OKI Data's Product and Market Expansion Plan

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OKI Data has been expanding its printer and MFP (multifunction printer) business along with solutions and services associated with these products.

This article outlines OKI Data's markets/industries of interest and strategy to take the company's products and solutions from the present into the future.

Printer and MFP Market Environment

World's printer/MFP shipments have been slowly recovering since the 2009 financial crisis, but 2015 showed a year-on-year decline of 8% (**Figure 1**). The causes of the drop are conservative buying of peripheral equipment due to the slowdown of PC demand, reduction in printing demand due to the penetration of mobile devices, and as to add insult to injury, slowdown of the world economy triggered by deceleration of the Chinese economy and fall of crude oil prices.

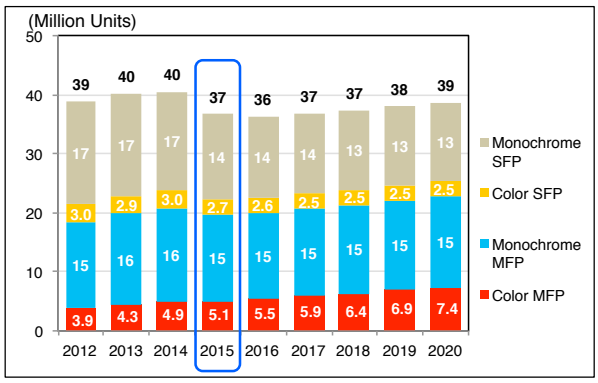


Figure 1. Forecast of World's Printer/MFP Shipments[1)]

Product Strategy

Amid the printer/MFP sales, in which a quick recovery cannot be expected, OKI Data regards the markets given below as the targets to exploit. The printer/MFP market spans from the personal to industrial application markets and in between these are the "office printing market," "office solutions market," and "professional market" (**Figure 2**).

"Office printing market" utilizes printer/MFP as a printout terminal for business. In the "office solutions market," printer/MFP interworks with various solutions and is integrated into the workflow. Users in the "professional market" create their own printed products in small lots.

OKI Data's focus is on the area extending over the office printing and office solutions markets (1), and the professional market (2).

Figure 2. OKI Data's Growth Strategy

Although the print volume is large, market (1) demands equipment that stands apart from previous printers/MFPs.

The spread of the cloud and mobile devices is changing the office environment and workstyles, which in turn is changing printer/MFP requirements (**Figure 3**).

Equipment that does everything from printing to bookbinding and heavy equipment with abundance of applications are being shunned for simpler, low cost, compact and easy-to-use equipment with only the functions that are necessary. Moreover, easy connection to the cloud and mobile devices is vital. Even though OKI Data's printers/MFPs are characterized by their compactness with the use of LED print heads, the products are equipped with wireless capability and large touch panels for meeting the needs of users that require cloud/mobile support. Additionally, collaborating with ISV (Independent Software Vendor), solutions to improve office workflow are also provided.

*1) DICOM is a trademark or registered trademark of the National Electrical Manufacturers Association.

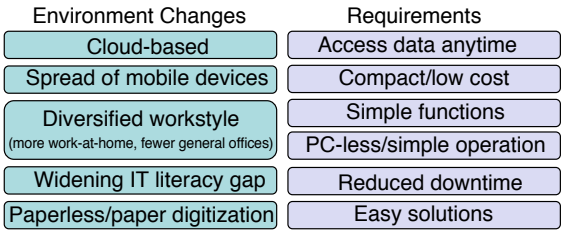


Figure 3. Changes in Office Environment and Printer Requirements

Even the requirement for printer placement is changing. Users are moving away from placing a copier or MFP in a central location, where users must go to pick up printouts, to an environment where compact/low-cost equipment are distributed throughout the office improving convenience while at the same time lowering overall cost. Outside the office, users want easy access from mobile devices to obtain and print only the documents they need.

In response to these demands, OKI Data proposed placing a combination of cloud/mobile supported A3 MFPs or A4 printers/MFPs, thereby contributing to the reduction of overall cost for the customer (**Figure 4**).

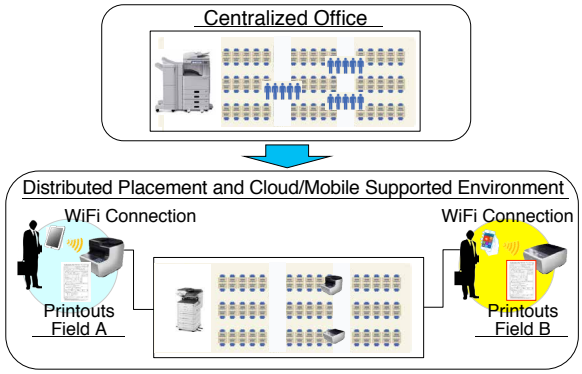


Figure 4. Printer Placement in a Cloud/Mobile Environment

In the professional market (2), OKI Data is selling 5-color printers developed for design use and wide-format printers developed for printing outdoor products. Amid the sluggish office printer market, this professional market is expected to show continuing growth in the future. The label printer market is one example of such a market, and the expected market transition is shown in **Figure 5**.

For this market, OKI Data took advantage of the LED's scalability to develop a narrow color label printer. OKI Data plans to expand the technology developed for general-purpose printers to industrial applications.

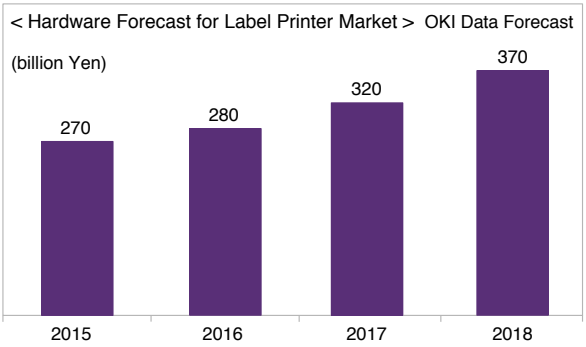


Figure 5. Label Printer Market Transition

Industry Product and Solution Rollout

OKI Data is focusing attention on the design, medical and distribution industries in addition to the office market previously mentioned. According to OKI Data's study, these industries have a large number of printing applications and volume of printing also is found to be large (**Figure 6**).

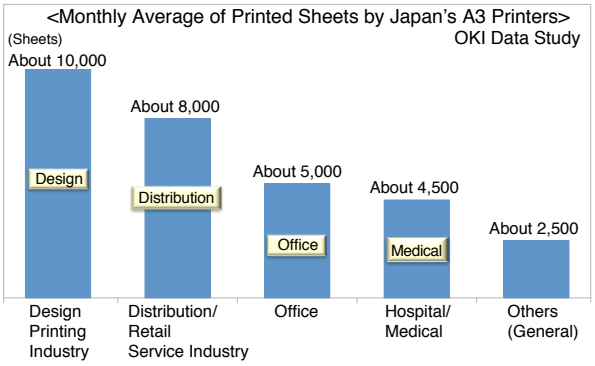
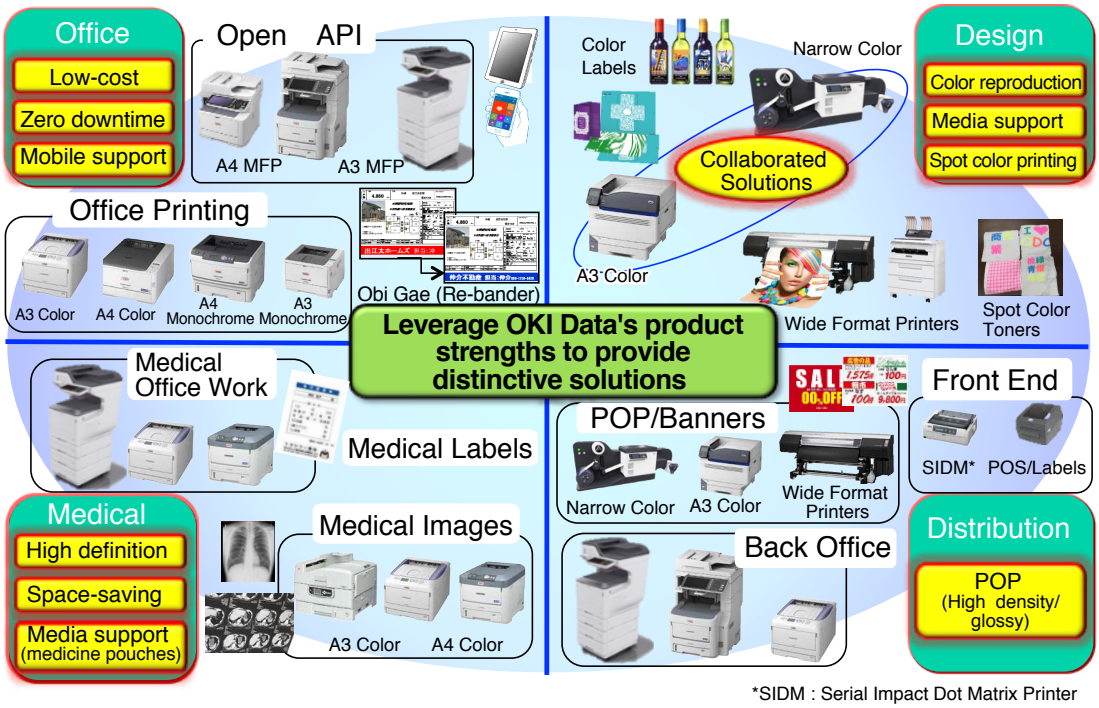


Figure 6. Sheets Printed Monthly by Industry

In these industries, OKI Data is rolling out distinctive solutions that take advantage of the company's product strengths (**Figure 7**).

For the design market, color reproduction/various media support/spot color support are leveraged to expand sales to DTP (Desk Top Publishing)/GA (Graphic Art) industry, POP (Point of Purchase Advertising) industry, and on-demand label industry that do their own printing. Various media support is useful in the medical industry enabling printing on medicine pouches while LED print head is used for high definition printouts of medical office work, medical labels and medical images. OKI Data's high density, high gloss printing features are utilized in the distribution industry to create such items as POP and banners.



*SIDM : Serial Impact Dot Matrix Printer

Figure 7. Equipment and Solutions for Industries

Technologies Supporting OKI Data's Products

This section introduces technologies supporting OKI Data's distinctive products.

(1) LED Print Head

OKI Data's LED print head utilizes a LED array that has been integrated with LEDs and controlling IC using epitaxial film bonding technology (**Figure 8**). Its simple structure with no drive mechanism makes it highly durable and reliable. Compared to the head used in a laser system, the image-forming dots are clear. If width of the substrate board is stretched, printing is possible on media from A4 up to A0 size. The difficulty to overcome is cost. OKI Data is developing a lower cost LED chip using low-cost lenses and new bonding technology.

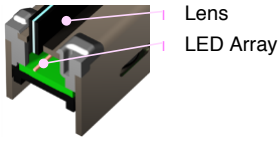


Figure 8. LED Print Head Components

(2) Developing Process

OKI Data's LED printers have been utilizing a single-component contact development system (**Figure 9**). In this method, drum and developing roller makes contact to produce high-resolution images. It is an effective method for creating high-definition latent images with LED printers/MFPs. On the other hand, issues inherent with the contact development system such as speed, frictional heat and driving torque necessitate further improvements. Therefore, studies are being conducted to reduce load by reducing friction in the contact development system. Utilization of development methods that differ from previous method including the two-component magnetic brush development system are also being considered. The creation of these development methods will improve the lifespan and power-savings of the development unit, thereby reducing the customers' cost burden. Furthermore, high print quality can be ensured over a long period and highly reliable product can be provided.

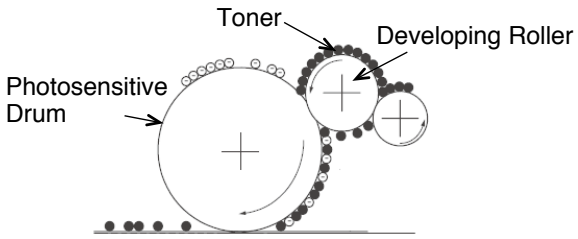


Figure 9. Single-Component Contact Development System

(3) Ink and Print Head for Wide Format Printers

OKI Data's wide format printers utilize solvent-based inks in which the inks themselves penetrate the media surface to fix the color material. The inks are low-odor, quick drying, and highly weather resistant. The printers have been primarily used for printing outdoor signage. Future studies will include further enhancement to the media support, energy-saving inks and multi-nozzle ink head capable of high-quality printing with smaller ink drops. Accordingly, it will become possible to meet the various needs of the sign & graphics industry such as media support capability, cost performance and environment-friendliness.

(4) Virtual Inline System in Production

OKI Data's production activities from component production to equipment assembly span across countries. Inevitably, information sharing to connect the production bases becomes necessary. The production department views the production process of each site as one factory, and using a “virtual inline system,” determines the work-in-process status of production and performs product traceability. This system cuts production lead-time and reduces inventories. Connection of the system to component suppliers’ data and post-shipment field information are planned to improve product quality.

Conclusion

As mentioned thus far, OKI Data will leverage the features of the LED to provide continually highly reliable, high print quality products along with applications and solutions that are in line with customer needs.

This issue introduces specific solutions for each industry, and hopefully the information contained here and in the accompanying articles will deepen the reader’s understanding of OKI Data's printing solutions and sparks his/her interest in what the company has to offer.

References

1) IDC WW HCP Tracker_ForecastPivot_2015Q4_OKI (2012 – 2015: Actual / 2016 – 2020: Forecast)

Authors

Tsutomu Yamamoto, Divisional General Manager, Products Business Division, Oki Data Corporation

【Glossary】

Epitaxial film bonding

OKI Data's technology for bonding dissimilar materials without using adhesives. Thinned semiconductor material is placed on top of a different material, and the materials are bonded by intermolecular forces between the materials at ambient temperature using proprietary nanofabrication technology.