



PAGE 24
**WINTER IS COMING:
 A4 WILL DISRUPT A3**



PAGE 36
**SHOULD YOU WORRY ABOUT
 PRINTER SECURITY?**



SEE 14
**189,000 TONS OF
 TONER**



PAGE 41
**MAKING
 CARTRIDGES
 WORK BETTER**



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Offering Customers More

PAGE 28

—Anno's Sales Director Hong Pan Talks About Commitment

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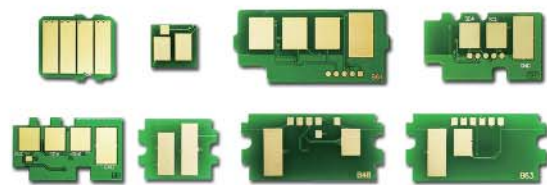


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Production Line



Production Line

2

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R&D Center



R&D Center



3

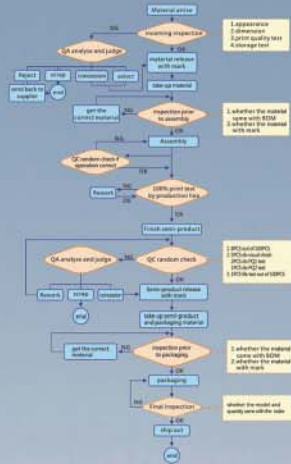
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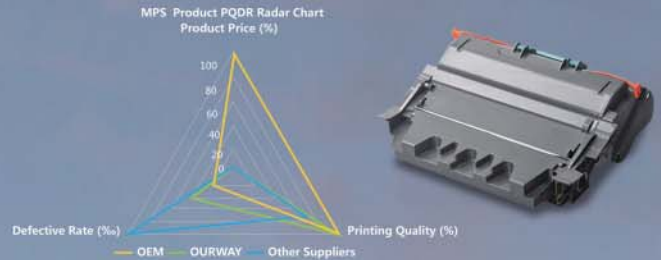


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No. 102 | 2018

07 | EDITORIAL



08 | WORLD NEWS

11 | REGIONAL ROUNDUP

21 | A MINUTE WITH RAY

Are Acquisitions the Feel-good Drug in a Declining Market?



43 | INTERNET OF PRINTING

Remanufacturing: The ULTIMATE form of Recycling



The Aftermarket is being urged to join printer OEMs for a vital conference in Las Vegas in September. In a TV interview with RT Media Director David Gibbons, Imaging Supplies Coalition President, Allen Westerfield said hot topics will include infringing products and the right to repair. The former Lexmark executive will also speak at the Summit at the 12th Remaxworld Expo in October 18-20 Zhuhai.

45 | JUDGE'S RULING

Gunning For Free Speech



47 | KEEPING UP

It's Often True... But Not Always True



49 | TECH•ZONE

Remanufacturing the HP Enterprise M750 Color Series Black and Color Toner cartridges



52 | THE LISTS

Berto's Last Laugh at Printing Security

41 | 5 QUESTIONS

Helping to Make Cartridges Work Better

—Katie Bandle is Director of Operations for Remanufacturing Technologies Corp. (RTC), whose owners have been producing coatings for cartridge remanufacturing and other industries for more than 35 years.



28 | FRONT COVER STORY



Offering Customers More
—Anno's Sales Director Hong Pan Talks About Commitment

FEATURES

14 Toner Manufacturing—a Changing & Challenging Global Landscape

—Graham J. Galliford, President, Galliford Consulting & Marketing USA

The toner market derives its demand from the printer hardware market, economic growth, and changes in the literacy and wealth of populations.

24 Channels and Distribution Change Too

—Ray Stasieczko

Today, customers don't want to evaluate good service by how good you are every time you show up; they want to evaluate products that don't require you to show up.

35 Is Your Printer a Gateway to You Being Attacked?

—Bart Barcewicz

Today's security threat landscape is not a matter of IF, but WHEN you will be compromised.

Recycling Times informs, educates, and nurtures the global printer consumables industry innovatively through an integrated broadcast, print, digital and social media strategy. As such, we honor and respect the intellectual property of all businesses and individuals. Consequently, we take a zero tolerance position to the manufacture, distribution and sale of patent infringing and counterfeit printer cartridges and components. We continue to strive to avoid promoting such in our advertisements, articles and editorial content.

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Tony Lee

HOW HOT WAS YOUR SUMMER?
Higher temperatures have been experienced in both the northern and southern hemispheres this year. Thanks to El nino, 2018 will become the hottest year again on record.

It has been “hot” on other fronts too. We have just said goodbye to the passionate World Cup and we are now witnessing the

white-hot US-China trade war.

In this edition, Ray Stasieczko is turning up the heat. He claims the “A4 Revolution” is taking place where A3 devices are being replaced by A4. “More than 80 percent of all A3 copiers could easily be replaced by A4 devices based on declining output volumes and the feature-rich new A4 devices. Most end-users do not need A3,” Ray tells us. See page 24.

3D printing became center stage in the United States this summer with the release of blueprints to 3-D print guns on the Internet. Every major news affiliate carried the story and raised warnings. In this edition, you can explore this hot topic and why the legal community is so up in arms (excuse the pun). See page 45.

Let me share with you some other hot events happening in October in Zhuhai, the world’s capital of print consumables. The world’s longest sea bridge is set to open between Hong Kong to Zhuhai and the tallest building in Zhuhai, the St Regis Hotel will also be opened—adding to the reputation of Zhuhai being touted as China’s “Riviera”. Now that’s really putting us on the map! RemaxWorld Expo will also be held in October in the Zhuhai International Convention and Exhibition Center—just a 3-minute walk away from the Zhuhai Tower.

Still all hot and bothered? Come, and not only visit a great exhibition and summit (full of industry hot topics including a debate on remans vs new-builds), but also have the option to network and relax. You will never be disappointed in this hot season.

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01

Global Inkjet Market to Surpass \$100 Billion

The global inkjet printing market is set to grow at a yearly rate of 9.4 percent and will be worth \$109 billion by 2023. So says Smithers Pira in the market report *The Future of Inkjet Printing to 2023*. This contrasts with the general outlook for the print industry, where a more moderate growth of 0.8 percent is expected year-on-year. ■



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02

Canon Successful at Every Level

In 2012, TPL and MCM filed a lawsuit against Canon in the U.S. International Trade Commission and the U.S. District Court based with the accusation that nearly 200 Canon products infringed U.S. patents relating to flash memory card readers. The Federal Circuit's decision marks the end of a six-year litigation process during which Canon successfully defended its products at nearly every level of the U.S. judicial system. ■



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03

Release of Blueprints for 3D-Printed Guns Blocked

The hottest topic on American TV is over the decision to allow Americans to obtain blueprints to print 3D guns for personal use from August 1. Most Americans, however, are not happy and fear these untraceable plastic 3D-printed guns will become the norm. Now a US judge has put a stop to the madness—but is it too late? Blueprints are already on the internet. See also Tricia Judge's comment on page 45. ■



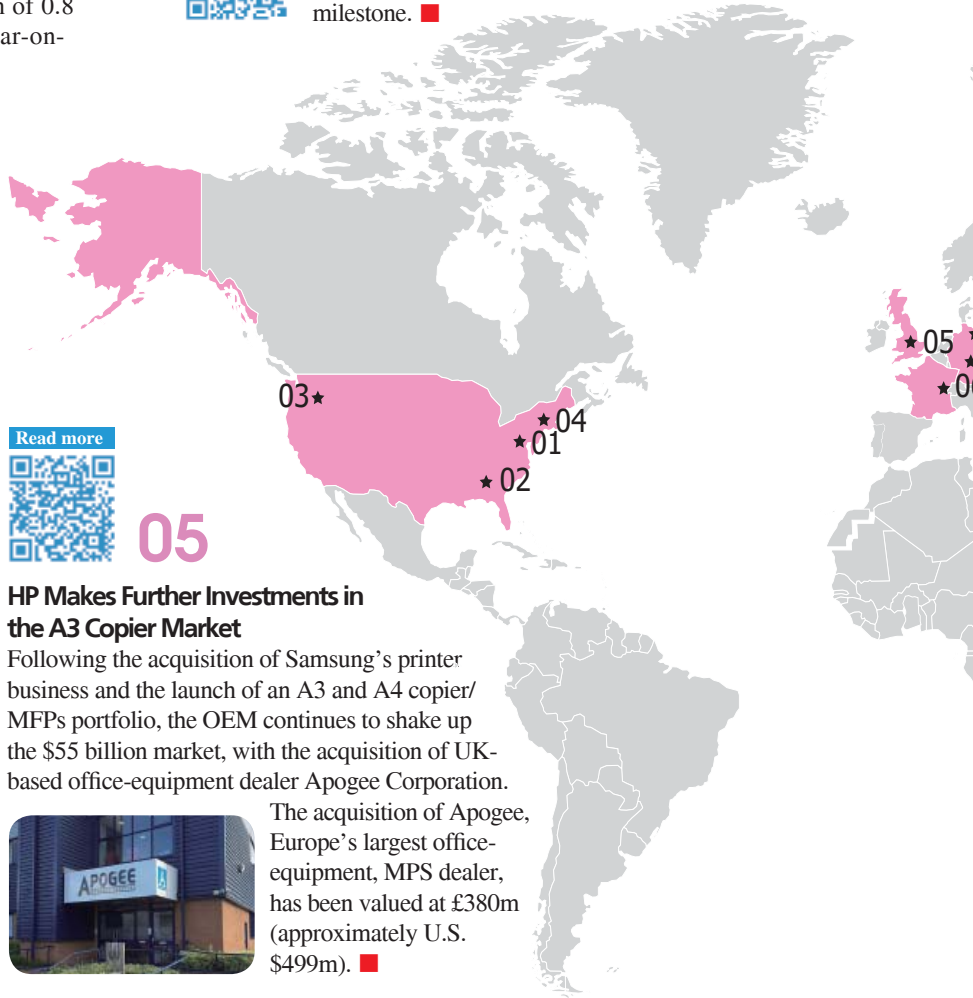
04

Konica Minolta Credits Imaging Sector Growth For New Milestone

The OEM hosted government officials (federal, state and local), representatives from industry trade associations, chamber of commerce members and the media in a ground breaking ceremony to mark the beginning of their Ramsey campus expansion in New Jersey. Rick Taylor says the OEM's success has allowed the company to reach this new, multi-million dollar milestone. ■



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05

HP Makes Further Investments in the A3 Copier Market

Following the acquisition of Samsung's printer business and the launch of an A3 and A4 copier/MFPs portfolio, the OEM continues to shake up the \$55 billion market, with the acquisition of UK-based office-equipment dealer Apogee Corporation.



The acquisition of Apogee, Europe's largest office-equipment, MPS dealer, has been valued at £380m (approximately U.S. \$499m). ■

06

Western European Hardcopy Print Market Continues to Slide

According to research by International Data Corporation (IDC), the Western European multifunction printer (MFP) market decreased by 5.8% in unit terms in 2Q18, in comparison with the year before. This means that the first half of 2018 has seen a decline of 3.6%, amounting to over 273,000 units over the whole of Western Europe. ■



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07

Will a Potential Buyer Save OCP Inks?



The highly respected ink manufacturing company OCP Inks, based in Germany, may have turned a corner with the promise of a bright future.

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According to confidential information shared with *RT Media*, the company continues to trade positively and at least one very interested buyer has been involved in important talks with the current owners and the CEO. ■

08

Another Canon Lawsuit Is Resolved



Yet another Canon patent lawsuit reached a conclusion on August 2. The OEM and Coemedia GmbH agreed to resolve their pending patent dispute based on the infringement of the German portion of Canon's European Patent EP 2 087 407 B1 by

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signing a settlement agreement. Coemedia accepted a preliminary injunction (docket no. 4a O 92/17) from the District Court Düsseldorf as final and binding between the parties. ■

09

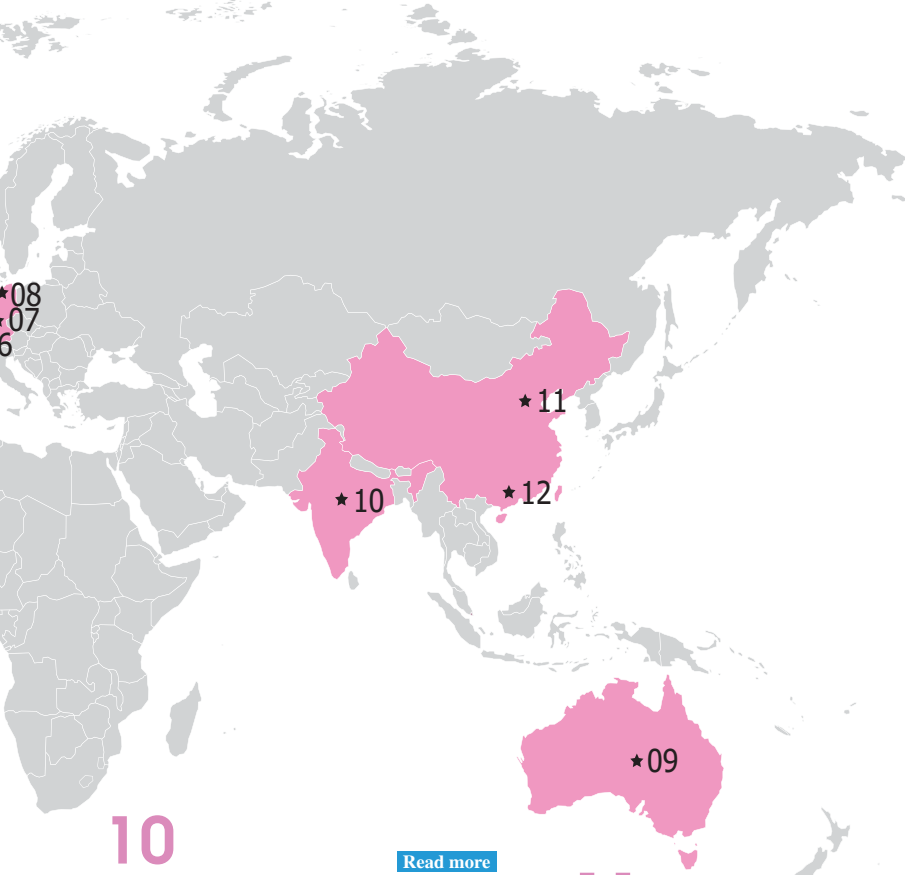
Beaming In On New Color Lasers

Brother has rolled out six new color laser printers in order to target SMBs and home offices. The new range comprises two printers and four MFDs, with prices ranging from US\$249 to US\$549. The MFDs include DCP-

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L3510CDW, MFC-L3745CDW, MFC-L3750CDW and DCP-L3510CDW, while the entry-level models are HL-L3230CDW and HL-L3270CDW. ■



10

HP Dominates Indian Print Market

With a massive 47 percent share, printer and PC giant HP Inc kept its leading position in the overall printer market in India, selling 391,940 units in the second quarter of 2018. According to the IDC's Hard Copy Peripherals (HCP) Quarterly Market Report (2018 Q2), HP led with a 32 percent share in the Office Printing segment (without Samsung

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Print) and stayed on top with 42.8 percent in the Home Printing segment. ■

11

China Hikes Up Import Costs of HP and American Printers



On August 3, 2018, the China Customs Tariff Commission (CCTC) of the State Council stated applied duties to 5,207 imported items originating in the United States. Printers, copiers, parts and components are all included in a new list of tariffs imposed on US-made goods being sold to China. US International trade expert, Merritt Blakeslee, will unpack the latest at the RemaxWorld Summit in Zhuhai on October 17. ■

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12

Has The US Won?— The China



Consumables Industry Reacts

US President Donald Trump tweeted that the US has already won the trade war against China, and leaders are scrambling to negotiate a peace deal. However, most China industry leaders believe that the trade war will not affect the print consumables Aftermarket industry. ■

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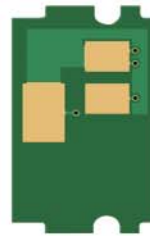
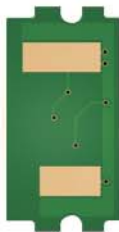
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FOR THE past half a century, the OEMs have reigned supreme over the printing consumables market in Japan, thanks to patent barriers and strict sales and promotion systems.

Despite having a strong recycling consumables association with 50 recycling consumables manufacturers, the market share in Japan remains small.

However, I have noticed a change recently with the recycling of consumables becoming more active. Yokohama Toner and other recycling consumables manufacturers are developing a stronger presence on Amazon and other e-commerce markets in Japan. Eco Rica is positioning various recycled consumables on the shelves of major Japanese electronics mass retail stores such as Yodobashi Camera, among others. Eco Rica has also actively promoted its recycling consumables at the 29th ISOT Tokyo Fair in July 2018.

The price of Japanese recycled consumables is between 25 and 50 per cent of OEM consumables and the quality seems to be better than imported compatible consumables.

Japanese consumers want to see the further development of recycling consumables manufacturers in Japan and good competition exist with the OEM manufacturers. A healthy office equipment consumables market will better meet the various price needs of all Japanese consumers.



New Zealand

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NEW ZEALAND (NZ) is 10 months into doing business under a Labour lead (left leaning) coalition government. The impact of this has seen a loss of business confidence and a lowering of economic activity. A weaker NZ dollar will inevitably see the OEM's raise their pricing. In previous periods where a similar political landscape prevailed, the remanufacturing industry enjoyed buoyant times. Unfortunately, times have changed. The remanufacturing industry is a shadow of its former self. However, I believe those that are still active will see a pick up in the cheaper Aftermarket alternative as business looks to tighten purse strings. The Compatible new build products that are proliferating the traditional sales outlets will also get a lift from a tougher economy.

While a good portion of the imported compatible products are of good quality and don't appear to infringe OEM intellectual property, it cannot be said of all compatibles. The cheap, low-quality product being imported is not doing the industry any favors. It appears many of the factories that manufacture compatible products have a range of product quality on offer. At one end of the spectrum the good quality cartridges are IP compliant. However many factories also provide much cheaper products that are inferior in quality and are IP infringing.

Where does responsibility lie for changing this ethos? Who is responsible for lifting the performance and perception of the aftermarket industry?

Many distributors and retailers are now doing their bit by highlighting the positive features of the IP compliant, good quality products. However, they battle with the low priced, industry harming options being offered by others through many outlets.

It is time the Chinese factories dropped these cheap product options and focused instead on lifting the aftermarket industry.

New government legislation will ban the use of single-use plastic bags in NZ. Inevitably, this legislation will be expanded to include printer hardware and consumables. I am encouraged to see the development of locally invented, clean burning solid fuel product that incorporates waste toner and waste plastics.

There are many passionate and talented people in our industry who always seem to respond to whatever challenge is presented. I challenge our industry to start looking at the use of more biodegradable products and packaging.



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Poland

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IS IT time for change? Not yet.

The Polish market is still in a development phase and the strategies of companies are dictated by the requirements of very price-focused end-user customers. Such a cutthroat business model does not correspond highly with having a respect for intellectual property rights and the consistency and availability of high quality products. The costs of delivering a professional service that embraces the above issues significantly impacts the final price of the product.

Law firms typically provide support on legal matters, but it is not so easy when it comes to technical issues. The best solution to maintaining a high standard and know-how in the company's structure, of course, is to have your own laboratory. Such an expense adds a burden to a company's business model, but it is still worth it, especially when we care about the quality of our own brand.

In contrast to the trends to consolidate businesses and companies that I am observing in the Asian market, the Polish market continues to have several leading players. Despite being smaller in size, these entities are more closely related to the local market and are of great importance to the industry here. The value-added services they attach to the product are still an effective method of distinguishing one company from another. In addition to the obvious marketing, or PR activities, it's good to have high-quality technical support, fast response times or a business model based on MPS software.

Business will not survive here if they are commodity-focused. It seems crucial, in my view, to find a balance between the expectations of customers to have service and the investment required in order to meet those needs.

More on Page 11



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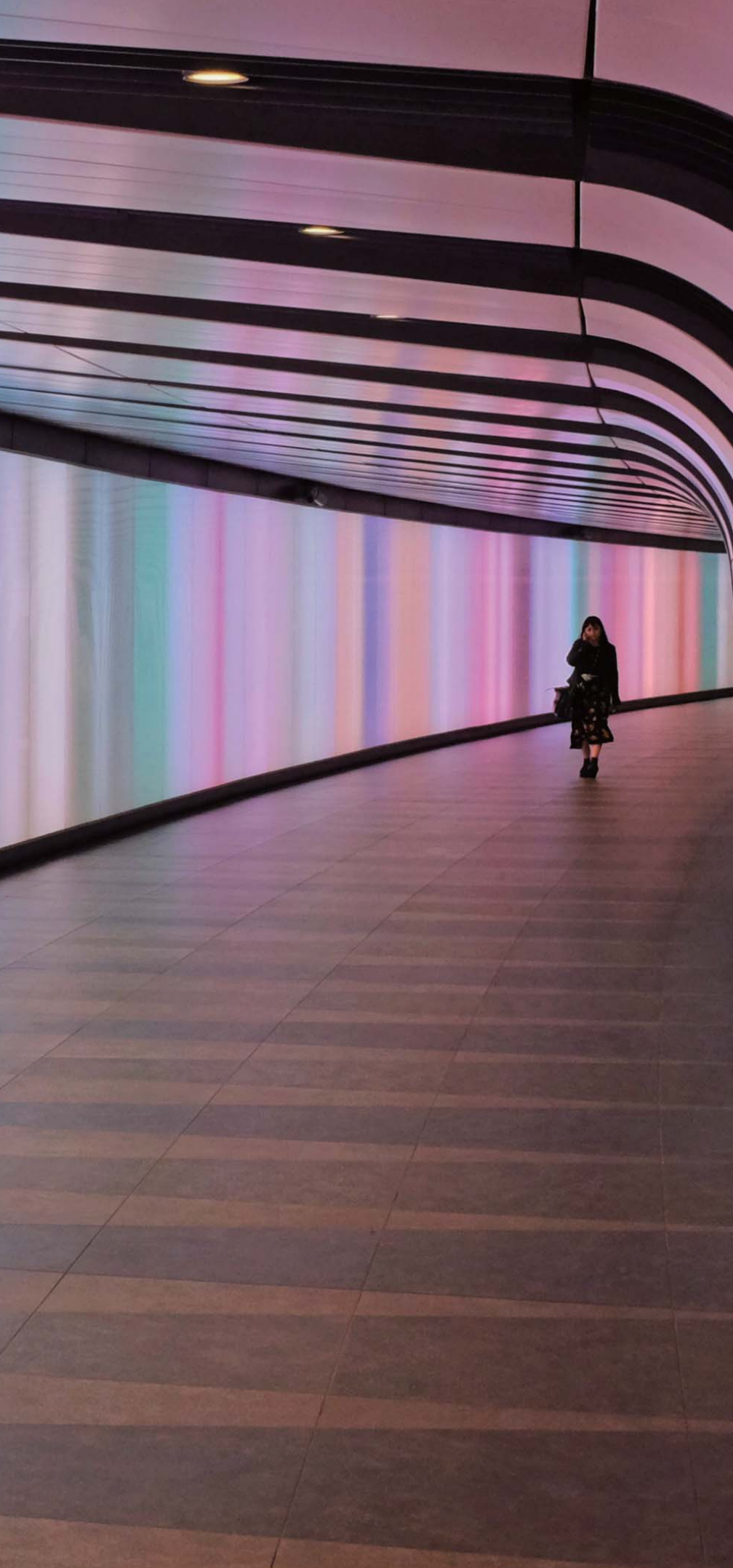
Toner Manufacturing

—a Changing & Challenging Global Landscape

*Graham J. Galliford,
President, Galliford Consulting & Marketing USA*



Graham J. Galliford is a world-renowned consultant, researcher, writer and speaker for the global imaging industry. His work has encompassed technologies in a variety of printing components and products but has worked primarily in the field of toner-based printing technology since 1974. He can be contacted at graham@gallifordconsulting.com.



TONER MANUFACTURING worldwide is in virtual stasis. A quick look at global production statistics will reveal there has been, and is predicted to be, almost no change in production volume in the shorter term. At the same time, data and information continues to grow exponentially. Historically, the growth in demand for printing follows the growth in information.

In 1982 Richard Buckminster Fuller developed the “Knowledge Doubling Curve”. He showed that until 1900 knowledge and information doubled approximately every century and that by 1945 it was doubling every 25 years. Today, there is agreement amongst experts that the size of the digital universe doubles every 2 years, a 50-fold growth from 2010 to 2020. This exploding information volume has introduced many challenges including how to most efficiently store, share and manage data and information. “Soft” technology solutions have helped improve this efficiency but their wide scale adoption has profoundly affected the technology and media used in information management and the amount that is printed. Consequently, print hardware placements, population and print volumes are shifting differentially globally.

Annual printer placements are slowly declining in North America and Europe. In addition, the work force is changing globally. Commerce is changing to accept “soft copy” instead of “hard copy”, improving document storage, sharing and management as well as lowering costs. Understandably hardware manufacturers are slowing the development of new hardware, which is creating the same trend for toner development.

The toner market derives its demand from the printer hardware market, economic growth, and changes in the literacy and wealth of populations. Hard copy demand

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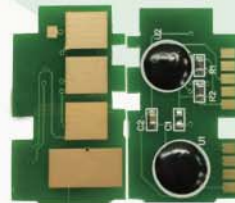
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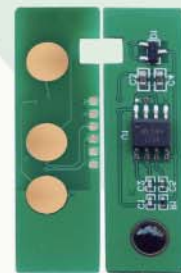
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▲ Typical Conventional Toner Compounding Line



▲ Typical Conventional Toner "Jet Milling" Line

in developed markets is becoming smaller leading to the threat of continued reduction in market size. By contrast, in developing markets and emerging economies, printer hardware placements, printer population and printing continue to increase. For the majority of the population in such countries, print is more affordable than tablets and mobiles. For communication, records and transactions, "hard copy" continues to be the reliable medium of choice. Despite continual improvements in infrastructure—electrical power, mobile coverage and Internet services—"hard copy" retains significant value in guaranteeing the availability of data and information.

Notwithstanding this, there have been subtle but important shifts in technology, manufacturing and focus in the global toner manufacturing industry. There is consistent demand for higher quality monochrome, colored toner and new technology products. These shifts have impacted the industry geographically and had a big influence on the industry globally.

Toner Industry Trends

• Production

Globally, there are still about 100 toner manufacturers in Europe, the Americas and

Greater Asia. A number of toner companies have withdrawn from the industry, notably in North America and Europe. However, there has been a growth of toner manufacturing in Asia, particularly in China.

decreased by seven percent (7 percent) year on year. Non-Japanese company toner production is also down by about ten percent (10 percent) since 2012.

However, there is growth in production by non-Japanese companies that are supply third-party or aftermarket suppliers. The growth in production in that sector has been about 17 percent to date and is forecast to increase a further 13 percent by 2021.

In the 2012 calendar year, the worldwide production of toner was about 188,000 tons and in 2018 it is expected to about 189,000 tons. My estimates show that production volume will not grow much beyond that into the foreseeable and will remain below 200,000

tons. Global cumulative average growth rate percentage (CAGR%) for the period 2012 – 2021 is forecast to be about 0.43%. However, this growth is not expected to be universal across all regions. The Japanese manufacturer CAGR% is forecast to be -1.06% while non-Japanese manufacturers production is expected to grow by 3.3 percent.

• Technology

The development of new toner technology is driven by market demands. The focus on improved quality, color, energy efficiency and environmental friendliness is

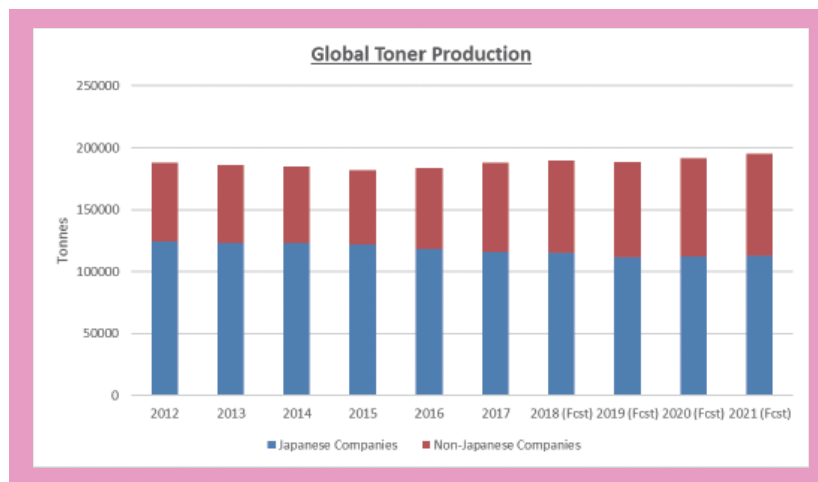


Chart 1

Japan continues to dominate global production volume. Japanese toner manufacturers are either OEMs or contractors for the OEMs. The toner production of

The toner market derives its demand from the printer hardware market, economic growth, and changes in the literacy and wealth of populations.

Japanese vs. non-Japanese companies is shown in the Chart 1. As can be seen, the volume of Japanese manufacture has

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driving development.

Downward profitability pressure in the industry, with its effect on business cash flow, means that manufacturers are pressed for Research and Development (R&D) finance to meet the challenge to develop new technology.

OEMs are moving ever more into Chemically Prepared Toners (CPT), and this will put even more pressure on aftermarket manufacturers. Chart 2 shows the history and forecast for the split in volume in manufacturing technology.

On one-hand, the adoption of CPT satisfies higher print quality demands from the market. CPT with a mean particle size of 4.6µm has already been commercialized.

Globally, environmental regulations are becoming more demanding every year. Energy Star Version 3.0 is slated to take effect in 2019 and calls on manufacturers to significantly reduce future print engine energy consumption. This will impose the development of ultra-low temperature fixing toners that most likely cannot be manufactured using conventional technology. These toners with the challenges of the inherent heat stability issues of “blocking”, powder flowability and storage stability may need new CPT technologies in order for the challenges to be successfully met.

The toner industry is also challenged by environmental issues like the use of nano-sized titanium oxide (TiO2) as a surface additive. According to NISOH & IARC, nano-sized TiO2 particles should be considered a potential carcinogen (Class 2B) and in Canada TiO2 has been classified as class D2A. It is anticipated that products containing TiO2 may need to be labeled as hazardous and if totally banned then manufacturers will need to develop an alternative. In anticipation of this problem

some manufacturers have already decided not to use this material in their new toners.

• Asia Industry Trends

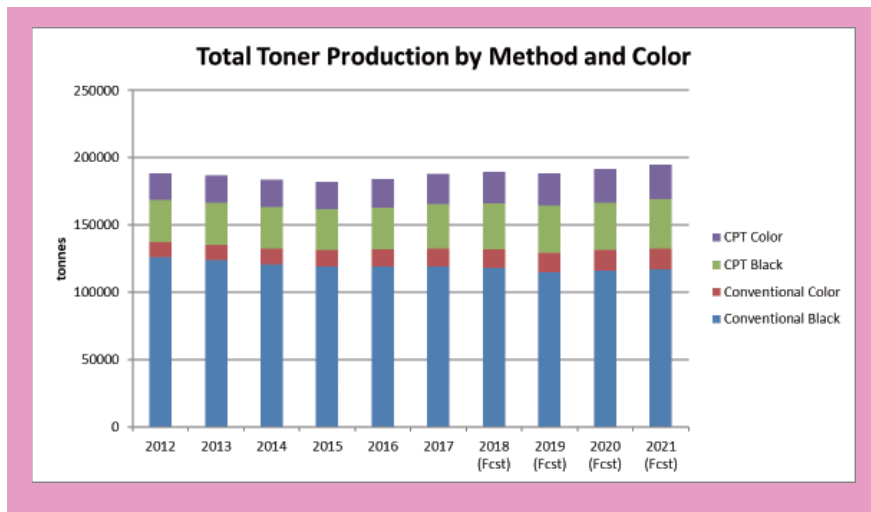


Chart 2

The major growth in production in the global industry has been in Asia with continued investment in R&D and development of production facilities, but this investment has slowed somewhat recently.

Competition with Asian manufacturers, who market low-cost toner, is becoming more intense. The industry in China continues to influence global toner production. Chinese toner cartridge production has grown rapidly to satisfy both domestic and foreign market demand. A significant part of the demand

for toner is for new compatible, new-built cartridges as well as remanufactured ones. Toner industry overcapacity has created a problem of profitability for the global industry. The problem is worst in older legacy toner products especially magnetic mono-component monochrome types.

Manufacturers are developing and marketing toner in gold, silver, white, clear, green, orange, blue, and other colors including fluorescent. These value-added toners provide the opportunity for higher profitability from a lower volume.

Opportunities

There are some areas that offer opportunities for good profitable business. In commercial printing, companies are gradually replacing some traditional printing devices for toner-based equipment. Machine makers are focusing on new hardware for production printing—a growing and promising market—rather than on office machines. For this application toner durability, high quality, and low-temperature fusing, are targets for

overall system improvement.

Demand for commercial printing has created demand for value-added toners.

Manufacturers are developing and marketing toner in gold, silver, white, clear, green, orange, blue, and other colors including fluorescent. These value-added toners provide the opportunity for higher profitability from a lower volume.

Other special toners have good potential for niche markets like secure document printing. Toners with special performance characteristics such as fluorescence and enhanced permanency offer the potential for

good profitability even though volumes are more modest than traditional applications.

It is being suggested that some Japanese toner manufacturers may choose to form alliances with other Asian companies, as has been seen in the past in such industries as motorbikes. Entering such strategic partnerships and joint developments in technology and business may help to protect market and profitability.

With a challenging business outlook for the office-equipment industry, toner manufacturers need to prepare themselves to develop, produce, and sell products that distinguish themselves, or merge to survive the challenges of the future. ■

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Ray Stasieczko

Are Acquisitions the Feel-good Drug in a Declining Market?

“Caution: the noise and excitement of chasing revenue can deafen the cries to control cost.”

It seems the imaging channel has turned into a shopping channel over this last year. Has anyone, besides me, thought how dangerous this is? I believe Ricoh could run a webinar explaining the impending disaster of a growth strategy based on acquiring more of the same in a declining market.

Yes, the fastest way to grow business revenue is to buy it. However, when the business' product you are buying is in a declining market, are you not, in fact, buying declining revenue?

Last May, the imaging channel witnessed one of the largest market players divest itself of the acquisitions it made over the last decade. They claimed they had underestimated the decline in print and that hardware competition was eroding any hope of ever getting their investment back. This year Ricoh wrote off US\$1.6 billion—BILLION DOLLARS—in goodwill. It seems there are a lot of Ricoh copycats hoping they have a better strategy.

“Caution: the noise and excitement of chasing revenue can deafen the cries to control cost.”

Ricoh should have proven to everyone growth through acquisitions in a declining product use market is a risky bet. Today, it seems the screams of excitement come with bragging about how much money you are willing to spend to buy customers. It's louder than the thrill of how much money you earn selling the customers you already own.

Some will argue acquisitions are about buying customer relationships. Another risky bet. Today more and more customer relationships are being replaced by a competitor's better experience. Yes, customer relationships are valuable if the customer gets value.

In the very near future, our industry will



find itself with a collection of serial numbers that produce nowhere near the revenue as the day they were acquired. Backed by venture capital, those self-investors will then determine how valuable those relationships were based on a declining product.

The imaging channel cannot sustain itself by accumulating declining revenue. We can see from their acquisitions that some industry leaders understand this. They are not betting all their money on current relationships based on print. They are adding value to their print deliverable with IT services and security services for example. At the same time, they are moving entirely off the page (could not resist the pun) with acquisitions that are not in any way affiliated with print. In other words, they are not only diversifying their deliverables: they are diversifying their customer base as well.

The imaging channel will see innovators from within and without its borders completely modifying the deliverable. From the way they sell, bill, and service. The innovators will focus on replacing 80 percent of the market's A3s with A4s. The biggest threat to the dealers is losing the largest part of their base to a new innovator.

Many dealers are betting that high volume

will bring some stability as they chase this two-to-three percent market share. This chase to catch high volume has created a fast race to the bottom end of what everyone thinks is the high end. Monochrome retails at .00289c/copy or .003c/copy. Color is at .025. How low can it go? Soon we will see a vendor pay the end-users to use the equipment they gave them. Yes, I'm being sarcastic, but will anyone bet me it won't happen?

One thing is for sure the current circumstances are not sustainable and

something must change. Some inside the channel understand this. However, the new outsiders coming will take the customers from those who believe the way it has always been, is still working fine. End-users do not need to print many of the things they used to print and regardless of the rumors that millennials love to print, print is declining.

Dealers who control cost, adjust human capital, sell products based on customer's needs (customer centric) and have the discipline needed to modify will ultimately prevail. The imaging channel must shift from managing its survival to leading its re-invention. It must have a strategy to profit off the decline in print. Those currently selling out are doing just that. Those buying and those hanging on must modify. ■

Over the last 25+ years, Ray Stasieczko has called the imaging industry (copy/print) home. He was COO/Vice President of ImageQuest. Ray has a deep understanding of the transformation happening in the industry, and his rich experiences allows opportunities for others to navigate through the transformation.
<raystasieczko@gmail.com>



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Channels and Distribution Change Too

Ray Stasieczko

Scan the QR Code to view Ray's video program about copiers.



Connect with Ray Stasieczko, the Founder of TEASRA: the Innovation Channel. "We strive to help our members deliver the future to the present. Because we understand this statement. "A company becomes obsolete when they focus on bringing the past to the future instead of bringing the future to the present."

Contact Ray at ray.s@teasra.com

WE ALL know that everything must eventually die. Yes, even the way we do business will ultimately be replaced by the innovator's new way. In 2018 no one in business should ever say, "That will never happen." Instead they should say, "Currently, this is how we do it."

The remanufactured cartridge business is not exempt from being disrupted, just because they once were the disruptor. Many will remember the OEMs crying foul and the remanufacturers complaining of unfairness.

Today there is a new disruptor: the compatible new built cartridge. Now there are new lawsuits coming from the OEMs and the cartridge remanufacturers are still complaining, but against the compatible cartridge builder.

Who's right? Well, I guess the customer will decide.

As the demand for print declines the more significant threat to all who call the imaging channel home is not the new compatible cartridge replacing the remanufactured cartridge. The real threat to any deliverable is to ignore the customers who use them, or miscalculate the tenure of the comfort in the supplier's current circumstances. If an OEM decides to reduce the cost of their cartridges would the reseller or end-user even buy a compatible? This scenario will play out as the market continues to decline.

Think about the office worker end-users. Today, they print less because they don't need physical documents. Yet some imaging channel resellers, who call themselves Workflow Consultants, continue selling out-put equipment. If one were honest, they would say, "the biggest disruption in any office workflow is when one prints something from the digital world to accommodate an outdated process in the physical world."

We all understand print is in decline, particularly in the US and Western Europe. More importantly, so is the need to print. When a customer's need is eliminated the

IN MY VIEW

Which components give your business the most grief?



India

Dhruv Mahajan

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The heart of our business is toners and it is toners which me the most grief. Surprised?

In India, my biggest market—and possibly the third or fourth largest globally in terms of quantity of toner cartridges used annually—at least one third of the cartridges used are just refilled with toner. No components are replaced: just toner and they sell for 5 to 10 percent of the OEM cartridge price.

In order to make a profit, some refillers use the cheapest toner available. It is acceptable so long as it gives a few hundred prints, an adequate image density and a minimum /acceptable background. Most of the bulk toners sold in this market are blended with various percentages of waste toner that is easily available at just USD1 per kilogram.

Refillers not only survive, but thrive due to widespread, corrupt practices in more than 90 percent of organizations across India. The private sector lacks any regulation or monitoring of procedures.

As you can imagine, the entire Indian Aftermarket is “tarred with the same brush” as having poor quality and selling at the lowest price possible. Despite only having less than 15 percent of the market in volume, the OEMs enjoy 66 percent of the market in terms of the amount of rupees spent.

We need to have a successful brand leader for Aftermarket toner cartridges for this market to be profitable for manufacturers and sellers which implies investment, education and patience by those wanting to be leaders to reap profits tomorrow.

Are the Chinese industry leaders listening?



South Africa

Patrick Naude

CMYK Industries
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There are many aspects of the industry that cause us grief, particularly as it becomes more competitive and challenging. The OEMs continue to release more new products into the market:

1. making it tougher and tougher to get the components quickly enough to remanufacture them;
2. chip technology is extremely “clever” on printers and the smaller MFPS;
3. there are always firmware upgrades that cause confusion and frustration with our dealers;
4. developer and magnetic rollers do not last as long and they have a higher defective rate, so you need to replace them each time you remanufacture a toner cartridge, thus adding to the costs;
5. doctor blades cause a lot of problems in the quality of a print and often cause cartridges to leak after remanufacturing takes place.



means to achieving that need, by default, gets eliminated too. These changes in the office printing market will most definitely impact the current channel distributors and manufacturers. It’s logical to assume manufacturers will decrease as the market needs shrink.

Today there are too many manufacturers chasing a declining market. Their growth can only come from acquiring or replacing a competitor. This fact causes the

rapid race to the bottom, a race the imaging channel has been running in for years. It may not be a complete loss as the end-users win every time they replace their printer equipment that has become less and less expensive.

What is the real disruption coming, and who will benefit?

A3 devices are being replaced by A4.

This shift from A3 to A4 will open many new doors for distribution while it closes the doors on yesterday’s thinking. The imaging channel has been the benefactor of the office copier/printer market since the copier was born. It has also spent decades moving end-users from A4 printers to A3 copiers that print. This channel’s engine is fueled by A3 products and their stubbornness to continue pushing them. However, times are changing, and some manufacturers understand the shift and have the means to capitalize on the

movement. A4 copier-printers can more than adequately service the needs of more than 80 percent of all copiers in the marketplace. A friend at Lexmark recently told me, “Ray, hardly anyone does big paper any more.” I agree. More than 80 percent of all A3 copiers could easily be replaced by A4 devices based on declining output volumes

“Today customers don’t want to evaluate good service by how good you are every time you show up; they want to evaluate products that don’t require you to show up.”

and the feature-rich new A4 devices. Most end-users do not need A3.

Can you see the impact of what I call the “A4 Revolution” not

only affecting legacy channel distribution but also supply distribution? Think about this. Nearly all A3 copier/printer equipment is under a contractual agreement: end-users pay a fee per month, for service, supplies, parts and hardware cost. These contractual agreements are begging for a new innovator with an A4 strategy. Such an innovator could easily be a re-invented legacy A3 distributor, or an office products distributor who is willing to explore how A3 copiers/printers could be replaced with A4 products.

Both remanufactures and new built cartridge manufacturers should pay attention. Every A3 device that is replaced by an A4 device will be contractual. Yes, end-user contracts that will include equipment, service, parts, and supplies. These all-inclusive agreements give the power of supply purchase decisions to the holder of the contractual agreement. These dealers or resellers will look for the supplies



which give their customers quality and give them a larger ROI. These contractual agreements take away the need to sell the merits of a cartridge to end-users; the cartridges are included in the package.

This means the arguments for and against new built compatibles or remanufactured cartridges will be evaluated by the resellers, not their end-user customers. Let's not underestimate an OEM manufacturer, as I suggested earlier, who might totally disrupt everyone by lowering their cost of supplies to compete and grab this new market.

Can A4 change the game for the office products channel?

Absolutely and the change is good.

Many office products re-sellers and IT service providers have participated in Managed Print Services (MPS) seminars and heard the benefits. During the 2000's, many participants significantly benefited from the MPS strategy. Today, MPS is merely a term used to describe a billing process. It is also used to convince print resellers that print is growing. I read an article recently titled "Managed Print Reaches 50 Billion by 2025." I would argue, whatever they counted in that US\$50 billion number for 2025 as managed print would be valued today as 55-60 billion. The article's title should have been, "All print services Will Be Reclassified as Managed Print by 2025: a loss of between US\$5-10 billion from 2018."

Channel resellers who learn how to profit from the decline in print, by replacing A3 equipment with A4 equipment, have

a fantastic opportunity to capture the largest portion of copy/print equipment market share. The imaging channel will get disrupted, and the A4 movement will cause those who remain stubborn to suffer. It will be the invitation for innovators to change the game.

Data supplied by BEI Services, the world's largest database of printer/copier service metrics, proves interesting. They have over 4 million devices and 15,000 technicians doing over 40,000 service calls a day in their Worldstats™ database. Simply put, 80 percent of A3 equipment should be A4 equipment. As end-users begin to discover this, they will demand its delivery resulting in many copier/printer dealers losing great legacy relationships. The new or re-invented dealer who delivers a better A4 experience will be the winner.

"Today customers don't want to evaluate good service by how good you are every time you show up; they want to evaluate products that don't require you to show up."

As manufacturers continue improving equipment, it will drastically reduce the need for replacement parts resulting in fewer service interactions as well. In the near future, almost all A3 walk-up copier/printers will be replaced by A4's and the millions of A4's, with their all-in-one cartridges, will open up a whole new world.

Everything changes. Every business must be able to discuss and understand the threats they face, and the opportunities that become available when threats are "explored" instead of being "ignored". ■



Australia

James Douglas

Advanced Consumable Technologies
james@adcon.net.au

Firmware changes on chips give us the most grief.

As a distributor of finished goods and components we have to:

1. open all stock in our warehouse: every toner or inkjet box, re-chip them and re-seal each one again;
2. return all large shipments to the manufacturer for reshipping: we have to arrange the paperwork, fumigate the pallets, ship the goods back, booking the stock out of our system and rebook the new stock back in;
3. recall stock already sent out to retail stores: the manufacturer never covers the prohibitive shipping return costs. So often we credit the retailer for the stock and just send new stock meaning the margin for that sale is lost.
4. deal with retailers that claim more stock than they originally purchased and/or fail to dispose of the old stock creating further headaches for consumers, losing sales and creating confusion over new or old firmware upgrades.



Australia

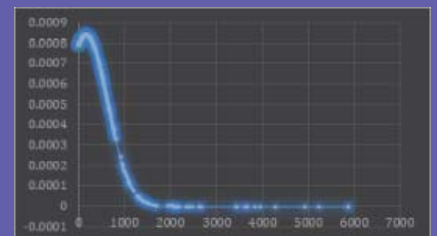
Peter Mitropoulos

Ausjet Inkjet & Laser Supplies
peter@ausjetinks.com.au

There are many aspects of the industry thToday? I'm having a horror day with computers and software not communicating causing great stress and grief to all of us here in the office.

Sure, we have issues on some cartridge products. But at 1.3 to 2.0 percent I am not really whingeing. It's minuscule when you consider the biggest variance comes from the edges of the bell curve. When you look at a defect rate relative to volume distribution chart, such as the one below, it is evident the industry does the more popular products very well but struggles with the more obscure, which is a challenge for a supplier to find better source.

I don't suffer much grief from the product chain, especially with the long and fruitful working relationships we have. It is our business to expect a certain defect level from manufacturers and manage the risk behind that quantity. My customers appreciate a slightly higher defect rate for the massive monetary saving that is made. That honesty in defect expectation against price, in my opinion, generates as to why a customer gives our products credibility. This is a great industry. Let's keep making it better rather than knocking it!





Cu

—Anno's

Offering Customers More

Sales Director Hong Pan Talks About Commitment

Maggie Wang RT Media

MANY MANUFACTURERS know that specialization is a good strategy to withstand competition from within the market. Indeed, specialization enables employees to focus better, work more efficiently, and to be more productive at the same time. However, the leading, China-based blade manufacturer, Anno, has chosen a different path.

“Output is not our major pursuit,” claims Hong Pan, sales director of Anno. “Instead of simply providing products, we are more focused on offering solutions to our customers,” he explains. Offering more to customers has become Pan’s modus operandi since he joined Anno in 2008.

Kick Off

Pan launched himself into his career at the most iconic Aftermarket brands in China. Following his graduation, he joined Print-Rite in 1999. The young mechatronic graduate spent four years in Print-Rite’s laser engineering department, keeping up with the emerging printer technologies of the day. “I learned so much in those four years, either on techniques or on problem-solving thinking patterns,” he reminisces. Then he worked at Ninestar as an engineer from 2003, developing its first laser cartridge together with other engineers. In 2006 he also worked for a well-known toner manufacturer in Guangzhou for two years. According to Pan, “All these experiences laid a good foundation for what I am doing now.”

Quality is Missing

In order to take care of his family, Pan moved back to Zhuhai in 2008, which at the time, was being named the world’s capital city of print consumables. One of his old acquaintances, Anno’s CEO, reached out to him for collaboration.

During that period, imported components were dominating the growing Chinese market. Pan explains, “There were only a few Chinese manufacturers that could produce components in China at the time, and, unfortunately, their quality was very inconsistent.” He sensed that the components would have a solid future if quality could be guaranteed.



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He accepted Anno's offer and started to explore the world of printer cartridge components.

Anno's Growth and Development

Initially, Anno was a manufacturer of copier components. In 2002, it began to manufacture blades for printers as well. At that time, the blades market in China was dominated by Taiwanese brands that were known for their consistent quality. Components being made in Mainland China had a very uncertain quality. With that background, Anno spent six years developing and building trust by focusing upon quality. As customer awareness grew, so did Anno.

"By the time I joined Anno, it's plant had been expanded to around 5,000 square-meters, ten times bigger than it used to be back in 2002. It was also employing about 200 staff," Pan explains.

Then, in 2008, the global financial crisis hit. "As a result, more manufacturers, more distributors, more retailers and more consumers began to accept compatible, Aftermarket products," Pan says. From that time, Anno saw a two-fold increase in sales volume, not once, but every year.

"Now, our total output sees some 6.5 million individual components being processed every month!" he adds. "This includes molded-blades, glued-blades and welded-blades. Anno's welded-blades alone enjoy around 50% market share in China due to consistent quality and good service," Pan claims. In order to maintain blade quality, raw polyurethane (PU) and stainless steel strip (SUS) materials have been imported from Japan since 2012, despite the higher cost.

Earlier this year, in February, Anno moved to a huge, new campus that covers 24,000 square meters. "We are grateful

to the support from our customers, including our dutiful team which has taken ownership seriously by making



suggestions that inspire us to keep making continuous growth."

Becoming More Flexible

Not long after he jumped on board, Pan noticed the need to adjust product strategy so as to better meet customer demands. "Previously, we produced blades for remanufactured cartridges as the main core activity. Those blades were comparatively easy to manufacture, as the specifications were exactly the same with those of the OEMs. However, with the advent of new-built cartridges, the specifications varied greatly creating new demands." It was Pan who suggested the company include new-built cartridge blades into their product range.

"As there were big differences between each new-built cartridge model and brand,

it was impossible to meet all the demands with a single specification. So, the traditional method of molded-blades didn't work well. We had to innovate," Pan says.

To that end, it struck Pan, "It would be much easier if the PU strip could be pasted onto the bracket rather than molded as a whole." That eventually turned out to be what they now call the glued-blades.

"With this glued-blades, we can customize PU length, width, thickness, hardness and bracket shape to match various customer needs. Thanks to its flexibility, the glued-blades perfectly solved the headaches molded blades couldn't resolve, such as cleaning excess toners off the OPC drum and adjusting the proper gap between the blade and the OPC drum," Pan explains. "Instead of replacing the toner, a better alternative is to change a blade if the toner doesn't match the primary charge roller," he added.

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Pan says the glued-blades idea was not as complicated as you might think. “Others could have come up with the idea too,” he humbly admits. However customization to this extent could increase management, manufacturing and storage costs, so not many were willing to try.

Pan took the risk and Anno led the industry for three years.

“Our main hurdle was the need to manufacture plenty of blades with different specifications for just one cartridge type,” Pan admits. “And, on top of that, our manufacturing customers were hesitant to try this new innovation. Many only agreed to try the glued-blades because replacing the toner was too inefficient and troublesome.

To our delight, our customers quickly accepted the glued-blades solution after testing,” Pan claims.

“It was well worth all the trouble to offer

more choices to our customers,” Pan says firmly. “We seek to meet different demands with flexibility. We don’t even mind adjusting our production in order to match our competitor’s specifications in order to solve problems for our customers. In a word, satisfaction is the standard we follow for each customer,” he added.

Rolling Out New Ideas

In 2013, Anno took another business leap, setting up a new plant to manufacture developing rollers and primary charge roller. According to Pan, he found focusing on blade improvement only partially solved some customer problems. “Rollers also played an integral role,” Pan says. “I realized if we could manufacture both, we could offer a package solution,” he added.

“Rollers are more specialized and have their own set of technical barriers. You can not manufacture rollers without heavy investment in R&D and equipments,” Pan explains. To date, Anno has invested almost ¥10 million RMB (US\$1.5 million)

in roller manufacturing equipments, with more than ten R&D staff.

“Following some painstaking effort, our roller output has increased steadily and our new plant reached an output of 50,000 units per month in 2017. We have doubled the investment in 2018, and expect to soon be producing one million units per month,” Pan claims.

“I believe quality is the best sales pitch there is. We will continue to offer quality rollers to customers in the future. We take all factors into consideration that might affect quality during R&D, such as the equipment, raw materials and mass production processes,” Pan says.

Future Strategy

Pan believes prices on blades will undoubtedly face fierce competition in the future. To meet any such challenge, Anno has strategies in mind to make a breakthrough. Setting up the new manufacturing plant for rollers is part of the strategy to boost future development. “We will promote our developer rollers and primary charge rollers to markets outside China,” Pan says. “As always, we will never sacrifice quality for quantity at any time.”

In the future, Anno also plans to intentionally scale back on its customer numbers which will allow it to devote its energy to the needs and demands of a select group of customers and to provide them with better solutions and services. ■



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Is Your Printer a Gateway to You Being Attacked?

Bart Barcewicz



NOWADAYS, ALMOST any device on a corporate network is Internet-enabled. Think about it. Printers, HVAC systems and cameras all pose certain risks to a network. We spend countless hours and dollars protecting the perimeter of our networks, end user machines and servers but what about the other possibly, vulnerable devices inside your walls. In the end, each one of those can, in one way or another, be a compromise point to an office or enterprise.

The most commonly protected security threats within a business' walls are computers and servers as they pose the highest exposure risk to them. Then sometimes we think about Multi-functional Printers (MFPs). These devices allow us to print, scan and email and that's where the risks come in. Most of those devices have the ability to store completed print jobs, scans and emails. Think of the great repository of sensitive and sometimes confidential information that resides within

this box sitting in the office. To top that off, it may not be secured adequately, nor have proactive security measures, so the data can be accessed by anyone.

So, what are the common printer security risks?

They are trusted. Many companies

The most commonly protected security threats within a business' walls are computers and servers as they pose the highest exposure risk to them.

implement printing devices into their network without thinking twice about logically separating them from the rest of the network. There are many services on those devices that are left "turned on" by default providing potential access for attackers.

A compromised user workstation may not grant a hacker access to internal servers, but it may grant them access to a printer that has catalogs of sensitive information stored on it from previous completed jobs.

Default passwords. Many times, IT professionals leave the default credentials on MFP devices as it makes it easier to manage or there may be no authentication at all. This could allow an attacker to manipulate configurations, alter print jobs and even install malicious software on the device itself that could be used to attack the rest of the network thus compromising sensitive information and systems.

External Access. This is where the convenience factor comes in. Many organizations allow their employees to access printers both internally and externally from outside their office. By doing that, they don't realize they may also be granting adversaries with same access as well.

More on Page 37

Certified Quality



Benefits of Certification Seal of Approval for Cartridges

STMC certification proves that the company certified uses the highest industry-approved standards in manufacturing its cartridges. The STMC logo means that the cartridge in the box has been remanufactured by a company that cares about quality.

STMC stands for the Standardized Test Methods Committee. This global committee formed to find and promote standardized test methods for the printer cartridge industry.

For twenty years, the International Imaging Technology Council has evaluated and monitored the STMC program, fighting for those who use it proudly and against those who misuse it.

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That's when the unpredictable can happen. Weird print jobs, denial of service or even a malicious take over may not be too critical if it is isolated to the device alone. However, it could be devastating if it spreads beyond it.

Vulnerabilities. As with workstations, servers and other network equipment, printing devices also have vulnerabilities. News has just broken that HP OfficeJet all-in-one inkjet printers have a major vulnerability. Researchers have uncovered that the sending of a malicious fax to one of those devices can give adversaries full control of that device thus providing them with a pivot point into a network.

Cloud Printing. Printing that originates in a publicly accessible infrastructure such as the cloud could mean, at times, rendered jobs can and will be exposed to "man in the middle" attacks, thus providing hackers with access to the enterprise via printing channels.

Now that we know some common risks let's talk about how dependent we are upon them.

We live in a very digital age but a majority of companies still rely heavily on paper. Convenience brings other risks

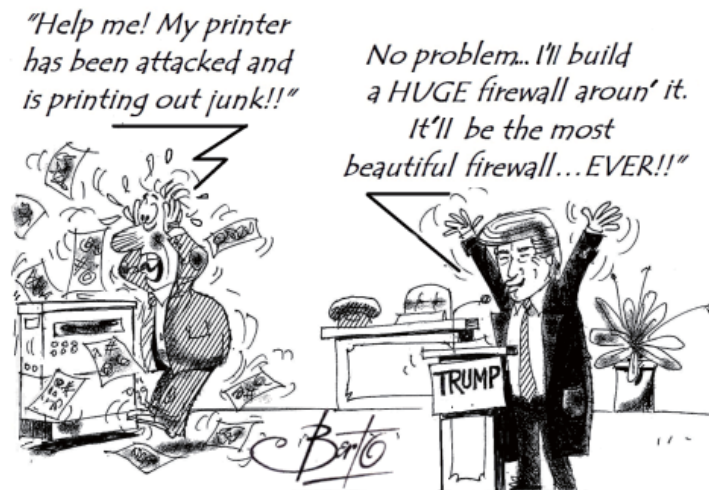
into enterprises that I will not cover in this article. However, it should be asked: what happens to all the paper files containing sensitive information? Are they always being disposed of properly?

are likely to add other unwanted problems.

What can we do better to help minimize the hidden and many times overlooked printer security threats inside our networks?

I suggest starting with the logical separation of the printing devices. The best way is to make sure each office printer functions on their own separated network segment. We can implement that by using virtual networks throughout the enterprise. In addition, there will also be a firewall or, even better, a Unified Threat Management appliance placed between those networks. Only allow certain communications required for printing, scanning and emailing. This will heavily minimize the exposure of the rest of the network in the event of a compromise.

Now that outgoing Internet access can be controlled on networks, all printers can be easily blocked from accessing the Internet. Most MFPs or printers never really need to have direct access to the Internet. Adversaries from outside of your building printers cannot access any footholds or possible malicious software on the printers if you block access to the Internet by default.



Printers are great if they work, but for many IT professionals they are a nightmare when they don't function as intended. When there are certain functional issues it is easy for security to become overlooked. All printer services are turned on for convenience, yet devices are often not properly regulated or updated because they seem to be working fine. Often, security patch updates are seen to be unnecessary, or

More on Page 39

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Let's move on to proper protection of those devices. As discussed, convenience is the reason we allow anyone to print or access the devices for different reasons or business functions. However, we do need to keep security in the top of our mind in this age of the cyber-crime epidemic—for all devices, not just printers. Default passwords must always be changed. Employee's awareness and printing behaviors should be clearly defined in an Acceptable Use Policy—probably one of the most important policies everyone should have describing the do's and don'ts of the company's information systems and networks.

I am a strong believer of not allowing cloud printing for businesses. There should be other secure means implemented if there is a need for employees to print when they are outside the office. Even then, the overall risk of remote access and printing should be thoroughly evaluated for security.

One newer function on most MFPs will now allow you to perform data scrubbing.

Today's security threat landscape is not a matter of IF, but WHEN you will be compromised.

This is a simple configuration that helps prevent easy access to sensitive information that may have been stored on the device itself. I strongly recommend, wherever possible, to configure nightly maintenance of those devices that will clear out all

of the data accrued during the day. This helps mitigate the volume of sensitive information that may be accessible in an event of a

compromise.

Today's security threat landscape is not a matter of IF, but WHEN you will be compromised.

In order to fully protect your organization, you need to incorporate risk management of every device in it. It is not just the server, computers and other in-sight devices. It is critical to have a design of an enterprise that incorporates security on everything that touches the network and may have direct or indirect access to sensitive information. Printers and Internet of Things (IoT) devices, among others, all need to be assessed for risk that may pose a problem

to the company and be properly managed through their respective lifecycles. ■

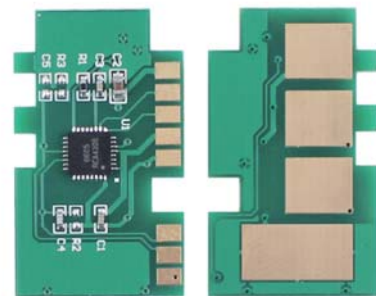


Bart Barcewicz, a cyber security expert, is the Founder and CEO of B Suite Cyber Security, an information security services provider that keeps business data secure and hackers out. Barcewicz can translate complicated cyber threats and tech issues into everyday language to easily communicate with business owners and executives and prides himself on being a cutting-edge provider minimizing cyber-crime, simplifying business continuity management, finding and closing security gaps, and engineering secure networks for businesses his company serves. Contact info is info@bsuite.io

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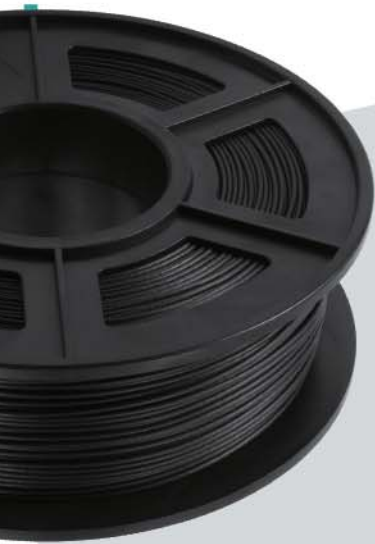
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5 QUESTIONS

Helping to Make Cartridges Work Better

—Katie Bandle is Director of Operations for Remanufacturing Technologies Corp. (RTC), whose owners have been producing coatings for cartridge remanufacturing and other industries for more than 35 years.

What has made RTC so successful?

We don't actually make the cartridges—we make the cartridges work better.

We don't make pilot visors—we just make them fog-resistant so pilots can see better. We don't make industrial ovens—we make the lights in them shatterproof. Who wants glass in their soufflé?

Lester Cornelius (pictured) started RTC. He used his prowess in ophthalmic coatings to help find solutions to problems in many industries, including cartridge remanufacturing. His coatings are in all the cartridges produced by the industry's largest remanufacturers. Lester passed away in 2011, but we are keeping his legacy alive by continuing to find solutions to industries' problems.



How do you solve problems for cartridge remanufacturers?

Blade flipping is a common, but catastrophic problem for cartridge remanufacturers. Our most popular product, Liquid Surelube 2SA, is a patented, fast-drying coating. When applied to a new or used blade, it virtually eliminates blade flipping. What's even better, Liquid Surelube also reduces OPC wear—by 2.5 microns per 10,000 pages on average.

This coating also eliminates the need for OPC powder. One unit of our product will coat more than 350 blades reducing the cost to pennies per cartridge.

It avoids serious problems while improving the ability for remanufacturers to reuse blades and drums.

Another favorite product for cartridge



Katie Bandle, Director of Operations for Remanufacturing Technologies Corp. (RTC), <Katie@remantechcorp.com>

remanufacturers is Lightning Grease, which is an electrically-conductive grease that enhances charging in cartridges. As opposed to thermally-conductive grease, which is an insulating material and will interfere with charging. Lightning Grease has been proven to effectively eliminate "chatter" in cartridges.

You are the first, and only What has kept customers coming back for the last 35 years?

With nearly a decade with the company, I have devoted myself to customer service. Whether that means being the same friendly voice on the phone or working with our logistic and engineering partners, I am always building relationships. And I'm one of the newest employees!

The folks here are about solving problems. Lester was not just about solving product problems with coatings, he wanted to solve industry problems with individual action. He was the founding chairman of the International Imaging Technology Council. He instilled in us all that our customers' successes were our successes.

RTC manufactures coatings that require the use of chemicals. Are they safe?

We ship to customers all around the globe. Some of our products include solvents or other materials that are classified as dangerous goods.

Therefore these products require special certification for transport. Cutting through the red tape of customs and proper packaging have become second nature to me, which assures my customers get our products as quickly and safely as possible.

So buyer beware! Anyone that tells you their product is the same, but isn't classified as hazardous material could be putting your business in jeopardy. They—and you—could be on the hook if a carrier crashes because the product wasn't properly packaged and transported.

Where are your products manufactured?

All our products are manufactured in the United States, in beautiful Las Vegas, Nevada. I walk the manufacturing floor and make unannounced visits to the warehouse on a regular basis. We take great pride in ensuring the safety of our employees as well as providing a consistent quality product for our customers.

Lester wouldn't have it any other way. And neither will I. ■

PEOPLE

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New CEO in the Making

EFI's Guy Gecht says he will step down as CEO just as soon as his successor is named. Global executive search firm Spencer Stuart has been tasked to assist in searching possible candidates both internally and externally. Gecht will remain as a member of the EFI Board of Directors following the CEO change.



Young Enough to Transform SCC

With more than a decade of experience in leading transformation projects with Fortune 500 companies, John Young has joined Static Control which going through a transitional phase. President Bill Swartz says Young will help the company implement the most recent technological advances to their systems in his role as Global Information Officer.



Imaging Industry's Veteran Joined Katun

Ronald Petrucci has been appointed as the new Vice President of Katun North America Office Equipment Channel. Petrucci has held top executive positions in many of the imaging industry's top organizations including as Clover Imaging Group, Panasonic Office Imaging, Kyocera Mita and Danka. In his new role at Katun, Petrucci will oversee all North American office equipment channel operations.



HP Replaces South Pacific Leader

Mike Boyle, currently HP's graphics solutions boss for Asia-Pacific and Japan, will take over from interim South Pacific managing director Paul Gracey in November. As the new managing director, he will be responsible for business operations in Australia, New Zealand and the surrounding islands.



New Vice President on Board

Office Depot has appointed Timothy J. Perrott as vice president of investor relations, reporting directly to Joe Lower, EVP and chief financial officer. He will oversee the development and execution of Office Depot's investor relations strategy and will also lead the dialogue with the investment and analyst community about the company's business strategies and financial performance.

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Mark Dawson



Remanufacturing: The ULTIMATE form of Recycling

Extending product life through remanufacturing is the key to leveraging the Earth's natural resources. The OEMs know it. We know it.

I AM writing this from my study in the Netherlands where we are in the middle of a drought. Temperatures have been in the high 30s for 6 weeks. It's like Dubai, without the air conditioning and it drives the desire to understand more about climate change. The London Times, NASA, and the UK Met Office websites confirm there is clear agreement in the global scientific community that climate change is real and caused by human behaviour. There is broad agreement about what needs to be done. Getting global agreement on targets for reduced carbon emissions has proved more difficult. I recently saw this on social media: "It's only one straw, said 8 billion people." Very sobering and indicative of what happens when we individually abdicate responsibility.

Our industry has made a difference, but we can do more. There are 3 kinds of toner cartridges available to enterprise users: OEM, remanufactured or new build compatible. The OEMs promote their recycling programmes. Do remanufacturers promote their sustainability benefits vigorously enough? Are enterprises aware that new-built cartridges (NBCs) enter their supply chains on a one-way ticket? Do enterprise users know the difference between the three categories? Should our industry do more to promote the benefits of remanufacturing?

This is not just about climate change. It's also about sustainability. In one generation there will be an additional 2 billion people on the planet. That is more than the total global population at the beginning of the



20th Century (1.5 billion). It's an increase of 200,000 per day. McKinsey estimates that by 2030, 3 billion people will join the middle class in terms of consumption habits. "By 2050 we will need 3 times the resources we consume today. Today, we are using 60% of our ecosystems in unsustainable ways. How we produce, consume and live must change" – Janez Potocnik, EU Environment Commissioner.

"Reusing, repairing, refurbishing and recycling existing materials and products means that what used to be regarded as waste, can be turned into a resource. All resources need to be managed more efficiently throughout their lifecycles." – Moving towards a Circular Economy. Put simply, if we don't start using stuff again, we're going to run out.

OEM recycling programs have merit: After consumption, goods are removed from the waste disposal stream, returned to their original raw materials to serve as new raw materials for another manufacturing process.

However, our industry's remanufacturing process also recycles the value originally added to the raw material and makes a much greater economic contribution per unit of

product than recycling. Value is recaptured: raw materials, labor, capital resources, and manufacturing operations. Recycling destroys that added value, reducing a product to its elemental value. That is why remanufacturing is the ultimate form of recycling.

Given the negative propaganda the OEMs have put out over the years against remanufacturers, it is reasonable to assume that they don't believe in the concept. Yet, in 1981 HP set up a worldwide strategic initiative called HP Renew to provide their customers with an alternative to new HP products. This is refurbishment and remanufacture of hardware. It is still in place today and visible with two mouse clicks. HP's negativity towards remanufacturing is clearly selective. When HP does it, it's OK. When we do it, it's not. A product can always be recycled.

Extending product life through remanufacturing is the key to leveraging the Earth's natural resources. The OEMs know it. We know it. But are we doing enough to educate the enterprise users? ■

Dawson joined the imaging supplies industry in 1987, as a graduate mechanical engineer, and began his career in quality assurance and then production management before moving into sales & marketing. He has held senior positions with both American and European Corporations, including MSE and Clover. He is currently a Director with IOP (Internet of Printing BV) whose mission is to help independent resellers find new revenue streams and optimise margins. He can be contacted at mark@iopbv.com for more information about the IOP range of Remanufactured printer cartridges, and for advice on promoting the green benefits of Remanufacturing.



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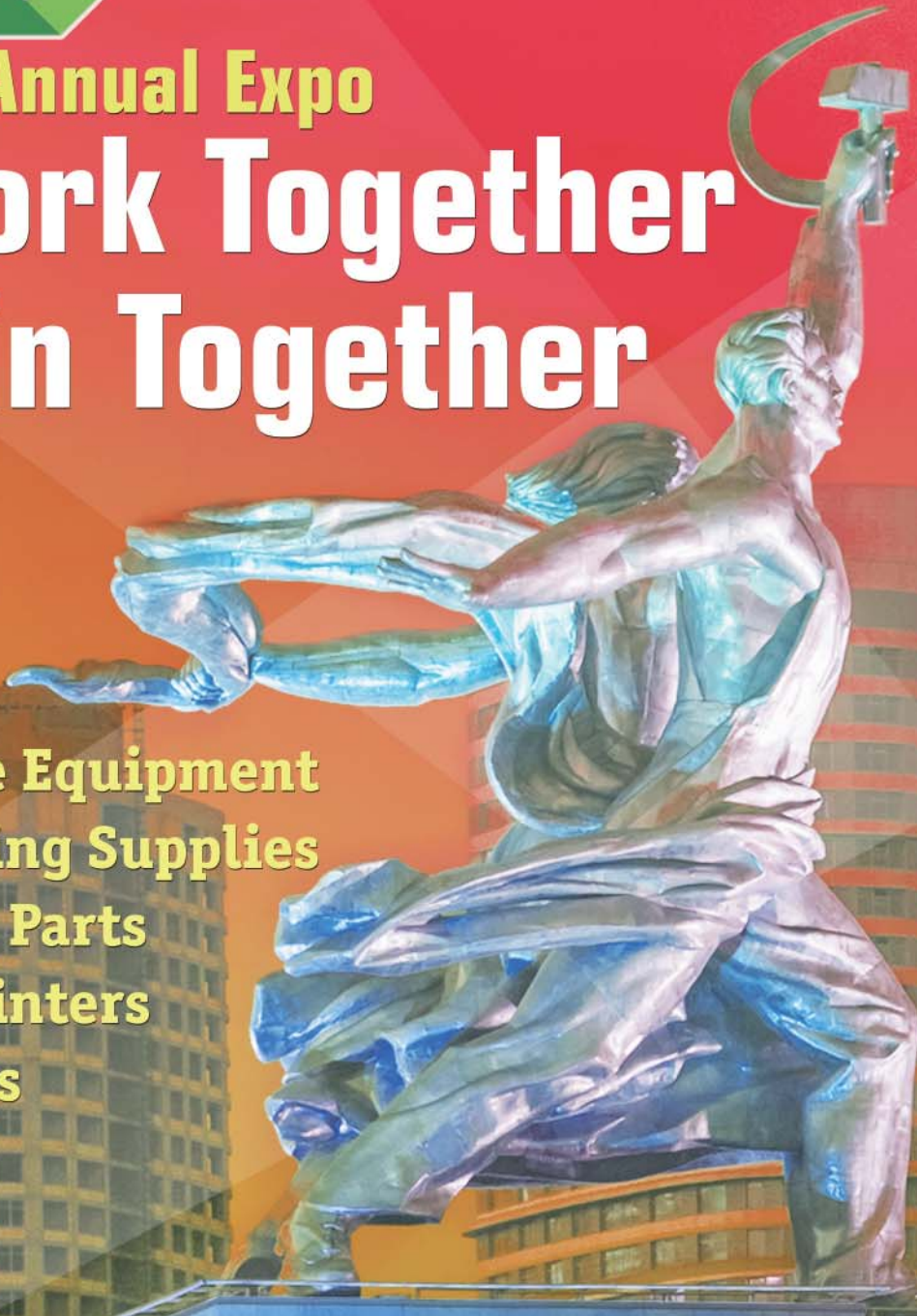
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Tricia Judge

Gunning For Free Speech

The Internet is unforgiving. Once that information is published, it's out there.

3D PRINTING came center stage this summer in the United States with the release of 3-D printed gun blueprints on the Internet. Every major news affiliate carried the story and raised warnings.

The guns, printed in plastic, are touted as “ghost” guns because they are untraceable. In late July, a U.S. judge blocked the planned release of 3-D printed gun blueprints hours before they were set to hit the Internet, siding with states that sued to halt publication of designs to make weapons that also are undetectable through security screening.

The issues arising from this new technology have rocked the legal community. First, gun control and gun-related issues have always been the purview of the Second Amendment to the U.S. Constitution, which sets forth a right to bear arms.

However, the new blueprints for plastic guns, and their publication, are controlled by the First Amendment, which regulates a free press. The issue is now about the right to pass on information to a global community.

The Internet is unforgiving. Once that information is published, it's out there. And the Texas-based company that designed these blueprints has already released them. That's what has gun control advocates and all levels of government security officials up in, well, arms.

Eight states and the District of Columbia have filed a lawsuit against the federal government, arguing it acted arbitrarily in reaching an undisclosed settlement with the company in June.

The states said online blueprints would allow criminals easy access to weapons. They said the Trump administration had failed to



explain why it settled the case and that its decision violated their ability to regulate firearms and keep citizens safe.

Some of the files include 3-D printable blueprints for components that would go into the making of a version of the AR-15 semi-automatic assault rifle, a weapon that has been used in many U.S. mass shootings.

Ironically, the National Rifle Association (NRA), the sworn advocate of gun ownership, denounced the new weapons. “Regardless of what a person may be able to publish on the Internet, undetectable plastic guns have been illegal for 30 years,” Chris Cox, executive director of the NRA’s Institute for Legislative Action, said in a statement. The irony is that the new plastic guns, while still far less efficient and far more expensive than manufactured ones, could eventually take market share away from the major gun OEMs, who are the lifeblood of the NRA. There are also laws against the guns in place. Under the U.S. Undetectable Firearms Act any firearm that cannot be detected by a metal detector is illegal to manufacture, such designs for firearms require a metal plate to be inserted into the printed body.

While the printed guns got a lot of media attention, some analysts are shaking their heads. 3D printers capable of producing these guns have not saturated the market. Although more market penetration is anticipated, there are only roughly 6000 machines available that would work. With more than 300 million non-military firearms on the streets in the U.S., their production would hardly make a dent.

Therefore, it will take years for the printable gun industry to gain efficiency and mass productivity. By then, U.S. laws will have hopefully

caught up.

Outside of the U.S., the guns are illegal in a variety of countries where gun regulations are in place, such as the United Kingdom and Australia. In Japan in 2014, Yoshitomo Imura was the first person to be arrested for possessing printed guns. After posting 3D gun plans on the Internet, Imura’s home was raided by authorities. He was found with five guns, only two of which were capable of being fired, but he had no ammunition. ■

Judge has served as the executive director of the International Imaging Technology Council, a not-for-profit trade association serving imaging supplies remanufacturers and dealers, for 17 years. Judge was the executive editor of Recharger magazine. A lawyer for 30 years, Judge also has litigation experience. Judge’s work has been published in Recharger, and several other industry magazines. She has won critical acclaim for her writing and industry advocacy. She has assisted in the preparation of six friend-of-the-court briefs. Judge has presented the position of the industry to the International Trade Commission. She can be contacted by email at <tricia@i-itc.org>



John Cooper

An Observation of the Global Printing Supplies Market

Consumers must be warned if they are exposed to any amount of any listed chemical, even if the exposure was safe and posed no health risk.

IN 1986 California introduced the Safe Drinking Water and Toxic Enforcement Act, providing a list of chemicals known to cause cancer or reproductive toxicity (currently over 900 chemicals). California is set to update that law with new regulations that take effect on August 30, 2018 and will affect any product sold in California.

What makes the act particularly onerous is that consumers must be warned if they are exposed to any amount of any listed chemical, even if the exposure was safe and posed no health risk. California is not alone as at least 11 other states have reportedly introduced over 30 proposals requiring warning labels for products where there is no actual risk as backed by science. For more information visit accuratelabels.com or sgia.org.

Inks

Smithers Pira has a new research report on the future of the inkjet market in which the author Dr. Sean Smyth predicts a growth rate of 9.4% per year to \$109 billion by 2023. His interviews with users and suppliers indicate the fastest growth will come in the areas of commercial and book printing as well as packaging. This expected growth will include taking market share from more traditional methods as well as new opportunities.

Epson has reportedly sold over 30 million ink tank printers since their first introduction in 2010. For FY 2018 they expect placements of 9.5 million units, a 20% increase from 2017. Epson has also introduced two new WorkForce printers with replaceable ink pack system. The WF-M5299 monochrome and WF-M5799 multifunction monochrome printers have capability of up to 24 ISO ppm (black).

Brother is offering new printers with an ink tank system in competition with Seiko Epson. The INKvestment Tank MFC-



j995DW multifunction is equipped with a storage tank that feeds a typical cartridge with up to a years' worth of ink at a typical average 150 pages/month. The MFC-j995DW XL INKvestment Tank XL Extended Print Model has an even larger tank/cartridge providing up to 2 years ink. Price from US\$199 to US\$299. Print costs are claimed to be less than 1 cent (black) and 5 cents color. Brother has also introduced a series of low cost home/office multifunction inkjet printers. The models begin at just US\$79.

3D Printing

The IDC Semiannual Worldwide 3D Spending Guide is forecasting a 23.2 percent increase in 3D spending to US\$23 billion by 2022. Currently the major drivers of 3D are prototypes as well as new and aftermarket parts for automotive, aerospace and healthcare. However newer and faster models are expected to lead to wider adoption.

The CONTEXT Additive Manufacturing & 3D Printing Research Update for the third

quarter 2017 indicated that the industrial/professional segment saw a 22 percent increase in 3D shipments compared to the same period a year earlier.

Personal/desktop shipments were 45% higher in the first 3 quarters vs the same three quarters 2016. Stratasys had a 24 percent revenue share with their polymer-based units while GE was the leader (9%) in metal powder technology.

OEMs

Canon was awarded a patent infringement judgment of US\$4.5 million against toner bottle producer GPI and aftermarket toner producer Color Imaging back in 2017. Color Imaging appealed but has now settled the case by stipulating to the consent judgment and agreed to a permanent injunction against producing, using or selling the infringing bottles. An undisclosed amount of money will also be paid to Canon.

Ricoh has announced the establishment of "Ricoh Manufacturing (China) Ltd. as a new manufacturing operation for office printers. The Dongguan, Guangdong facility will occupy 90,000 m² and has an August 2019 expected completion.

Lexmark has introduced a new generation of monochrome and color printers and multifunction laser printers. The A4 color units include: CS421dn, CS521dn, CS622de, CX421ade, CX620 Series and CX625 Series. The workgroup monochrome printers for large workgroups include: MS725 Series, MS820 Series, and MX820 Series. The entry-level devices have print speed of 25 ppm or higher. ■

For more information about patent applications, a list of technical journal articles, lists of raw materials suppliers for toner, inkjet and the imaging industry contact John Cooper for his monthly newsletter at john@tonerandinkinfo.com

Steve Weedon



It's Often True... But Not Always True

Change however, does bring opportunities for those ready to see and ready to pounce.

WE KEEP talking in these pages about the change that is taking place in the industry.

Since 2015 the pace of change has been faster than our ability to keep up with the news. HP just decided to buy the UK firm, Apogee. Xerox has a whole new direction led by its major shareholders who have now taken control of the iconic company. Staples has new owners in the US. Where have all the remanufacturers gone? Trump's tariffs don't seem to have had much affect so far. And Clover's white paper tells us more about the company's worries and concerns than it does about the paradigm shift from remanufactured products to new-built, patent-safe products.

Parts and supplies vendors for ink, laser and copier remanufacturing are having a tough time. Prices have reached an all-time low, volumes are reduced and vendors are going out of business. It was a shame to see OCP GmbH file for bankruptcy in Germany recently. The fate of this highly regarded ink development innovator with good quality products and prior art, is symptomatic of a changing market place.

Change however, does bring opportunities for those ready to see and ready to pounce. Acquisition interest is high for buyers looking for ways to expand or improve manufactured products, particularly from China, where costs of manufacturing are going up. Interest is also high from sellers looking for exit or survival strategies, who find the volumes dwindling as local prices collapse and orders head south.

It is not because the overall volume of demand for consumable products is going



down. In fact the opposite is true: globally, it's going up. But, there is a seismic shift away from remanufacturing and remanufactured products towards new built cartridges. Most new built cartridges come from China, which is where the volume is. It's interesting to note Russia is now also getting in on the act. It is true, most new built cartridges that are exported from China are sold to areas where the OEMs, for their own reasons, have not registered patents. This makes these cartridges legitimate products.

It is also true some players import these same cartridges into Europe and North America, amongst other places, where the OEMs, of course, have registered their patents. Many, if not most of these products could be infringing those patents. So buyer, beware.

It is not true however that all new built products from China are copy cat "clones", are patent infringing and are hugely risky. This is a total misconception created by the few. Why? They simply have no answer to the competition that such legitimate, new built cartridges create. They are non-

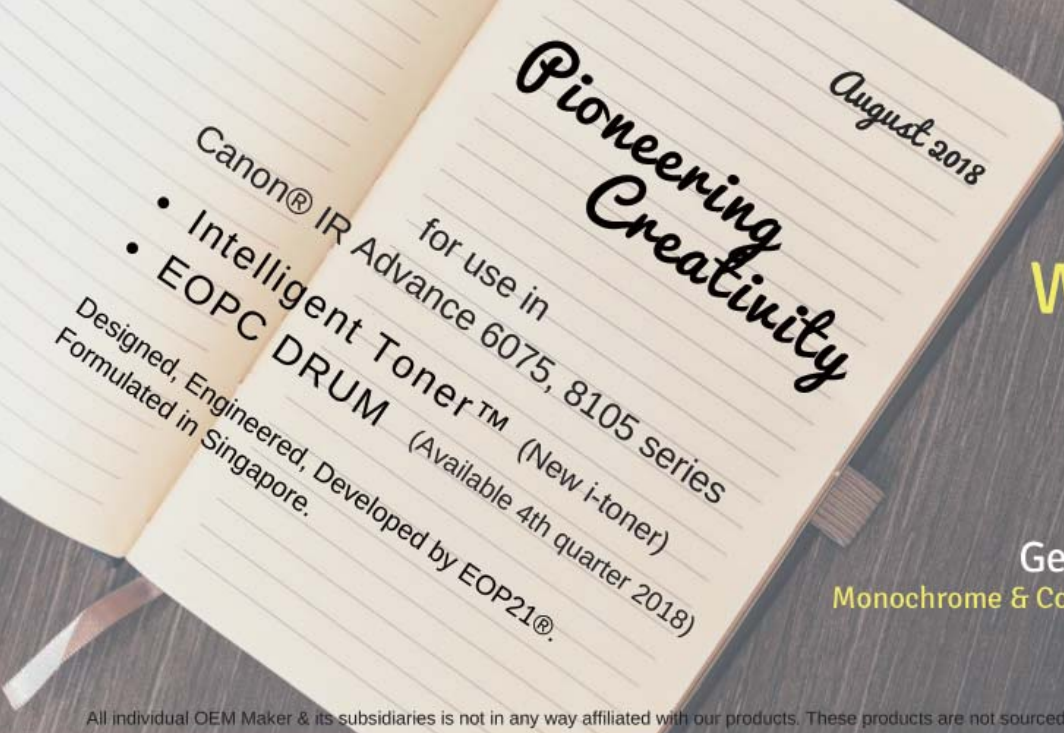
infringing, consistent in quality, and contain no core- empty cartridge price in the bill of materials (BOM). This change has been taking place in our industry since 2015 and has not been good for those who did not see it coming.

The truth is the Aftermarket will significantly grow its market share, way beyond the 20-25% it claims now on the foundation of legitimate, new built, cartridge products. That worries the OEMs and it worries those companies fixated on, and "stuck" with a remanufactured products only business model.

Let's not kid ourselves. All end users buy an Aftermarket, remanufactured cartridge because it is cheaper. That same end user comes back if the quality was good. All the merits of recycling for reuse and eco friendliness do not enter the equation now. They may have done back in the early 90s. Now remanufactured cartridges have to compete with new build, patent safe, cheaper, better quality products. The truth is they fight a losing battle.

This is the big problem for parts and supplies distributors and vendors alike, who traditionally have supported, trained and serviced cartridge remanufacturers around the world for the last 30 years. ■

Steve is an award winning CEO who has held senior management positions at various OEMs as well as Katun Corp and SCC. He was the original founder of The Recycler Magazine and of trade shows in Europe. He also established Static Control's Worldwide Subsidiaries and relocated to the US to become Executive Vice President. Steve headed up the global Cartridge World network after it was acquired in 2016. <steveweedon@utec.com.mo>



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Mike Josiah

REMAXWORLD EXPO 2018

Remanufacturing the HP Enterprise M750 Color Series Black and Color Toner cartridges

The M750 series of color laser printers are based on a 30 ppm black and color Wide format (up to 12 x 18") 600 x 600 Dpi engine, 3600 DPI with RET. The engine has a max duty cycle of 120,000 pages per month, comes standard with 1Gb Ram, plus an 8GB hard drive.

Because theory has not been covered in a long time, we will take a moment and run through the printer theory before we get started.

These cartridges come with an internal toner seal and a snap-on drum cover across the bottom to protect the drum. This cover also separates the developer roller from the drum so that when the cartridge is stored, the developer roller does not become flattened.



▲ Figure 1

The printers based on the M750 engine are the:

HP LaserJet Enterprise M750n
HP LaserJet Enterprise M750dn
HP LaserJet Enterprise M750xh

The cartridges used in these machines are the:

CE270A (Black)	13,500 pages	\$274.00
CE271A (Cyan)	15,000 pages	\$448.00
CE273A (Magenta)	15,000 pages	\$448.00
CE272A (Yellow)	15,000 pages	\$448.00

* Pricing current as of July 2018.

All the toner cartridges are considered part of the 650A series.

These cartridges use chips that's need to be replaced each cycle.

HP-M750 Color Printing Theory

The Color toner cartridge printing process happens in s series of stages or steps. For the purpose of this article, we will call them stages. Figure 2 shows the basic layout of the cartridges and how they relate to one-another and the printer. The laser units are on the bottom, the cartridges are at an angle, and the ITB is on top. Figure 3 shows the complete image formation process



RT's Cartridge Library



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LOOKING FOR STEP-BY-STEP GUIDES FOR CARTRIDGES?



Mike Josiah's popular toner cartridge procedures will be available online in the middle of 2013 as a library of more than 400 cartridge models. This service will be provided exclusively to Recycling Times Media readers by UniNet Imaging: www.uninetimaging.com



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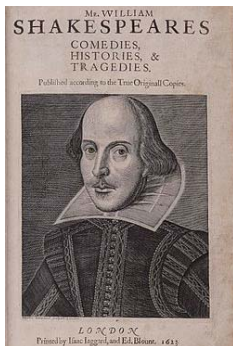
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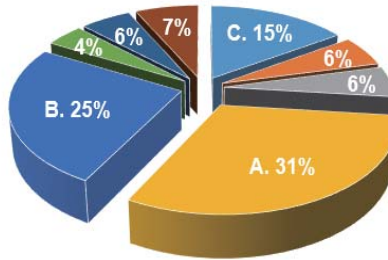


It took almost two years to produce Shakespeare's first collection of 36 plays in 1623. Modern scholars commonly refer to it as the First Folio.

(Source: <https://www.folger.edu/cool-printing-facts/>)

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(As at 20 July, 2018)

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	Last Month	This Month		Last Month	This Month
Brother Industry (Yen) (6448:Tokyo)	2,220	2,186	Ninestar (RMB) (002180:Shenzhen)	31.45	27.70
Canon Inc. (US\$) (7751:NY)	36.19	31.73	Hubei Dinglong (RMB) (300054:Shenzhen)	8.93	8.14
Seiko Epson (Yen) (6724:TYO)	1,949	1,913	Suzhou SGT (RMB) (002808:Shenzhen)	10.52	12.84
HP Inc. (US\$) (NYSE:HPQ)	23.19	24.54	(Sources: Google Finance and bloomberg.com)		

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- RT** The 12th RemaxWorld Expo
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