

A new printer that combines generations of experience with the most advanced technologies, innovative design, and best practices is positioned to drive change in the traditional CAD printing market.

A Potential Game Changer in Large Format CAD Printing

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Written by: Tim Greene, Research Director, Hardcopy Solutions

Introduction

The large format CAD/technical printing market is ready for a major transformation. For years, production-oriented large format CAD/technical printing has been led by toner-based large format printers. The decentralization of the market has led to the development of low-end large format toner-based printers that produce billions of square feet of print annually. There are now more than 25,000 older low-end large format LED printers in the installed base in North America. All these printers are monochrome only. They have a relatively high price tag, and the costs of supplies and maintenance are high, too.

Key CAD/technical applications such as architectural renderings, mock-ups, 3D drawings, and "as built" documents require color. IDC estimates there are around 230,000 large format inkjet printers installed to meet the color CAD printing requirements, so many companies have adopted color inkjet printers. "The AEC [architecture, engineering, and construction] market as a whole is adopting color much more than in the past," said Tony Dargo, the Director of Sales and Technology at Eastern Engineering, a large format reseller based in Fishers, Indiana, that has been in the large format printing business for almost 50 years. However, adding a color printer along with a monochrome toner-based printer significantly adds to the total supplies and maintenance costs.

Users often want to replace a monochrome toner-based printer with a color-capable inkjet printer. However, inkjet printers have historically lacked many of the workflow and productivity features required, and they have been too slow to meet the needs of users in the production-oriented segment of the CAD printing market.

Over time, less expensive large format inkjet printers designed for the CAD/technical market have been slowly getting faster, but the slow rate of speed increase alone has not been compelling enough to drive a more rapid transition. Wide array inkjet printers are fast enough to enable the transition to inkjet from toner-based printers but are generally priced well above conventional inkjet printers. They also still lack many of the productivity features users expect in production environments.

AT A GLANCE

KEY TAKEAWAYS

There are more than 25,000 low-end LED printers installed in North America that represent a great opportunity for conversion to production-oriented inkjet printers.

Inkjet printers captured a greater share of the more than 5 billion square feet of large format print volume produced by toner-based printers in 2020.

Now, with more than 25,000 older, large format LED printers in the installed base in North America, a workforce returning to the office, and budget limits that are forcing companies to streamline their IT assets, new technology is required to fill the gap between conventional large format inkjet, toner-based large format, and wide array large format printers.

Benefits

Color inkjet technology is delivering the required color and lower hardware investment cost that the large format CAD printing market needs. To accelerate the transition from toner-based printing to inkjet printing, new technology is required to provide compelling reasons for the market to change. Markets change when substantial benefits are realized, and in the CAD printing world, users are seeking advantages in areas such as workflow and productivity that save users time, use fewer production devices and smaller equipment footprints that save space and money, and lower operational and maintenance costs that save users money.

Trends in the Large Format CAD Printing Market

Streamlining IT

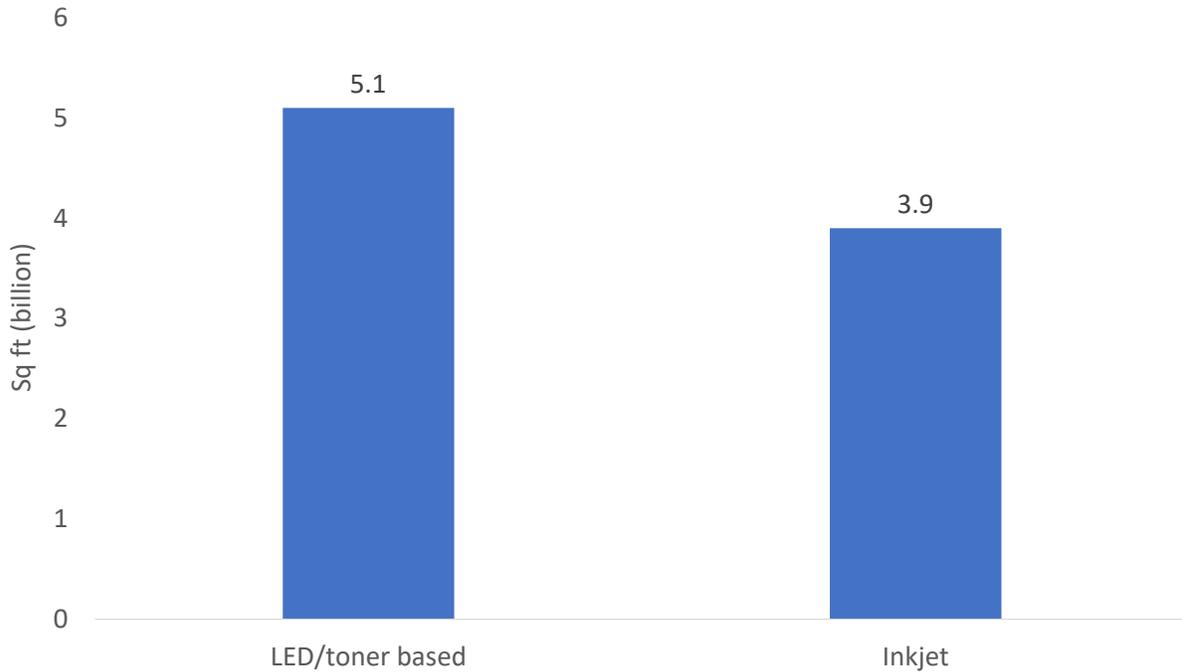
With constrained budgets, more and more end users are seeking savings through the streamlining of their IT assets. The introduction of new fast color inkjet printers represents an opportunity to replace multiple printers with a single, highly capable, easy-to-operate printer. "The timing of this launch is good," according to Eastern Engineering's Dargo. "Demand is recovering as people are returning to work."

Furthermore, the speed and color capability of such printers also mean that some of the production of graphics such as posters, banners, and other marketing materials that would typically be outsourced can be brought in-house, representing another cost savings opportunity.

Decentralization

For years, the big trend in the large format CAD/technical market has been decentralization. At one time, engineering companies would have in-house reprographic departments that would produce these large documents in a central location. When large quantities of large format documents were required, they would send their technical documents to a print-for-pay reprographic shop to be produced in volume. Over time, it became more efficient to share technical information electronically, which meant that more locations such as small offices and construction sites would have their own large format printer for producing CAD/technical documents.

This decentralization trend has created a market for low-volume large format toner-based printers as well as large format inkjet-based printers. The installed base of low-end toner-based large format CAD/technical printers in North America is estimated at over 25,000, while the installed base of large format color inkjet CAD/technical printers is around 230,000. Despite that, toner-based printers produced over 1 billion more square feet of large format print volume than inkjet printers did in 2020 (see Figure 1).

FIGURE 1: **Large Format CAD/Technical Printing, 2020: LED Versus Inkjet Production**

Source: IDC, 2021

IDC expects new technology solutions to fill the gap between toner-based large format printers and conventional inkjet large format inkjet printers, accelerating the transition of large format CAD print volumes from toner to inkjet.

Returning to Work

By any measure, 2020 was a strange year. Working from home due to the pandemic became standard for many workers in industries that produce large format technical documents, including AEC, transportation, utilities, communications, education, and government. In 2020, a very high percentage of these workers were forced to work from home through the pandemic. Many of these professionals use color printers at home. IDC believes that when these users return to the office, they will want to print in color just as they have at home.

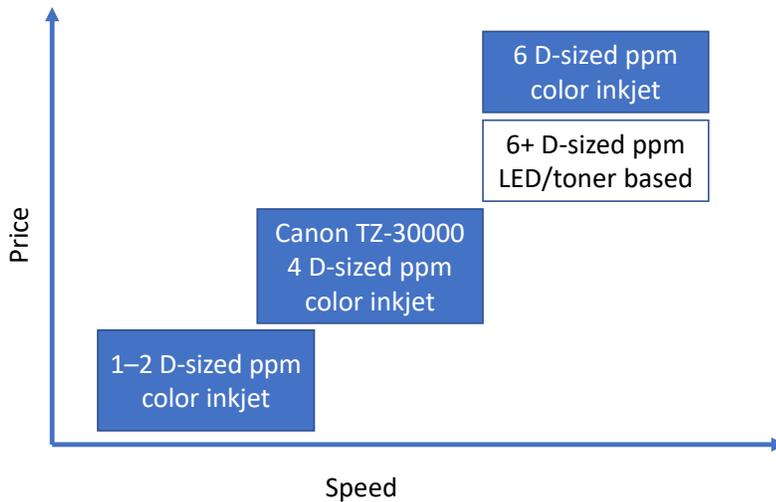
Furthermore, as employees worked at home, many companies extended the lease agreements for their large format toner-based CAD/technical printers, which are typically installed on three-year cycles. In 2021, as workers return to the office, there will be an opportunity to use fast inkjet technology to replace older LED printers and introduce color printing in a single device.

Considering Canon

Canon U.S.A. Inc., is a leading provider of consumer, business-to-business, and industrial digital imaging solutions in the United States and in Latin America and the Caribbean. With approximately \$30.4 billion in global revenue, its parent company, Canon Inc. (NYSE:CAJ), ranked third overall in U.S. patents granted in 2020, based on weekly patent counts issued by the United States Patent and Trademark Office. It was also one of *Fortune Magazine's* World's Most Admired Companies in 2020. Canon U.S.A. is dedicated to Canon Inc.'s Kyosei philosophy of social and environmental responsibility.

The Canon imagePROGRAF TZ-30000 has the potential to be a game changer in the large format CAD printing market. The TZ-30000 offers greater productivity than conventional inkjet printers but in the same price range (see Figure 2). It also offers media handling and software features, as well as a level of quality in color and in black and white that make it possible to replace both large format monochrome/color toner-based printers and previous generations of inkjet printers.

FIGURE 2: *The Canon imagePROGRAF TZ-30000*



Source: Canon, 2021

One Device

The new Canon TZ-30000 model can print up to 4 D-sized pages per minute and has a fast wake-up cycle, allowing it to produce prints more quickly than toner-based large format printers. The TZ-30000 offers extremely high quality both in black and white and in color. Increasingly, users print color to highlight sections of technical documents. For example, in a building plan, the HVAC systems may be printed in green, the plumbing in blue, and the electrical system in red. Elements that have been modified may be highlighted to call attention to changes. The TZ-30000 has Canon's LUCIA TD pigmented inks, which create vivid colors and fine lines and offer high resistance to sunlight. These inks are core to the ability to print line drawings, GIS maps, architectural renderings, and aerial photography, as well as posters, signs, and banners, from the same printer. The TZ-30000 is fast enough with this color capability to replace two or more large format printers. Replacing two large format printing devices with one provides an instant savings because users have to buy supplies and paper for only one printer, and there is only one service contract.

Productivity

The TZ-30000 is the first printer in Canon's history to adopt twin motors for the carriage motors used for printhead scanning, which increases the carriage speed to 100 inches per second, much faster than any Canon large format inkjet printer to date. The cutter speed has also been increased to keep up with the printer carriage. The 4 D-sized pages per minute (ppm) speed of the new printer means that professionals who depend on large format printers, such as engineers and architects, won't be waiting for their prints. Also, because the TZ-30000 is inkjet, it has a faster "first print" speed than LED printers that have to "warm up" before prints are produced. In fact, due to the speed with which the TZ-30000 moves out of "sleep mode" and starts printing, the first prints are complete before any LED printer is even warmed up enough to print.

Media Handling

The TZ-30000 has two media drawers, so users are able to load two rolls of 36in. paper or mix and match paper sizes and types. The drawers can handle media rolls up to 6.9in. in diameter, so the imagePROGRAF TZ printer can handle 650ft rolls. Unlike other devices that require some "threading" of media when the roll changes, the Canon TZ-30000 has a smart paper feed mechanism that "grabs" the edge of a new roll of media. All users have to do is slide the roll into the drawer and close the door. Feeding print media has long been one of the top frustrations of large format printer users.

The TZ-30000 also detects the width, length, and type of media while loading. This is something no other large format CAD printers can do, saving the user time in changing media settings. The media information is obtained by communicating with the printer, so printing can be performed with fewer operations or errors that might lead to printing failures. This is a critical new feature for environments where a variety of applications are being produced requiring a variety of media types. Also, the TZ-30000 can estimate the amount of paper left on a roll and warn users if there is enough left to complete a print job. A set of lights on the front of the printer also indicates how much paper is available on the rolls inside, which saves errors for workers who are submitting jobs from the printer's large 4.3in. LCD touchscreen instead of their computer.

Hot Swappable Supplies

The TZ-30000 warns users that supplies are running low, and the printer is configured with sub ink tanks and an additional media drawer so that users don't have to stop printing to replace printer cartridges or media rolls. The printer will automatically switch between media rolls in the drawers without user intervention, an important feature in environments where the printer will produce CAD and graphics type prints because graphics typically require a different print media set.

Software

The TZ-30000 includes Direct Print Plus software, which builds on Canon's Direct Print & Share with enhancements designed to improve productivity. One of the biggest features is batch printing, which refers to the ability to print multiple files of different formats such as PDF, JPEG, TIFF, and HP-GL/2 without starting up separate applications. "The option to do batch printing is very nice," according to Eastern Engineering's Dargo. "Batch printing is really common on the toner-based side but is rare in large format inkjet printers." Canon has improved the processing speed with Direct Print Plus to accelerate and enhance the rendering process using a proprietary Canon PDF processing engine. This greatly accelerates the file rendering speed and provides better thumbnail previews, which helps reduce errors. Direct Print Plus also has a nesting feature that allows users to make more effective use of the media width. For example, a photo could be placed next to a line drawing to provide more details.

Canon also offers multiple drivers and software that help make it easy to integrate the TZ-30000 into any work environment. The Canon Production Printing Driver Select is designed for users that have other Canon high-volume large format printing equipment installed, including Canon Plotwave and Colorwave machines. Canon Production Printing Publisher Select allows the user to manage printer status, ink, and media levels and receive warnings when ink is running low or the media is empty. This software also offers dual printer support, the ability to view printer features on one screen, and templates for frequently used job settings. The TZ-30000 has its own driver, the TZ Printer Driver, which allows users to print to any imagePROGRAF TZ Series device without the need to install additional drivers for each model. This feature helps make it easy to install multiple devices within the same environment.

Another important piece of software is Canon PosterArtist Lite, graphic design software that includes templates and graphics capabilities that enable graphics production even for users without robust graphic design software. The TZ-30000 also enables borderless printing, often required in both technical and graphics printing.

Security

Security has become a very important issue in the printing market and is even more important for printing devices in production environments that many people rely on. The TZ-30000 includes several powerful new security features, including enhanced encrypted communications, interface security that can disable wireless access, secure printing with PIN codes, secure file storage and deletion, track usage, and restrict printing from USBs. All these features contribute to the most secure large format printer Canon has ever offered.

Small Footprint

The new Canon TZ-30000 MFP Z36 system has a very small footprint due to the elimination of the AIO stand; with the top stacker, minimal space is required in front of the printer. The top delivery tray holds up to 100 sheets, which means there is no clumsy catch tray and prints don't fall into a pile. Prints can be easily retrieved from the front of the device. Users can do nearly all the typical functions from the front of the printer, such as changing ink cartridges and operating the LED screen.

To replace the existing installed base of toner-based printers and multifunction printers (MFPs), Canon has partnered with Global Scanning to offer a newly developed scanning solution as part of the TZ-30000 multifunction package. The new scanners are much smaller and lighter than past models and offer easier installation and operation than previous MFP solutions. The scanner can also be integrated into the printer to maintain a small footprint.

Challenges

The biggest challenge to any game changer is the status quo, or simply doing nothing. Large format equipment dealers and IT VARs have the opportunity to disrupt the status quo by introducing products, such as the TZ-30000, that deliver real benefits to customers. For Canon, working with customers to illustrate the obvious cost advantage of replacing two or more large format printers with a single printer should be a relatively easy exercise.

The next biggest challenge for the company is getting customers to recognize the advantage of using color in CAD/technical document production, which is something of a change for dealers and IT VARs that have historically sold monochrome toner-based large format printers. It is a fact that color provides significant advantages to communication in the CAD field. Users have known this for years, which is why they use highlighting. The opportunity is to replace the installed base of monochrome equipment with color-capable equipment that still produces black-and-white documents at the highest quality.

Other equipment options represent the final major challenge. To date, there have been no solutions that combine all the features and productivity at the price point that Canon brings to market with the new imagePROGRAF TZ-30000 printer. The TZ-30000 combines modern technology and advanced ease-of-use capabilities with a long-term understanding of the production-oriented CAD/technical printer user.

Conclusion

IDC believes the opportunity to drive change in the large format CAD/technical printing market is substantial.

The Canon TZ-30000 is designed to fill a gap that exists in the market between toner-based monochrome printers, traditional conventional large format color inkjet printers, and more expensive wide array inkjet printers. Canon has created a potential game changer by embedding speed, intelligence, print quality, software, security, and media handling into one device. To the extent that Canon can address the challenges described in this paper, the company has a significant opportunity for success.

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About the Analyst



Tim Greene, Research Director, Hardcopy Solutions

Tim Greene is a Research Director within IDC's Hardcopy Solutions group. Greene is responsible for coverage of the large format printing, 3D printing, and digital signage markets. Greene's research and insights help companies in these areas understand and take action on digital transformation of their business. Greene joined IDC in 2014.

MESSAGE FROM THE SPONSOR

Canon's extensive market research pointed to an increasing demand for high speed, yet versatile, large format printers for users who are looking to expand business opportunities within the low-end LED / high end inkjet market, and the Canon imagePROGRAF TZ-30000 Series has been created specifically to meet that industry need. As an industry-leading innovator, Canon is dedicated to pushing the boundaries of print by developing new cutting-edge solutions designed to help our customers stay productive and efficient. To keep apprised of the latest news from Canon U.S.A., sign up for the Company's RSS news feed by visiting www.usa.canon.com/rss and follow us on Twitter @CanonUSA.



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IDC Research, Inc.
140 Kendrick Street
Building B
Needham, MA 02494, USA
T 508.872.8200
F 508.935.4015
Twitter @IDC
idc-insights-community.com
www.idc.com

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