Paper input ADF Display Scan to Supplies Other</p>	<p>ISO 9.4ppm black / 6.1ppm color / 10x15 photo 39secs ISO 4.3ipm Wired & Wireless USB 2.0 / PictBridge / Memory Card Slots 150-sheet cassette feed / 150-sheet rear feed 35-sheet auto-duplex 2.44" color TFT PDF / USB / Email PGI-520BK/CLI-521 series (K = 324 pages, C = 535 pages, M = 510 pages, Y = 530 pages, BK = 3,425) Auto-duplex printing / Easy-WebPrint EX / N-up Copying / External TAD interface / Manual fax switch</p>
<p>Epson WorkForce 610</p>	<p>Print speed Network Interfaces Paper input ADF Display Scan to Supplies Other</p>	<p>38ppm black / 38ppm color (15/9.3ppm ISO) 10x15 photo 30 secs Wired & Wireless USB 2.0 / PictBridge / Memory Card Slots 120 sheets 30 sheets 2.5" Color LCD Details not quoted T100x series (K = 1035 pages, C / M / Y = 865 pages) T071x series (K = 245 pages, C / M / Y = 340 pages) T0711H (K = 410 pages) Ships with Presto PageManager</p>
<p>Hewlett-Packard Officejet 6500A Plus eAiO</p>	<p>Print speed Network Interfaces Paper input ADF Display Scan to Supplies Other</p>	<p>32ppm black / 31ppm color (10/7ppm ISO) Wired & Wireless 802.11n USB 2.0 / Memory card 250 sheets 35 sheets 2.36" Touchscreen color LCD Internet / PC / Network folder / Email HP920 series - K = 420, C / M / Y = 300 HP920XL series - K = 1200, C / M / Y = 700 Starter - C / M / Y = 250 Auto-duplex printing/ ePrint / Web Apps / MarketSplash / ID Copy / Smart Web Printing</p>
<p>Lexmark Pro 205</p>	<p>Print speed Copy speed Network Interfaces Paper input ADF Display Scan to Supplies Other</p>	<p>33ppm black / 30ppm color 25ppm black / 21ppm color Wireless USB 2.0 / PictBridge / Memory card slots 100 sheets 35 sheets 2.4" Color LCD Details not quoted #100 series (K = 170 pages, C / M / Y = 200 pages) #100XL series (K = 510 pages, C / M / Y = 600 pages) Ships with XL cartridges</p>
<p>Lexmark Pro 705</p>	<p>Print speed Copy speed Network Interfaces Paper input ADF Display Scan to Supplies Other</p>	<p>33ppm black / 30ppm color 25ppm black / 21ppm color Wired / Wireless 802.11n USB 2.0 / PictBridge / Memory card slots 150 sheets 50 sheets 2.4" Color LCD Details not quoted #100 series (K = 170 pages, C / M / Y = 200 pages) #100XL series (K = 510 pages, C / M / Y = 600 pages) Auto-duplex printing / Ships with XL cartridges</p>



now actually exceeds the speed of the Officejet 6500A Plus, at 9.3ppm, even though it has suffered to the point of losing 1ppm in ISO rated black print speed compared to the WorkForce 310 (down to 15ppm).

Duplex printing is the other main feature that comes into play in this group compared to the mid-range group but we see it in only half of the models - Canon MX870, Hewlett-Packard Officejet 6500A Plus and Lexmark Pro 705. Canon actually goes one step further on the MX870 with a 35-sheet duplexing ADF, allowing automatic duplex copying from double-sided originals.

It may seem then, that Hewlett-Packard has given some ground to its closest competitors in this class, particularly Epson. But, consider the functional benefits of the internet connectivity, cloud storage capability



and ePrint facility, together with a paper input capacity that is more than double the capacity offered by the WorkForce 610, and the Officejet 6500A Plus still holds itself well apart on features and benefits, with the added bonus of also being the lowest-cost device in the class, even if by a fairly small margin.

Tabloid Business Inkjet AiO

Seeking to take a significant portion of the now-proven tabloid inkjet AiO market from Brother, Hewlett-Packard's first entrant focuses on business users with tabloid output requirements, rather than tabloid input requirements, and presents them with a device containing all the flexibility and standalone internet interactivity that the internet enabled connectivity affords the two letter size Officejet 6500A models.

What the hardware brings to the table is based on the printing functionality of the Officejet 7000 single function printer.

- Draft print speed is almost the same as the letter size models but

<p>Brother MFC-5890CN 11x17" print area</p>	<p>Print speed Copy speed Network Interfaces Paper input ADF Display Scan to Supplies Other</p>	<p>35ppm black / 28ppm color 23cpm black / 20cpm color Wired USB 2.0 / PictBridge / Memory Card Slots 150 sheets 50 sheets 3.3" wide-screen color LCD PDF / Image / File / Email / OCR / USB / Memory Card / FTP LC-1100 series (K = 450 pages, C / M / Y = 325 pages) LC-1100HY series (K = 900 pages, C / M / Y = 750 pages) External TAD interface / Auto Fax recognition / ships with Scansoft PaperPort 11SE</p>
<p>Brother MFC-6490CW 11x17" print area</p>	<p>Print speed Copy speed Network Interfaces Paper input ADF Auto-duplex Display Scan to Supplies Other</p>	<p>35ppm black / 28ppm color 23cpm black / 20cpm color Wired & Wireless USB 2.0 / PictBridge / Memory Card Slots 150 sheets / 250-sheet second feed 50 sheets n/a 3.3" wide-screen color LCD Email / OCR / Image / File / Memory Card / USB / FTP LC-1100 series (K = 450 pages, C / M / Y = 325 pages) LC-1100HY series (K = 900 pages, C / M / Y = 750 pages) Ships with High Yield cartridges ScanSoft PaperPort software / Letter Scan Platen only / N-up copying / Auto Fax recognition / Ifax</p>
<p>Brother MFC-6890CDW 11x17" print area</p>	<p>Print speed Copy speed Network Interfaces Paper input ADF Auto-duplex Display Scan to Supplies Other</p>	<p>35ppm black / 28ppm color 23cpm black / 20cpm color Wired & Wireless USB 2.0 / PictBridge / Memory Card Slots 150 sheets / 250-sheet second feed 50 sheets Letter print only (Letter duplex copy using manual scan feed) 4.2" wide-screen touch-screen color LCD Email / OCR / Image / File / Memory Card / USB / FTP LC-1100 series (K = 450 pages, C / M / Y = 325 pages) LC-1100HY series (K = 900 pages, C / M / Y = 750 pages) Ships with High Yield cartridges ScanSoft PaperPort software / Tabloid Scan Platen / N-up copying / Auto Fax recognition / Ifax</p>
<p>Hewlett-Packard Officejet 7500 Wide Format eAiO 13x19" print area</p>	<p>Print speed Copy Speed Network Interfaces Paper input ADF Auto-duplex Display Scan to Supplies Other</p>	<p>33ppm black / 32ppm color (11/8ppm ISO) 33cpm black / 32cpm color (6/5cpm ISO) Wired & Wireless 802.11n USB 2.0 / Memory Card Slots 150 sheets 35 sheets n/a 2.4" Touchscreen color LCD Internet / PC / Network folder / Email / Memory devices HP920 series (K = 420, C / M / Y = 300) HP920XL series (K = 1200, C / M / Y = 700) Starter - C / M / Y = 250 ePrint / Web Apps / MarketSplash / ID Copy / Smart Web Printing / Legal Scan Platen / Fax to PC / ships with ArcSoft Scan-n-Stitch Delux software</p>



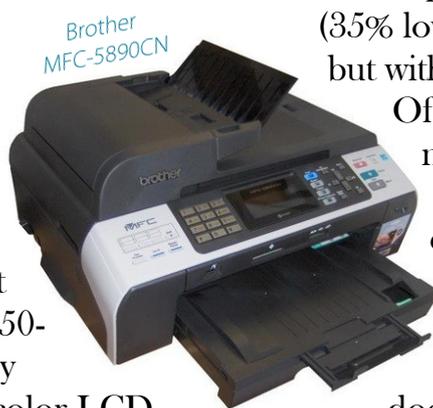
Hewlett-Packard
Officejet 7500A

benefits from a one page per minute improvement in both draft mode (33/32ppm - mono/color) and ISO rating (11/8ppm)

- Wired and Wireless networking as standard
- 150-sheet input paper capacity
- 35-sheet ADF
- HP920XL ink cartridges

This brings us to a comparison with the competition from Brother where we find three models straddling the Officejet 7500A with hardware purchase prices to match.

At the entry level is the MFC-5890CN with its Letter/A4 scan platen, 150-sheet input paper capacity, 50-sheet ADF, wired-only networking and 3.3" color LCD display. In the middle, sits the MFC-6490CW which adds wireless networking, tabloid scan platen (Letter/A4 ADF) and a 250-sheet second paper feed, taking total capacity to 400 sheets and allows both letter and tabloid paper to be held ready for use at all times. Taking its



Brother
MFC-5890CN

position at the top of the range is the MFC-6890CDW, which further adds letter size duplex printing capability and a 4.2" touchscreen display.

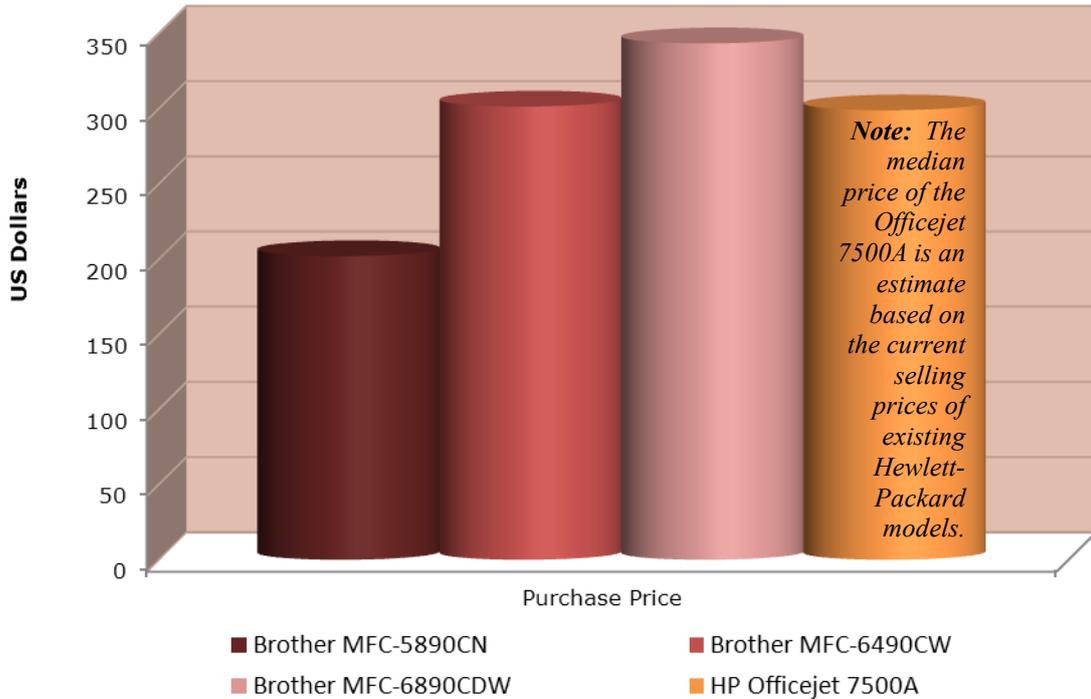
Hardware purchase prices fall in line with these specifications, with the MFC-5890CN being the only competitor available at a price lower than the Officejet 7500A.

What this means is that businesses can acquire an AiO with tabloid format printing at an entry-level price (35% lower than the Officejet 7500A) but without: the print speed of the Officejet 7500A; or wireless network capability; and with letter-only scan platen compared to the Officejet's legal scan platen.

Where the Officejet 7500A does score, though, is that it offer tabloid copying from the legal platen using very clever, and effective, stitching technology.

Hewlett-Packard's Officejet 7500A only falls short of being the most expensive model in this group by virtue of the fact that it does not

Median Purchase Price Tabloid Business Inkjet AiO



match the hardware specification of Brother's MFC-6890CDW. But, it is the cost advantage at the end of the day that is far more significant and important - read on!

It may seem strange to highlight print speed as being an issue when Brother claims a mono draft print speed of 35ppm compared to the Officejet's 33ppm. However, testing by CharisCo Printer Labs indicates that correspondence quality print speed from the Brother devices is no higher than 4.4ppm in mono and 3ppm in color. This is less than half the speed of the ISO rating for the Officejet 7500A.



For those with a larger hardware budget, moving up to the MFC-6490CW provides users with an tabloid scan capability and second paper tray - neither of which are offered by the Officejet 7500A - at a price that is almost identical to the Officejet and nearly 50% higher than the MFC-5890CN. Then, at the top of the range, at a hardware cost 14% higher still, MFC-6890CDW owners will benefit from duplex printing (letter size only), again not offered by Hewlett-Packard.

In none of these devices, of course, can Brother offer the richness of the internet-enabled feature set and

capabilities brought to the table by Hewlett-Packard.

So, to look at the 'end of the day' scenario - first of all we have to consider the cost of inks. Here, Brother is unable to match the cost of Hewlett-Packard ink despite the fact that the cartridges used by the tabloid range are high capacity, offering 900 pages from the black and 750 pages from each of the colors. Here, we



see no specific targeting towards low-cost mono or color printing in the ink pricing - relative price positioning between Brother and Hewlett-Packard black and color inks is consistent.

One factor in Brother's favour here though, is that Brother ships its tabloid MFCs with high capacity cartridges whereas Hewlett-Packard ships with color cartridges providing a very minimal 250 pages, although the

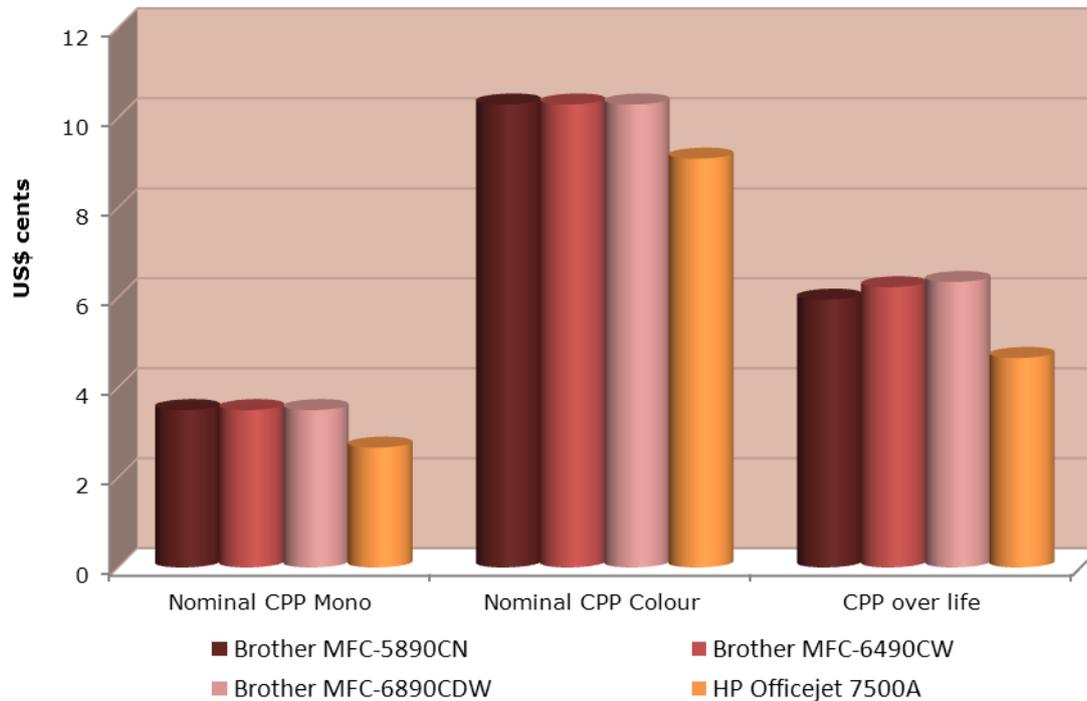
black is a standard capacity cartridge providing a yield of 420 pages.



What this means at the end of the day is that every page on the Brother tabloid MFCs will cost more in terms of ink usage than pages on the Officejet 7500A. And, when hardware purchase price is factored in, as part of the long-term Total Cost of Printing in addition to the basic cost of ink, the cost advantage to be gained from running the Officejet 7500A completely overturns the cost benefits of buying even the entry-level MFC-5890CN.

While at purchase we were talking about a saving of 32% by buying the MFC-5890CN instead of the Officejet 7500A, by the time a user has pushed an average of only 48 pages a day (1,000 pages per month based on a 21-day working month) through the machine, the situation reverses into an overall saving of 27% from the Officejet - representing a massive out-of-pocket saving of \$855, or 2.8x the cost of buying the Officejet 7500A hardware in the first place.

Total Cost of Printing Tabloid Business Inkjet AiO



Note that for this level of machine, the mixed mono/color CPP over three years shown in the accompanying table and charts is calculated on the basis of 1,000 pages per month; 70% pages in mono and 30% pages in color; is based on the use of maximum capacity supplies; takes into account any standard, or starter, supplies shipped with the device; and also includes the cost of purchase. All prices are average street price and, supplied by GAP Intelligence.

Needless to say, buying one of the Brother MFCs equipped with tabloid scan platen widens the gap further into a 42% overall saving over the MFC-6490CW and a 44% saving over the MFC-6890CDW. If tabloid scan capability or duplex printing capability are important factors in making the choice of hardware, then Total Cost of Printing has to take second place and 44% is the necessary additional cost that has to be paid for that functionality.

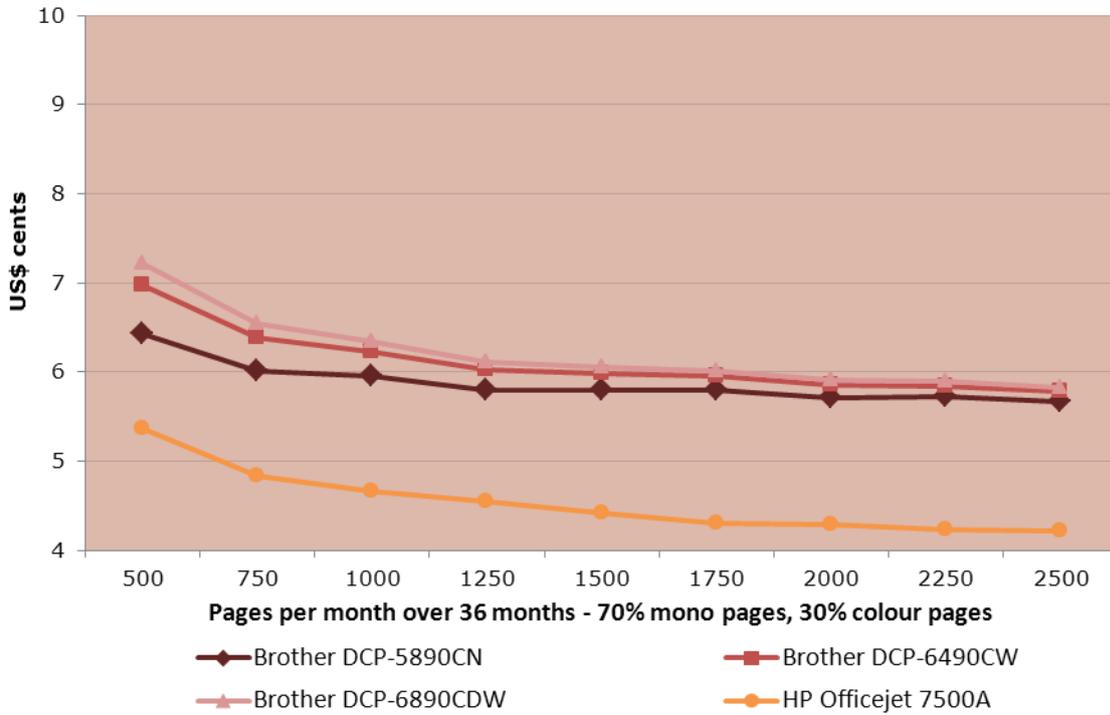
But, if legal size scan capability is adequate (or copy stitching is considered to be an appropriate solution) and duplex printing is not a priority, then the useful saving of 27% over the cost of the MFC-5890CN can be achieved. And, within that 27% saving, comes all the

functionality of the stand-alone internet printing now available from Hewlett-Packard.

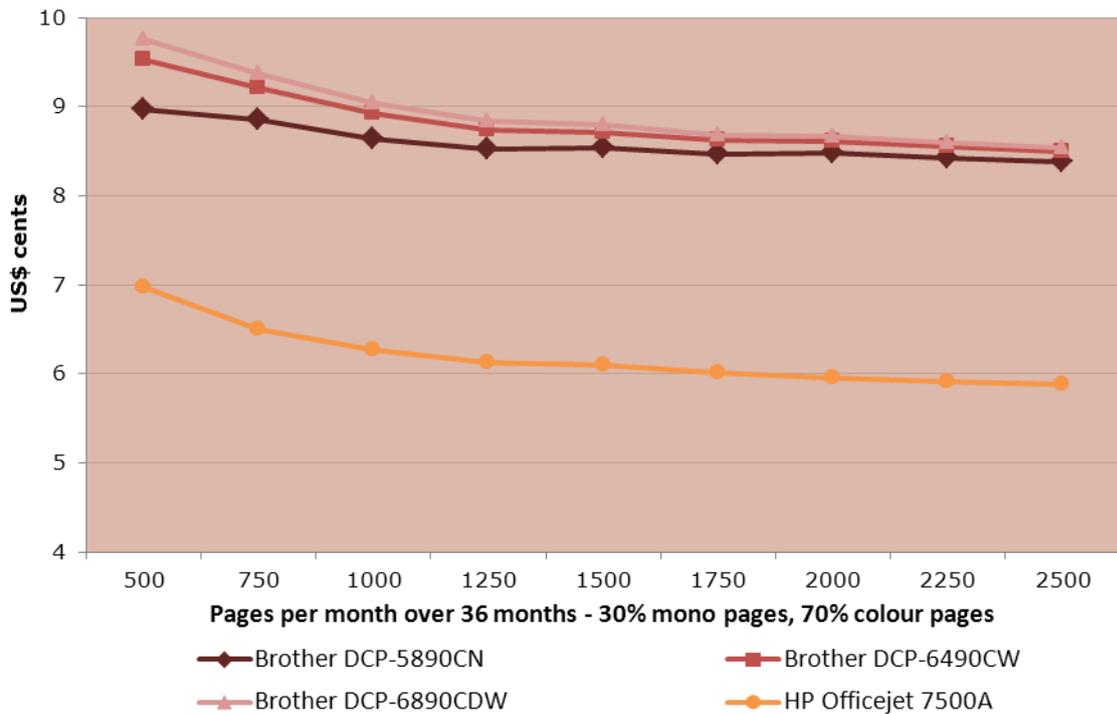
To round off the Cost of Printing analysis, a look at the long-term Total Cost of Printing at a range of monthly print volumes shows that even the low purchase price of the Brother MFC-5890CN cannot outweigh the low cost of Hewlett-Packard inks at any monthly volume.

Note also from the charts on the following page that the higher the print volume, the more cost-effective the Officejet 7500A becomes relative to Brother's MFCs. Reversing the balance of mono to color pages, as we have already done for the letter size devices, the savings from the Officejet are further increased.

Total Cost of Printing Tabloid Business Inkjet AiO



Total Cost of Printing Tabloid Business Inkjet AiO



Summary

Business inkjet multifunction is an incredibly important market segment, especially in this age of recession and a global financial climate that may be unstable for a decade or more as countries battle to eliminate record national deficits and balance the books.

Desktop inkjet All-in-Ones are capable of creating savings of as much as 65% (Hewlett-Packard Officejet Pro 8500) in terms of running costs compared to an equivalent laser-based All-in-One.

On top of that, inkjet technology shows all the signs of becoming the office printing technology of the future because it is far more environmentally friendly than toner technology; is capable of matching print speeds of toner technology; and is every bit as

flexible
as



Hewlett-Packard
T200 Color Inkjet
Web Press

toner technology in terms of print output. The several new ink-based commercial presses on view at IPEX 2010 at the UK's Birmingham exhibition centre, from a range of manufacturers including Hewlett-Packard, proved that fact beyond doubt.

At the home and small office end of the market, inkjet is capable of producing higher quality pages and more even color fills - without even beginning to go into the difference in photo print quality between inkjet and toner! The only area where the performance of desktop inkjet is let down by the technology is raw engine print speed.

In the letter size Officejet 6500A models, Hewlett-Packard has taken small office inkjet AiO flexibility and versatility to exciting new levels, without compromising on the best-in-class Total Cost of Printing. Hewlett-Packard's HP920-based engine is the most economical general purpose inkjet engine on the market today and its HP940-based Officejet Pro engine exceeds even those levels of economy.

Allowing Brother to gain two years-worth of advantage by creating the brand new tabloid inkjet AiO market unopposed has certainly been unfortunate, leaving Hewlett-Packard facing a catch-up scenario.

Now, bringing its first tabloid AiO device to market, the gloves are off. Doubtless, competition will increase from here on to develop the tabloid market further. We can almost certainly expect to see Canon and Epson joining the battle in due course, maybe even Lexmark.

One thing of which there can be no doubt is that the additional functionality brought by Hewlett-Packard's internet-enabled AiO range sets a whole new course and focus for future development - in letter format as well as tabloid. This, on top of the Officejet's unbeaten Total Cost of Printing, is sure to make the Officejet 7500A a desirable device.

Will any of the other manufacturers be prepared to challenge Hewlett-Packard for best-in-class economy?

~ END ~

TCPglobal - News, Views and Issues surrounding your Total Cost of Printing

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