ANALYZING PRINTING TECHNOLOGY FOR A NEW METHODS

Final Report
UGC MINOR RESEARCH PROJECT
MRP(H)-0671/13-14 KABA024 / UGC-SWRO 28/3/14

Year - 2016

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ACKNOWLEDGEMENT

First and foremost the minor research project under the UGC made the institution teacher in creating better platform in respect to areas of teaching quality learning, and offers strategies, approaches, and considerations from time to time in visual art college.

I owe my deep sense of gratitude to UGC for grant and permission, my College of Fine Arts, Bangalore and management President Dr. B.L. Shankar and Dr. D.K. Chowta and Secretary Prof. M.J. Kamalakshi of Karnataka Chitrakala Parishath, Bangalore and through the support, minor research Dr. R.H. Kulkarni the former principal I/c. and present principal Prof. Tejendra Singh Baoni, College of Fine Arts, Bangalore for continuos support in making research project.

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Assistant Professor - Applied Art Department
INTRODUCTION

The 21st century face technological changes, machines, opportunities and unique results and solutions are largely due to application software like image processing, networking and wireless communication. They essentially comprise of a research engineers and technology development built around it.

The press shop machinery is used for achieving fast turn around times while the hardware is used to speedup critical portions of the system, that have never existed in the recorded history of human beings. Combined with the pace of change and the upheaval of accepted ideas, operational systems, the need for people’s expectations and to understand themselves their place in the world has never been so great. This confluence has forced people to examine who they are and the fundamental approach in their establishment helped to achieve a greater platform, performance and efficiency.

In my research the integrated framework for analysis aims to focus on offset printing technology pre-press, press and post-press and investigation based on outcome results as a reference; sheet fed offset printing machine such as Heidelberg, Komori and support links which enables press shop owner and their customer in a well synthesize system that meets his constraints for present and future change over.

Along with the above main goals, This report presents and discusses the result of the work done in developing ideas, process to end results. They have been forced to determine what knowledge and skills will enable them to exist, thrive, and give productive expressive results and justification to stakeholders.

The participation, interactions in major exhibition and events helps to take a strong decision as well as implementation to face the challenges and stay in business.
Origin of the research

The research process, pushed forth by new empirical observations that encourage the researcher to ask new questions and build new theories. The automatic use of formally stated hypotheses, and of statements of “the problem” may make it easier to program action, but it will also limit the kinds of experience that he will tolerate and deal with. In original research there is less likely to be as the work of discovery continues and new kinds of data are conceptualized, new solutions will emerge. Consequently far from putting a closure on his new experience the researcher will modify them and arrange to handle new ones simultaneously with the old are happening well systematically in press shop. This is how the relationship between the observer and the observed object is altered, and how it becomes possible for new things to be asked and answered through research.

Early and highly structured form may indeed lock the researcher with respect to the situation being observed and addressed, in also emergence of new ideas that might be stimulated by new experience. But open-endness may have costs as well. For instance, debate that letting the emerging features of each situation continually in the direction of the present status. It gives undue weight to the particular situation being studied at the moment, The discipline research in the interest of practical accumulating knowledge, training in bachelor degree and experience in various press shops and achieving solution stand points independent of the time and place in which researchers find.

In research problems are the questions that indicate gaps in the scope or the certainty of our practical knowledge. They point either to problematic, observation that are puzzling in terms of our currently accepted ideas, or to problematic practical situation from time to time. Current ideas that are challenged by new hypotheses. This research process, and especially the ongoing printing industry, as to when and how problems should be formulated. Second, we consider methodology’s effect on defining problems, and how the multi method approach can be used to focus in a start up and established firm and more sharply upon the substance of research problems. Finally, we consider the role in formulation and how the multi method approach integrates research more closely in the context of printing industry.
The Interdisciplinary Studies for new working methods:

Overview

Globalisation on every level of economy and society require highly qualified, internationally and interdisciplinary trained graduates and operators to keep pace with these developments, it is important for young people to have a deep understanding of current technology trends and at the same time acquire new skills and broaden their expertise.

The interdisciplinary study program is one of a number of the specialized programs that can provide students with a particular curriculum focus to help them meet diploma and graduation level requirements.

Interdisciplinary study courses provide students, trainers with opportunities to understand the diverse perspectives of and the links among discrete subjects, various issues and to develop their knowledge and skills beyond the scope of individual disciplines to solve problems, make decisions, and present new findings. Students will integrate general interdisciplinary concepts, skills, models, resources, technologies, and strategies with specific content and approaches from diverse areas of the curriculum, which can be adapted to reflect the context of the specific interdisciplinary study courses or packages of courses. An important emphasis will be placed on developing information, literacy, applying comprehensive research skills and knowledge, and synthesizing methodologies and insights from a variety of disciplines to develop critical-and creative-thinking skills.
Experienced engineers approaches in training the students

The nature of the interdisciplinary study curriculum calls for a variety of teaching/learning strategies to help students find relationships among disciplines. Experienced engineers will use their professional judgement to decide which instructional methods will be most effective in promoting the learning of the knowledge and skills described in the expectations and in meeting the needs of students.

The interdisciplinary study curriculum emphasizes active investigation of issues from diverse perspectives. Using a variety of research ranges from print, media, electronic, and resources, students are encouraged to investigate the answers to essential questions, develop critical- and creative-thinking skills, its insights, and practice what they have learned in familiar and unfamiliar contexts. It is therefore important for students to actively participate in and reflect on the diversity of teaching/learning approaches used in various disciplines: activity-based strategies, direct instruction strategies, independent learning strategies, inquiry and research models, strategies based on learning styles, technological applications, and thinking skills strategies. In combination, such approaches promote the acquisition of knowledge, foster positive attitudes towards learning, and encourage students to operate the machine in press shop.

Innovative approaches to teaching and learning will encourage students to create and communicate new ideas, extend personal meaning, and develop periodical practice of live jobs with experienced operator and engineers helps explore the confidence in establishment. These approaches may involve collaborative planning and implementation through engineers allows innovative leadership by administrators, cooperative models that link subjects in a structured way; team teaching, flexible scheduling, and creative time tabling.

The following extending trainees will focus on the knowledge in media technology, digital fabrication and printing press as stated in the beginning concepts. thus further research project seminar places students in interdisciplinary teams working closely on a specific task with researchers of the department and in most cases also industry professionals. During the production work performed at the press, printing partner universities, associated institutions, industry or research related to the course specialisation.
Current Workflow Challenges

Print service providers must constantly adapt to new technology, new design practices, and start to end jobs, as market demands. At the same time, role of designers are under increasing pressure to push the limits of creative skills, and to find innovative ways to help their customers stand out. In a crowded marketplace, relevant, personalized content is essential to engaging an audience in print, but the promise of variable data publishing has not yet been fully realized.

Ideally, designers should be confident that what they see is what will print, and that the output will match their vision. However, in most workflows today, PDF files must be converted to Adobe PostScript® before processing at the RIP. Because the PDF imaging model is richer than the PostScript imaging model, transparency must first be flattened, fonts may be converted to outlines, device-independent colors are converted to device-dependent colors, spot colors are converted to process, and so on. Often, a file’s contents are converted multiple times to prepare it for output to a specific device. In such workflows, trapping, imposition, and color transformations may be applied directly to the PDF file, limiting its flexibility for use on a different press. Unfortunately, every conversion compromises the integrity of the original design. For example, the RGB color gamut is larger than that of CMYK. Therefore, converting an RGB digital photograph to CMYK and also special colour (Pantone) for output to a particular job is very vital in process.

The earlier a conversion occurs in the workflow, the more likely it is to compromise the end result because the content may not be finalized and the target output device characteristics may be unknown. Such compromises create a potential gap between the designer’s intention and the printed document. To bridge that gap, printers have developed various strategies and workarounds. But as projects become increasingly complex, existing workflows cannot always compensate, resulting in unmet needs and unsatisfactory results. Previewing software typically uses a different rendering engine ripping so on-screen soft proofs may be unreliable. Therefore, printers may resort to iterative proofing cycles to ensure that customers know what to expect. Flexibility and efficiency are especially important with new digital workflows, the growing trend of short-run jobs, and the increasing need to print personalized documents. Printers need to be able to make late-stage changes to content directly in the PDF file, without having to return to the native application. Additionally, scheduling jobs efficiently often requires adjusting the output intent to a different target device at print time; this is especially true in shops that include both digital and offset presses.
Analysis on Pre press area

The print industry is changing rapidly, long run to short runs. Customers provide increasingly complex designs, while demanding faster turn around times. They want personalized print jobs from shorter to long printing runs. Design software, such as Adobe® Creative Suite®, includes cutting-edge features to help designers stay ahead of the crowd, but pre-press professionals face significant challenges in preparing the resulting artwork for print. Despite a printer’s best efforts, pre press transformations often compromise the integrity of the designer’s intent.

The Print technology addresses the needs of today’s print professionals by enabling a true end-to-end native Adobe PDF workflow, including support for variable data printing (VDP) with the emerging PDF file standard. Adobe PDF Print Engine 2 eliminates the need for early conversions (such as flattening transparency) and ensures reliable, consistent printing while maintaining device-independent content for both previewing and final output, printers and designers alike can count on reliable soft proofs. Worldwide, Adobe’s print solution partners have embraced Adobe PDF Print Engine and are integrating it into next-generation printing and previewing solutions. Already, thousands of units powered by Adobe PDF Print Engine are in production. When given a choice, customers prefer to have their jobs printed using Adobe PDF Print Engine, because they know that the printing will meet or exceed their expectations. And now Adobe PDF Print Engine 2 brings all the benefits of a PDF workflow to personalized publishing.

Once a file has been prepared for a specific device, it might not print reliably on a different device. For example, a file that was flattened for a printing resolution of 600 dpi will not print well on a 2400 dpi device. Similarly, it is often difficult or impossible to change the content once a job is device-dependent, especially if transparency has been flattened, text or images have been trapped, or the file has been converted to PDF/X. Variable data publishing (VDP) has generated great excitement for many years, but current VDP solutions haven’t fulfilled the potential of personalized publishing. Historically, variable data content formats, proprietary and standard, have been specialized and different from those commonly used in graphic arts. Existing solutions may not provide consistent color management, based on modern methods such as ICC profiling, and jobs are difficult or impossible to preflight. VDP solutions today rely heavily on PostScript, and are therefore constrained by its opaque imaging model.
A Common Rendering Engine Provides Consistency

When you use the Adobe PDF Print Engine, what you see—at any point in the workflow—is what prints. You can preview documents using applications based on the same engine as the RIP, ensuring that on-screen proofs are accurate and consistent, and that designers know what to expect from the earliest stages of the project.

Adobe PDF Print Engine 2 includes a state-of-the-art color conversion model that employs ICC color profiles. In color-managed workflows, the color on a calibrated monitor matches the color in the proof and in the final print output. Because the Adobe PDF Print Engine can handle multiple color models, you don’t need to convert RGB to CMYK or vice versa—colors remain as the designer intended them, and the PDF Print Engine color engine maps them to the color space of the target device.

Using Adobe Creative Suite in conjunction with the PDF Print Engine provides even greater benefits. The Adobe PDF Print Engine leverages the same PDF rendering libraries, color management systems, and other technology components used in Adobe Acrobat® and Adobe Creative Suite, ensuring that complex designs and effects, such as transparency, can be consistently reproduced.

Present workflow challenges

• Designers are pushing the limits of authoring software
• Customers require fast turnaround times
• PDF files must be converted to PostScript prior to rendering
• VDP solutions do not leverage the tools, conventions, expertise, and technologies already in use in the graphic arts
• Transparency is often flattened incorrectly
• Early conversions compromise the designer’s intent
• Previews and proofs are not always reliable

Benefits of using Adobe PDF Print Engine

• Native PDF workflow from creation to final output
• No need to convert or flatten content prior to rendering
• Consistent rendering engine for preview and print
• Processing information is included in the JDF file, leaving the PDF file device independent
• Optimized for offset, digital, and personalized publishing
• Accommodates late-stage content edits directly in the PDF file
• The same PDF print job can be redirected to different output devices
1. Create

Designer creates artwork and layouts using Adobe Creative Suite® software. Personalized jobs are created using Adobe Creative Suite and third-party plug-ins. Shared presets are used to create consistent Adobe PDF onscreen previews and proofs. Final output is captured in a PDF file.

2. Collaborate

PDF file e-mailed to a campaign stakeholders or uploaded Adobe Acrobat based review server.

Business users preview the job using Adobe Reader Software and/or a browser. Hardcopy proofs can be created by printing to a local printer.

Feedback is incorporated into revision updates which are distributed and reviewed until the job is approved.

3. Submit and prepare

Digital master PDF is created, which can be repurposed as necessary, for personalized jobs. Compositing - merging the personalized data with layout information - is performed to prepare the PDF print stream. Job parameters and instructions are captured and submitted the print provider, along with the PDF content.

4. Print and Deliver

Designer creates artwork and layouts using Adobe Creative Suite® software. Personalized jobs are created using Adobe Creative Suite and third-party plug-ins. Shared presets are used to create consistent Adobe PDF onscreen previews and proofs. Final output is captured in a PDF file.
How it Works

The Adobe PDF Print Engine includes three main components: the JDF Print Processor, the Adobe Common Renderer, and back-end technology.

• The JDF Print Processor (the front end) accepts, interprets, and processes the JDF file.
• The JDF Print Processor prepares the job for processing by the Adobe Common Renderer.
• The Adobe Common Renderer parses the designated PDF files and reduces high-level vector objects to low-level geometries.
• The Adobe Common Renderer simultaneously processes graphics, traps the document, performs color management, and processes transparency stacks.
• The entire job is rendered in a single, integrated operation.
• The back-end raster buffer manages page bitmaps and transports them to the output device.

PDF/VT

PDF/VT is an emerging standard designed for the exchange of variable data printing (VDP) jobs. It builds on the PDF/X-4 and PDF/X-5 format standards, and supports the full graphics model of PDF 1.6, which includes transparency, ICC-based color management, and layers.

Using PDF/VT as the digital master enables printers to leverage the tools, conventions, and methods used in existing PDF-based prepress workflows for VDP jobs. PDF/VT files can be easily previewed, proofed, searched, annotated, and approved using Acrobat or Adobe Reader, independently or in collaborative, server-based reviews.

The above figure is a reference used by most of the designer pre press and printer in their job run activities. It helps to preview before the next process takes place.
CTP a must in Today’s Technology

Although offset printing has been and still is the most common printing technology for color print productions, its print productions are subject to variations due to environmental and process parameters. Therefore, it is very important to frequently control the print production quality criteria in order to make the process predictable, reproducible and stable.

One of the most important parts in a modern industrial offset printing is Computer to Plate (CTP) trends and changing technologies. Which exposes the printing plate followed by new trends. One of the most important quality criteria for printing is to control the screen dot gain level. Dot gain refers to an important phenomenon that causes the printed elements to appear larger than their reference size sent to the CTP.

Another important quality criterion affecting the print quality in offset is the register variation caused by the misplacement of printing sheet in the printing unit. Register variation causes tone value variations, gray balance variation and blurred image details. Trapping is another important print quality criterion that should be measured in an offset printing process. Trapping occurs when the inks in different printing units are printed wet-on-wet in a multi-color offset printing machine. Trapping affects the gray balance and makes the resulting color hues of overlapped inks. In this dissertation three different dot gain compensation methods are discussed. Hence the question arises; How is the formation of a genuine problem are so controlled that further inquiries will move toward a solution?"

The most accurate and efficient dot gain compensation method, which has been tested, evaluated and applied using many offset printing workflows. To further increase the accuracy of this method, an approach to effectively select the correction points has also been proposed. To fulfill the requirement of having the register variation within the allowed range, it has to be measured and quantified. Considering this that determine the register variation value, which is more useful and understandable for print machine operators. The comparison between the proposed trapping model and accurate colour values. The proposed trapping model has also been extended to take into account the effect of ink penetration and gloss. The extended model has been tested using a high glossy coated paper and the results have shown that the gloss and ink penetration can be neglected for this type of paper. An automated CTP calibration system is one of the support for offset printing workflow has been introduced and described in this dissertation.
**Relative Print Contrast**

As an alternative to dot gain, it is possible to calculate the relative print contrast $K_{rel.} (%)$; this is particularly useful for monitoring the three-quarter tones. A print should be as contrast-rich as possible. To achieve this, the full tones must have a high ink density, but the screen must be as open as possible in print (optimum tonal value difference). Increasing the ink feed results in a greater density of the halftone dots and this enhances the contrast. However, this process is only expedient up to a certain limit, after which the dots become fuller and - particularly in the shadow areas - join up with each other. This reduces the proportion of paper white and the contrast falls away again. If none of the measuring instruments is able to show the contrast value directly, the relative print contrast can be determined through calculation or using the corresponding FOGRA chart. The calculation formulae can be found in Section 3.5.3. Should the contrast in the production run worsen despite the consistent full tone density, this can suggest that the blankets need washing. If the full tone density is correct, the contrast value can be used to assess various factors that can influence the print result, example:

- **Cylinder pressure and rolling**
- **Blankets and packing**
- **Dampening**
- **Inks and additives**

The relative print contrast is no longer specified in ISO 12647-2. Instead, values are given for solids and the dot gain of the individual colors. This provides the basis for arriving at the relative print contrast. However, if this standard is not used, e.g. because an FM screen is employed, the relative print contrast remains an important variable.

**Color Balance / Image Synthesis**

As mentioned earlier, color tones in four-color printing are reproduced using specific components of cyan, magenta, yellow and black. Changes in these components result in a color deviation. To prevent this from happening, the color components must be maintained in the balance needed for the required color tone.

If only the black component changes, the color tone becomes brighter or darker, which the observer will not find particularly disturbing. The same thing happens if all chromatic colors change by the same amount in the same direction. The situation is much more critical when the color tone itself changes. This happens when the color components change by different amounts, and especially if the individual chromatic colors change in opposite directions. These kinds of changes in the color balance are easiest to detect in gray patches. The term gray balance is therefore often used in this context.
The extent of the unavoidable fluctuations in the individual inks in the print process depends first and foremost on the image synthesis principle selected in prepress. The questions that are relevant to the print process in this regard are as follows:

- **Which inks make up the gray areas?**
- **What mechanism is used to darken color image areas?**
- **How is the shadow definition generated?**

**In short:** What do the gray and achromatic components consist of and what is the resulting maximum total area coverage?

**By way of reminder:** Gray and achromatic values can be generated from cyan, magenta and yellow or by using black ink. A combination of these is also possible.

**Chromatic Synthesis**

With chromatic synthesis, all achromatic values essentially consist of subsets of the chromatic inks cyan (C), magenta (M) and yellow (Y), i.e. all gray image areas, all tertiary tones, and the shadow definition contain the three chromatic inks. Black (K) is only used to support the image shadows and to enhance the shadow definition (skeleton black).

The brown shown in the illustration is formed from 70 % cyan, 80 % magenta, 90 % yellow and 0 % black using chromatic synthesis. The total area coverage is therefore 240 %.

The effect of the color components can be seen opposite. The brown consists of an achromatic, gray component and a chromatic component.
**Five-, Six- and Seven-Color Printing**

The modern four-color process ensures high-quality image reproduction. However, with some originals and when extremely high quality is needed, it can be necessary to use special color separations. The reproducible range of colors can be extended by using additional colors (in addition to the four primary colors) or special process colors. The values measured for a seven-color print are plotted in the CIE chromaticity diagram in the figure above.

The hexagon on the inside shows the color gamut reproducible with the process colors cyan, magenta and yellow (as measured). The surrounding dodecagon shows the extended color gamut obtained using the additional colors green (G), red (R) and blue (B).

**Ink Trapping and Color Sequence**

**Ink Trapping**

Ink trapping is another variable influencing color reproduction. This is a measure of an ink’s ability to transfer equally well to unprinted substrate and a previously printed ink film. It is important here to distinguish between printing wet on dry and printing wet in wet.

Wet on dry printing is when an ink is laid down directly on the substrate or onto a previously printed and dried ink film. If the ink is applied to an ink that is still wet, however, this is known as wet in wet printing. Wet in wet printing has become the term of choice when printing on multicolor presses.

When inking is uniform and the colors are accurate, this indicates that there is good ink trapping.

The CIE chromaticity diagram above shows the effects of disturbed ink trapping or an unfavorable color sequence on the printed result. The white area illustrates the extent of the dot loss due to trapping problems.
**Color Sequence**

The schematic representation illustrates three different sequences for overprinting the colors cyan and magenta. Example 1 shows the print result on a single-color press. Firstly, cyan was printed on the white paper. Magenta was then printed on the dry cyan. The result is a saturated blue.

The second example was created on a multicolor press. Firstly, magenta was printed onto the dry paper (wet on dry), followed by cyan on the still moist magenta (wet in wet). While the trapping results for magenta on the paper were good, they were less good for cyan (due to the ink splitting that occurred during overprinting). This resulted in a blue with a red cast.

The third example was also printed wet in wet, but with the reverse color sequence (magenta on cyan). This avoids the red cast.

ISO 12647-2 lays down the color sequence black-cyan- magenta-yellow for four-color printing. In order to reduce the effects of ink trapping problems in special cases, the original and the plates should be carefully inspected before mounting the latter on the press.

It may be useful, for example, when printing solids, to print the lighter form before the heavier one. This applies especially when overprinting halftone areas and solids. Firstly, the screen should be printed on the white paper and the solid on top of that.

<table>
<thead>
<tr>
<th>First ink</th>
<th>Second ink</th>
<th>Ink trapping</th>
<th>Print result</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>M</td>
<td>M, C</td>
<td>Blue</td>
</tr>
<tr>
<td>M</td>
<td>C</td>
<td>C, M</td>
<td>Purple</td>
</tr>
<tr>
<td>C</td>
<td>M</td>
<td>M, C</td>
<td>Blue</td>
</tr>
</tbody>
</table>

Examples of two inks being overprinted in different ways.
Densitometry

Densitometry is an effective method for monitoring solid density and tonal values in the print process. It works reliably with black-and-white reproductions and with the process colors cyan, magenta, yellow and black.

There are two types of densitometer depending on the particular application:

- Transmitted light densitometers are used to measure film blackening (i.e., with transparent materials).
- Reflective light densitometers are used to measure light reflected from the surface of a print (i.e., with reflective originals).

The following section looks at the technology behind reflective light densitometry.

The figure shows how reflection densitometry works, taking the example of a printed chromatic color. The white light which is applied will ideally consist of equal components of red, green and blue. The printed ink contains pigments that absorb red and reflect green and blue, which is why we call it cyan. We use the densitometer to measure the absorption range of the particular color, because density and ink film thickness correlate well here. The example therefore uses a red filter, which blocks blue and green and only allows red to pass. The density of an ink depends primarily on the type of pigment, its concentration and the ink thickness. For a given ink, the ink density is a measure of the ink thickness, but provides no indication of the color tone.
Color Control Bars

Heidelberg also offers a library of digital print control elements (Dipco) for all Prinect products used to monitor and control inking and color. This comprehensive package includes all digital elements needed to check and control the results obtained at each stage of the print process, from prepress to printing. The color control bar to be used essentially depends on the coloring of the relevant job. All the relevant bars are stored in the Prinect color measuring systems. They are selected either manually by the printer or automatically by Prinect Image Control in the Prinect color workflow. Prinect Inpress Control uses synchronization marks to identify the type and position of the bar on the sheet fully automatically. With PrinectR Axis ControlR, it is sufficient simply to indicate the bar’s approximate position on the sheet. The results from measuring every element of the color control bar are compared with the stored reference values. Based on this comparison, the Prinect color measurement systems then calculate recommended adjustments for the individual ink zones in each of the printing units.

How to position the color control bars

- Do not place diagonally on the sheet, but parallel to a sheet edge.
- Position all parts of the bar together in one row, without separating them.
- Select the correct bar for the print job (process colors only, process and spot colors).
- Select the correct bar for subsequent measurement and control with color measurement systems - full-tone / gray-patch control/ full-tone control only.
- Select the correct bar for the halftone patches to be evaluated.
- Always use bars with 40% and 80% patches for standard-compliant measurement and better adaptation of the characteristic curve.
- Do not reduce or increase the height or width of color control bars.
- Position bars so that they will not be where the grippers grab the sheet.
- Bars can be placed at the leading or trailing edge or in the middle of the sheet.

When working with Prinect color measurement systems, do not position the bars directly adjoining the print image (position about 1 mm away or 0.5 mm for Prinect Inpress Control.

When working with Prinect R Axis Control R, leave 5 mm of paper white to the left and right of the bar. The first and last patches must be whole and must be solid patches. With Prinect Inpress Control, it must be ensured that the synchronization marks are located in the printable area! The individual patches in the bars are to be either 4 mm or 6 mm high and 3.25 mm or 5 mm wide. The ink zones are 32.5 mm wide on all Speedmaster R presses, which means there is room for either 13 or 20 patches across two ink zones.
**Color Control with Heidelberg**  
Color Measurement and Control Systems from Heidelberg. In principle, Heidelberg only offers systems based on spectral measurement and colorimetric control. Differences in coloring are relayed online to the press control console where they are converted into ink zone adjustments. The operator decides whether the necessary ink zone adjustments on the press are to be performed automatically on completion of the measuring process or the go-ahead is to be given manually by pressing a button.

All instruments can measure and display solids, halftones, slurring or doubling in the color control bar. All color control bars required are included in the scope of supply (DIPCO).

**Prinect Axis Control**  
- Measuring instrument integrated into the press control console with motorized measuring head movement in X and Y directions. Sheet absolutely flat, even with high grammages, thanks to vacuum suction. Operated from the touch screen monitor of the Prinect Press Center.

**Prinect Image Control**  
- Standalone measuring instrument for connection to a maximum of 4 Heidelberg presses. Sheet absolutely flat, even with high grammages, thanks to vacuum suction. Operated from the instrument’s own touchscreen monitor. Gray patch control, measurement and control of the entire print image, color management, process control, Mini Spot workflow, repeats taken over in the print sheet or from a separate original, integrated color database with Pantone and HKS L*a*b* values.

**Prinect Inpress Control**  
The Heidelberg Prinect workflow

If conventional plate copy and CTP are used side by side, it is only possible to adapt the CTP to the results of the conventional plate copy. If plate copy is replaced by CTP, process calibration must be performed. Plates that are imaged linearly will always change the print result. This is because changes to the dots in the plate copy are no longer an issue (leaner dots with positive copy, fuller dots for negative copy).

The figure opposite shows the deviation in dot gain between the required tonal value (here ISO 12647-2, gray) and the actual print result (blue).

The Calibration Manager of Prinect Meta Dimension depicts all tonal values clearly. The difference between the target and actual values is used to calculate the dot size required on the plate.

<table>
<thead>
<tr>
<th>Nominal %</th>
<th>Process %</th>
<th>Meas. %</th>
<th>Calibr. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
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<td>0.0</td>
<td>0.0</td>
</tr>
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<tr>
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Characteristic curve 1: Tonal value in data;
Characteristic curve 2: Tonal value in print.
The Speedmaster® CX 102 offers a modern press concept that combines the reliability of the CD series, tried and tested with well over 100,000 printing units installed worldwide, and the most innovative technology of the peak performance class. The Speedmaster CX 102 is the universal straight-printing press in 70 × 100 cm (27.56 × 39.37 in) format. With speeds of up to 16,500 sheets per hour, there are very few challenges in commercial, label, and packaging printing that it cannot handle, and no customer requirements that it cannot meet. The perfect interaction of all components enables the Speedmaster CX 102 to easily process all materials from lightweight paper through to rigid cardboard. Get the jump on industrial printing production of tomorrow with Push to Stop: for the first time in the history of offset printing, you can now change jobs fully automatically – from the last to the first good sheet, right up until production starts. The high level of automation and the intelligent control make operation extremely user-friendly and guarantee you wholly controlled and stable processes. They minimize makeready times, energy consumption, and paper waste, and by so doing increase your cost efficiency.

promoting maximum productivity. The Chakan installation also included the recently launched New Image Control Gen 2 from Heidelberg. The technology facilitates controlling the quality of the entire substrate without any loss of board or paper. With a production speed of 16,500 sheets per hour, the Speedmaster CX 102 can handle a broad spectrum of substrates ranging from lightweight paper to bending-resistant cardboard, and up to a maximum sheet format of 720 mm × 1,040 mm. The Speedmaster CX 102 is configured with a touch screen control station that facilitates intuitive and ergonomic operation of the sheet feeder, thereby minimizing wastage, and promoting cost-efficiency.
The Prinect Press Center XL 2 sets with Intellistart 2.

Productivity made easy

User-friendly operation is about more than a pleasant working experience. It is also an important prerequisite for maximum efficiency – print job by print job. The Prinect Press Center® XL 2 offers you this user-friendly operation thanks to outstanding ergonomics and intuitive operation. At the same time, the new generation of control stations systematically harnesses all available potential to minimize the time spent on each print job. You operate unique software applications and integrated assistance systems via the intuitive 19-inch multi-touchscreen. The Prinect Press Center XL 2 is therefore designed for the highest productivity requirements.

Wallscreen XL – maximum transparency

Operation is made even more direct with the new operating philosophy with swipe gesture control, the reorganized interface with four main screens, and a favorites bar. You have control over all functions and operational sequences at all times.

The patented assistance system Intellistart® 2 automatically generates all the steps required for intelligent job changes and provides maximum transparency across all active and queued processes. The time-optimized sequence is simulated live by Intelliguide®. The Wallscreen XL also sets standards with the new myWallscreen function. It offers you the freedom to query and compile information about your press on a user-specific basis. For example, several views can be custom displayed in my Screen. This means that you have a clear view of all processes.

Push to Stop: uninterrupted productivity

Intellistart 2 supports the paradigm shift towards push to stop in industrial print production. For the first time, multiple follow-up orders can be prepared and released while production is still underway. In addition, processes are automatically started when changing jobs – and then run on their own. As part of this process, the color measuring system Prinect Inpress Control 2 with the Quality Assist function automatically switches the machine to “production run” once the defined quality requirements are met. This fully automated job changing – from the last to the first good sheet until production starts – is unique in offset printing.
The drupa cube has opted for a new approach under the heading "Entertaining, Educating, Engaging". This event and congress programme will centre on the innovative power of printing and the multi-faceted possible applications of printed products across a multitude of industries and spheres of life. The organisers succeeded in enlisting the multinational the Medici Group founded.

Here’s why drupa’s so useful. It saves time. overall in you can get a great understanding of the latest trends, technologies and applications that could transform your business. The kind of understanding that would take you weeks of serious desk research.

The challenge? Making sure you don’t miss one drop of the innovation that matters to you. stands for drupa innovation park, and it’s drupa’s largest special show. It crams innovations from both small start-ups and huge market leaders into Hall 7, creating an invaluable showcase for anyone working within the international print and publishing industry today. As a result, it’s also an ideal place for networking. But while you’re busy visiting the stands and talking to exhibitors, be sure to keep an ear out for the keynote speeches and lectures happened over on main stage, subdivided into six, themed parks.

Uninterrupted production with the automatic nonstop system at the delivery.

The Speedmaster CX 102 offers brilliant finishing options for the highest demands for that something special.

Staggered plate changes with AutoPlate Pro – quick, easy, and fully automatic.

AirTransfer system with universal grippers – contact free sheet transport of all materials using Venturi nozzles for consistently high print quality.

Lined ink fountain for lightning fast ink changes.

The first step to successful production – optimal operation using the touchscreen.
Analysis of South India’s - Press Shop

Chennai’s Rajam Digital has recently installed the Heidelberg Speedmaster SX 52 Anicolor press, the first in Tamil Nadu. The print shop which was established in 2008 as a both digital print shop specializing in photo albums, later expanded its footprint into commercial printing in 2011. The firm continues to retain a market-dominant position in the digital photo album space in Chennai and the rest of Tamil Nadu. The print shop also caters to overseas customers. The latest addition of the Speedmaster SX 52 Anicolor complements an existing suite of digital and offset presses and finishing equipment, making Rajam Digital the unique, one-stop solution in Chennai to cater to diverse printing needs.

“Heidelberg Speedmaster SX 52 Anicolor is certainly an impressive addition to our portfolio. We see a shift in business from digital printing to Anicolor printing. Many of our customers prefer the Anicolor, because of swift delivery, premium quality and flexible pricing,” beams Viswakumar, a self-taught entrepreneur and passionate printer. The Speedmaster SX 52 is a hybrid press, combining the cutting-edge performance innovation of the XL class with the tried-and-tested Speedmaster SM 52 platform. The Anicolor press is adept at handling short-run print jobs, starting from as low as 100 sheets onwards. This is possible, because the short, zone less Anicolor inking unit consists of fewer rollers with a dampening system that facilitates quick and even inking. No tedious inking adjustments are required with the Anicolor, as it is extremely easy to operate. This implies a reduction in startup waste to just less than five sheets, and shortening make-ready times to less than six minutes per job. Anicolor offers users the flexibility to deliver first-rate quality at significantly lower costs per sheet for higher runs, which makes the technology competitive vs. digital print products.

Ganesh Kumar, Senior Sales Manager, Heidelberg, further extols the merits, “The Anicolor inking unit produces ghost-free printing, by ensuring consistent quality through the entire production run. In combination with Heidelberg’s Prinect color management, Anicolor delivers outstanding results.”

Alongside the Speedmaster SX 52 Anicolor, the print firm has also invested in a Heidelberg Suprasetter A7 5CTP, complementing an existing suite of digital and offset presses and finishing equipment’s. With the recent additions, Rajam Digital gains the distinction of being the unique, one-stop solution in Chennai to cater to diverse printing needs. They fully realized while using a Speedmaster SX 52 Anicolor for four-color, standard commercial jobs in runs ranging from 100 to 500 sheets.
Viswakumar comments on his other acquisition, “Our Suprasetter CTP A75 reinforces the performance of Anicolor with seamless plate output. The A75 is equipped with highly accurate internal punching systems to provide maximum register accuracy, in turn reducing press make-ready times.” The versatile A75 handle conventional, process less and chemical-free thermal plates, with a productivity of 17 to 22 plates per hour. Production reliability is ensured through the Intelligent Diode System (IDS), which ensures that operation can continue, even if a diode fails. An autodidact printer, Viswakumar also identified a new revenue stream to profit from Anicolor’s ability to print on even 4” X 6” paper bits. When paper is cut for printing jobs, printers are usually left with 4” X 20” cutting bits that can be used only for recycling. “But, Anicolor has changed the equation. We use these paper bits to print visiting cards or wedding cards,” says an excited Viswakumar, who calls the strategy “From Cutting bits to commercial prints.” The Speedmaster SX 52 Anicolor can print on any paper with thickness ranging from 0.03 mm to 0.40 mm. It can handle sheet sizes varying between a minimum of 105 mm x 145 mm and a maximum of 370 mm x 520 mm. “It’s a splendid combo. The Anicolor & A75,” concludes Viswa Kumar on a happy note.
Indeed! The Speedmaster SM 52 Anicolor press is suitable also for short-run pint jobs starting from a low of 200 sheets and can print up to a maximum of 5,000 sheets, with an average run of 1,000 sheets. The press, which is capable of producing 15,000 impressions per hour, can handle an array of substrates ranging from 0.03 millimeters to 0.6 millimeters or 0.0012 inches to 0.024 inches.

“Offset quality at digital prices. That is Anicolor for you. Exceptionally shorter make-ready times help us stay competitive with digital pricing models. The ROI from an Anicolor press starts right away from the first job,” beams Ramanathan, who is an alumnus of the Pune’s Vidyarthi Griha Printing institute, and started his career as prepress application specialist with a leading print-house at Mumbai, before joining his father’s business.

The Anicolor press delivers stable inking, thanks to zoneless short-inking unit with dampening system that ensures exceptional consistency during production runs, uses a chamber doctor blade instead of a conventional roller train. The system applies a metered amount of ink on every revolution to maintain the same ink consistency and top-notch printing quality for any run length of the job. The temperature of the roller can be regulated in order to make any minor changes in ink densities.

Anicolor operates on a 90:50:50 philosophy. Compared to machines with conventional inking units, Anicolor reduces paper wastage by 90%, implying 90% less make-ready sheets. The smart inking system eliminates the need to adjust ink keys to match colours, resulting in 50% shorter make-ready times. The two features combined, serve to enhance productivity by 50% or simply, 5 jobs printed within 35 minutes.

Sree Vinayaga Screens profits from a sizable share of walk-in customers, in addition to a prestigious clientele that includes conglomerates like Aurolab, Titan, Bajaj, BigBazaar, Ola Cabs, and top advertising agencies in South Tamil Nadu. And more than 25 periodicals and journals are printed at Vinayaka every month.

“The online coating unit also facilitates quick printing and speedy delivery of POS posters, danglers, and flyers to customers. Although we are still in the early innings of adoption, new business is flooding in. Buying the Heidelberg Speedmaster SM 52 with Anicolor and coating unit, has been one of our best business decisions ever,” Ramanathan concludes with a smile.
“Our initial choice was a regular Heidelberg Speedmaster SM 52 to cater to short-run jobs. But, Heidelberg’s Anicolor demo at Prakash offset, Mangalore, altered the equation dramatically, swaying our decision in favor of the SM 52 with Anicolor technology and coater. With minimum wastage and reduced setup times, Anicolor is the perfect solution for jobs. Moreover, it allows us to use conventional printing plates,” Ramanathan says with conviction.

Vinayaka Screens, has a print tradition since its inception, Lakshmi Narayanan, founder of the firm, says “We always believe in changing technology, in fact we introduced the first four color offset press in late 80’s in Madurai, when most of offset jobs done with single and two colour presses. And being a screen printing specialist, I have tried with various medium, and in turn we adapt to various technology today.”

Tiruvannamalai-based Subam Printers expanded its most-coveted portfolio with a brand new Heidelberg Speedmaster SM 74, as part of its revenue acceleration strategy. “Quality excellence is an unspoken commitment to the customer. We continue to rely on Heidelberg to help us deliver this promise,” smiltes Mr. Palani, Managing Director, the driving force behind the 25-year old print firm.

From a modest beginning as a screen-printing startup in 1991, Subam Printers has grown to a 12,000 square feet print facility today, owing to the relentless efforts of this first-generation printer. His relationship with Heidelberg dates back to 2011, when Subam installed a Speedmaster 74, four-colour offset press at its Guindy subsidiary in Chennai.

A major portion of Subam’s business consists of commercial printing jobs from regular clients. The print shop is equipped with a state-of-the-art designing division and a complete array of prepress and postpress equipment’s. The latest Speedmaster SM 74 installation is a perfect fit into the print shop’s quality- and performance-conscious modus operandi, which is to “avoid delays and defects, while practicing zero tolerance to negligence.”

Palani states emphatically, “With our new ‘Speedmaster SM 74’ there would be no delays or defects, thanks to automation components like ‘Autoplate’ to facilitate fast and efficient plate changes. This in turn, reduces make-ready and setup times phenomenally compared to other presses. With a Production speed of up to 15,000 sheets per hour, the press is exactly what we need for our commercial printing setup.”
Ganesh Kumar, Senior Sales Manager, Heidelberg, adds, “Productivity, performance and Prinect. That sums up the Speedmaster SM 74 for you.” The Prinect Easy Control color measuring system of the Speedmaster SM 74 helps in bringing down paper waste levels, while a speed-compensated Alcolor dampening system produces brilliant print results. A highly-automated feeder with central suction tape helps the Speedmaster SM 74 handle a wide array of printing substrates, from thin paper to board, ranging in thickness from 0.03 mm (0.0012 inches) to 0.6 mm (0.024 inches).

“The latest generation print buyers are sticklers for quality output, as well as timely and reliable delivery. The SM 74 will help drive better user experience for our growing client base. It is our key to explore a broader addressable market,” Palani says.

The installation is also a reflection of the inroads Heidelberg is making into Tier-2 cities. Rajendra Prasad, Manager - Marketing & Communications, comments, “The Indian print industry has the next wave of growth from Tier-2 cities. We are glad that our continued emphasis on Tier-2 markets is starting to pay off. The Subam installation shows that we have moved from market creation into the adoption phase. While we focus on innovation in core technologies, Heidelberg will continue to keep the customer at the center of everything we do.”

M/s. Subam Printers - Tiruvannamalai
Speedmaster SM 74

Feeding unit of Speedmaster SM 74

Delivery unit of Speedmaster SM 74
For 90 years, since its establishment in 1923, the Komori Group has been producing offset printing presses. Our flagship products include sheet-fed offset presses such as the Lithrone series and Enthrone series, web offset presses such as the system series and related equipment and devices. Moreover, the Group has been supplying security printing presses to the national Printing Bureau in Japan as well as to overseas customers in dozens of countries.

The Komori Group endeavors to improve the quality and productivity of its basic printing presses and develop printing information networks and automated integrated printing systems to respond to the recent trend of digital workflow and networking, and realize a total printing production system. With its sights fixed on remaining a trusted Print Engineering Service Provider, the Group also works to bring the range of its proposals to bear in solving customer issues.

**Technology behind Komori**

- According to data announced in February 2010, the scale of the global printing industry stood at approximately US$706.1 billion in 2008, up 55% compared with 2001.
- North America, Western Europe and Japan accounted for around 70% of this total.
- Compared with 2008, the global printing industry is forecast to experience 3% growth over the six years through to 2014. Despite a slowdown in the pace of growth in the mature markets of North America, Western Europe and Japan, extraordinary market expansion of more than 40% over those same six years is projected in emerging regions and countries, including China, Russia and India.
‘On demand technologies,’ which are at their core Original Komori technologies such as H-UV and KHS-AI, have been highly assessed ... A revolution in offset printing is truly under way.

Satoshi Mochida, Representative Director, President and COO

In reviewing the past year, we see that technological innovation is pressing on throughout the printing industry — in particular, innovation that is a consequence of info-communications technology and digitalization spreading throughout the world. Demand for Internet and social networking services is also rising rapidly. The printing industry has of course been affected by these developments, and although the demand for printing in developed countries is sluggish, the outlook is beginning to look somewhat brighter as the printing industry reacts to these global changes.

Driving three key innovations

Komori Corporation is looking squarely at the market environment that encompasses printing and will endeavor to contribute to our customers’ greater prosperity by driving forward three innovations - the expansion of new businesses, the structural transformation that is the core of our growth strategy, and the innovation of monozukuri. Our activities in 2015 will be mainly oriented toward strengthening the foundation of the offset printing press business, our mainstay line. ‘On-demand technologies,’ which are at their core original Komori technologies such as H-UV and KHS-AI, have been highly assessed, and we have earned the voices of satisfaction and repeat orders from many customers. These on-demand technologies have been installed on package presses and web offset presses, and orders are on track to exceed 500 machines. A revolution in offset printing is truly under way. Mobilizing the technological and developmental strengths we have accumulated since Komori’s founding, we will redouble our drive for innovation and propose solutions that impact the customer’s bottom line. Further, Komori is advancing the expansion of three specific businesses: banknote and security printing machinery, digital printing systems and printed electronics production equipment.
Web offset presses print on a continuous roll of paper, the pages being cut to size and folded after they have been printed. These presses are suitable for high-quality, large-volume commercial printing, such as magazines, inserts and direct mail.

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The printing machinery industry’s market scale, which encompasses presses and peripheral equipment, amounted to approximately US$22.2 billion on a global basis in 2008.

- Of this total, the market scale of offset presses, Komori’s mainstay product, is estimated at around US$7.2 billion.
- The manufacture of offset presses requires precise metalworking expertise as well as adequate industrial infrastructure encompassing such wide-ranging fields as machinery, electronics, chemicals and paper. For these reasons the majority of leading offset press manufacturers is concentrated in Germany and Japan.
- With its offset presses capturing approximately 15% share of the global market, Komori is one of the world’s top-tier offset press manufacturers.
- As the leading offset press manufacturer in Japan, Komori maintains a dominant position with an approximate 50% share of the domestic market.

Notes:
*1 Excluding web offset presses for newspaper and other printings
*2 Heidelberger Druckmaschinen AG (Germany), Komori Corporation (Japan), Koenig & Bauer AG (Germany)

Source: NPES (The U.S. Association for Suppliers of Printing, Publishing and Converting Technologies)

### Komori’s Net Sales by Product Category

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<th>Year</th>
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Source: Komori Corporation (Japan)
Message from Top Management

On June 24, 2014, Yoshiharu Komori, then Komori President, Representative Director, Chairman and CEO, stepped aside from the office of President to welcome Satoshi Mochida, then Vice President, Representative Director and COO, as the new President.

As we marked the 90th anniversary of the Company’s founding in fiscal 2014, ended March 31, 2014, we have renewed our commitment to achieving a revival that is akin to a re-founding of Komori. Reflecting this, we carried out exhaustive reviews of past operations while launching initiatives aimed at decisively transforming our business and profit structures to create a company capable of generating steady profit.

Moreover, building on the technological strengths we have accumulated over the decades since the Company’s founding, we will strengthen our operating platform through innovations, further solidifying our market presence as a leading printing machinery manufacturer in Japan and around the world. At the same time, we will cultivate technological seeds derived from our immense wealth of expertise in this field, thereby creating new, highly profitable businesses.

In line with our management philosophy of delivering Kando—customer satisfaction beyond expectations— we will ceaselessly endeavor to become a company that provides customers around the globe with products and services that go beyond their expectations while enhancing our corporate value.

The abovementioned change in top management represents our determination to create a management structure that facilitates prompter decision making and is highly responsive to the radically changing business environment.

We humbly ask for your continued support going forward.
Keeping up with the times

President Choi explains this advance into offset printing: “In the 40 years we’d been in business, we had concentrated exclusively on postpress work. Since postpress consists of processes done after printing, there are limits to how much of your own creativity can be embodied in the final result. I decided that it was necessary to make a decisive move to keep up with the rapidly changing times. I determined to go into offset printing, and particularly package printing, where growth is especially anticipated.” “Since we already have the know-how and the equipment for special finishing work, we concentrated on assembling a first-rate printing team. We needed to have more technological clout than anyone else since we were late to the game. To build a business that was differentiated from the competition, we established an R&D center, which is almost unheard of in the Korean printing industry, and invited Dr. Song Kyung-Cheol to be the director of the center. Then we selected Komori for our printing press, the core component of the offset business, and installed the latest six color Lithrone G40.”

Careful research yields complete confidence in choice

Mr. Choi explains why he chose Komori: “Since this was to be the first press ever installed by our company, we considered the decision carefully. Initially we thought about a used machine since we had no experience in printing. But I visited Komori users and was very impressed at seeing the performance of machines incorporating the combination of KHS-AI and PDC-SX. The stability of the press is enhanced by database-driven ink presets and the automatic registration and density..."
Covering Komori’s latest press and its cutting-edge in training program

The Komori Graphic Technology Center at the Tsukuba Plant - now in its sixth year of operation and following a renewal designed to accommodate the reborn Komori mission and priorities - has been reorganized into three frontline units. One of these, the Printing College and Training unit, improves customer printing skills through participatory, hands-on training. *On Press* looked in on a representative course for the staff of a printer that will shortly install a new Komori press. Starprint Public Co., Ltd. will soon commission a seven-color Lithrone G40 UV press with coater, PDC-SX, KID and several other options specified to maximize print quality and productivity in its flexible packaging production plant in Samut Sakhon in southern Thailand, not far from Bangkok. This printing plant specializes in flexible packaging for food and beverages, pharmaceuticals, cosmetics, agro chemicals and spirits. For a one-week training course in operation of the new press and its peripherals, the company dispatched four plant personnel to KGC: Chief Printers Sittichok Chalayanon and Sucha Jitarom, Production Manager Jaran Thangsriwattanawong and Maintenance Manager Aphidet Phattayasang.

On Press goes to class

*On Press* visited the course on the second day of training, joining the group just as the instructor, Mr. Nozomi Shibata, was winding up his explanation of the Lithrone G40’s printing units and beginning to explain the fine points of blanket cylinder packing. The morning session also touched on the Komorimatic continuous dampening system. The trainees listened carefully to the different topics explained by Shibata. The afternoon session covered dampening solution and the structure, adjustment and maintenance of the inker. Later in the week, the course went over makeready and setup, PDC-SX operation, KHS-AI setup and other aspects of operating the Lithrone G40.
From the pressroom floor

Pragati Offset

We started off as commercial printers in Hyderabad in 1962 and began package printing in 1999. Packaging is now 40 percent of our business while commercial accounts for 60 percent, but we expect these percentages to be reversed in three to four years. Our annual turnover is about 42 million US dollars. The presentation was very good — we saw it at drupa and now we’ve seen it here. The most interesting thing was the integration of various technologies.

I think this is what Komori is all about.

Sangat Printers

We launched Sangat Printers in 1990 for the commercial segment and set up DJS Printers for Packaging Solutions five years ago. We specialize in food packaging and our clients include KFC, MacDonald’s, Subway and Dunkin’ Donuts. The presentation and demonstration today were fabulous. I learned a lot and enjoyed it. We have a five-color Lithrone S29, and I am looking at the six-color Lithrone GX40 UV.

Imashi Publications

My company, Imashi Publications, produces more than 40 educational magazines in three languages - Tamil, Sinhalese and English — every month. I established Imashi in 1997, and today we have more than 250 employees. I hope that in the future we will expand the range of our publications and be of greater value to our customers. The presentation today was very interesting and informative. I personally was most interested in the demonstration of the Lithrone GX40. The tour of the plant was also fascinating. I was quite impressed with the setup.

“Komori products have a reputation in the market for exceptional cost performance, and this fact certainly drives printers’ interest in investing. Moreover, operators favor them for their easy operation, high level of automation and low amount of paper waste.”

This good foundation on the basics will help me to operate the press more easily, extend the life of the machine and produce better work for our customers.

- Sittichok Chalayanon
  Chief Printer

Now I know the system and the basics so I can operate and use the machine better to produce good jobs for customers. It was useful and practical training.

- Sucha Jitarom
  Chief Printer

I was very impressed with the teaching techniques. I believe all the techniques I learned in the course will be useful for my job in Thailand.

- Aphidet Phattayasang
  Maintenance Manager

The course taught me the correct and most efficient way to use the press. I think it is especially good for non-engineers or engineers with less experience.

- Jaran Thangsriwattanawong
  Production Manager
Analysis and technology behind Post-Press

New POLAR machines

When one of the two cutting machines once more failed in 2010 and at the same time the company received a lucrative offer for machine replacement, the Vogt Foliendruck management made a final decision - to return to the POLAR world. Vogt: "In the same way that our customers expect top performance, reliability and service from us, we also needed this continuity and safety on the machine side. As Polar had proved for many years that it fulfills these expectations, there were no more obstacles in the way of using the company from Hofheim again." According to Rode, it really became apparent that this was the right decision when the machines from both manufacturers were used at the same time. While the error rate of the machine of the competitor remained high, it was possible to work with Polar continuously and without errors. "And if there was something that needed clarification", he explained, "We were able to get help quickly due to our direct contact with Heidelberg."
The POLAR high-speed cutter 137 with Compucut® and Autotrim functions provided the solution for combining the various requirements and wishes. Their size and usability are not only designed for turning 3B format printing sheets directly on the table, but the pressure clamp also effectively holds the foil in position. Rode: "There isn't any distortion, even with air-padded types that we call orange peel foil." And the machines are also extremely flexible when it comes to material variety. Depending on the respective job, foil, paper and also displays and laminated sheets with a thickness of up to three millimeters can be successively cut without difficulty. Another advantage is the Autotrim function with which the worktable automatically opens towards the operator and the produced waste foil drops onto a conveyor belt located directly under the table to be routed directly to the disposal containers. The workers in Hessisch Lichtenau also appreciate the Compucut® software with which the cutting programs are compiled with an external PC and uploaded directly to the high-speed cutter. Rode: "With the existing functions we can upload CIP3 files directly from various pre-press systems, which also reduces the set-up times." The rule applies: This means that the cutting programs are automatically or interactively optimized for the best possible program sequence with all necessary comments, additional functions and operator messages. Rode: "Today with both functions we have cut our processing times by more than 30 percent of the time we needed before. This is great confirmation that we made the right decision!"

POLAR Cutting Systems, from efficient to highly profitable versions

POLAR cutting systems with integrated jogging process enhance productivity and improve ergonomic conditions:

The operator of a high-speed cutter reaches capacity with about 10 cutting reams per hour, depending on the number of cuts per ream.

If the cutting performance needs to be increased it will be reasonable from the economic point of view to invest in a cutting system.

With system components which are tailored to the relevant offset size POLAR configures the ideal solution for every application.
**Customer Benefits**

- Extended operating life of the knife as well as faster knife change thanks to POLAR OptiKnife with knife fine adjustment in the lower dead end.
- High productivity by a great number of programmable additional functions
- Shortest make ready times thanks to intuitive cutting program generation via block programming or even Compucut
- Greatest cutting accuracy due to the POLAR-Positioning-System DPS with a mechanical positioning
  - accuracy of 1/100 mm
- Highly reliable in daily use and long lifespan as a result of the stability of the one-piece machine frame, knife drive with worm gear drive and compact closed hydraulic system.

**Description High-Speed Cutter N 137**

The High-Speed Cutter POLAR N 137 is mainly used in the medium-size range. Formats up to a diagonal of 1,370 mm can be easily handled and turned in the high-speed cutter. Cutting material with larger formats can only be turned on the front table.

The High-Speed Cutter has extensive features in the standard equipment already which can increase the productivity up to 20%.

The High-Speed Cutter can be upgraded with peripheral equipment (lift, jogger, buffer, transport grippers, loading and unloading system) to a cutting system.

**Technical data**

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</thead>
<tbody>
<tr>
<td>Cutting width</td>
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</tr>
<tr>
<td>Feeding depth</td>
<td>1,450 mm</td>
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<tr>
<td>Loading height max.</td>
<td>165 mm</td>
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<tr>
<td>Safety clamp pressure</td>
<td>30 daN</td>
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<tr>
<td>Clamp pressure, min</td>
<td>150 daN</td>
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<tr>
<td>Clamp pressure, max</td>
<td>5,500 daN</td>
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<tr>
<td>Backgauge speed on return way (0 - ...)</td>
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<tr>
<td>Knife speed 45 cycles/min</td>
<td></td>
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<tr>
<td>Smallest cut, automatically, without false plate</td>
<td>25 mm</td>
</tr>
<tr>
<td>Smallest cut, automatically, with false plate</td>
<td>95 mm</td>
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On demand technologies

As a new business objective, Komori is driving forward the Print Engineering Service Provider (PESP) concept, embracing press-related systems, printing materials, and providers of print know-how. We will invent products with new value that suit the changing times by combining Komori printing technologies with the technologies of partner companies and work toward total solutions. In addition to offering greater convenience to customers, we will provide coordinators who will recommend the best equipment and business models to meet customer needs. Going beyond our traditional function of supplying offset presses, Komori is developing and supplying a wide range of PESP products, including superior solutions and services that meet core customer needs. Komori’s innovative H-UV curing system that enables Offset On Demand, for example, was realized through PESP initiatives. Other PESP products cover a wide gamut, including the Impremia series digital printing systems, the Apressia series of postpress machinery along with prepress equipment as well as printing consumables. The digital Creative Lounge (dCL) in the Komori head office in Tokyo and the Osaka Demonstration Center is a space that presents the tangibles of PESP thinking. The lineup of activities includes regular seminars, simulations, tests and presentations of business models that can be deployed following the adoption of specific products.
Encompassing the entire environment of a printing plant

**Electric Power**
- Reducing power consumption
- Installing power consumption monitors
- Visualizing unit costs

**Plates**
- Color Management
- K-Color Simulator proposal
- Leveraging high-precision color management systems to reduce reprinting

**Paper**
- Reducing paper waste
  - KHS-AIPDC-SX/PQA-S (Lowering backup paper usage rates)
  - K-Color Simulator (Cutting color matching times and number of sheets)

**Ink and other supplies**
- Lowering ink consumption
  - Establishing techniques to optimize conversions with KHS-AI

**Printing**
- Working environment
  - Ensure proper spraying volume

Komori is engaged in the “Kando-PJ” project on a companywide basis, with the aim of realizing the management philosophy of becoming a company that inspires its customers. “Green-PJ” is one part of this initiative. In addition to supporting customers who are printing companies, we aim to contribute to society through environment-friendly product development and environment activities, so as to inspire not only consumers who receive printed products, but also local communities and all other stakeholders. We aim to become a company that inspires the public by helping build a more environmentally-conscious society. As things stand, we have only taken the first steps towards these goals, but we would greatly appreciate your perusal of this report, and acknowledgement of our environment technologies that meet the needs of the times, and related activities which are their environment-friendly design

Unless preventive measures are taken, printing presses are industrial products that cause significant environmental impact, consuming as they do vast amounts of paper, ink and other materials and, during operation, electricity and other energy sources. The greatest environmental concern with regard to printing machinery is reduction of wastes which accompany production of printed materials. As per my knowledge at Komori, thinking beyond reduction of waste in the printing process and also committed to product development and design that aims to ensure printing machinery that is friendly to the global environment and humanity throughout the life-cycle.
Exhibitions and Events

Open house draws a crowd to see high-spec packaging machines.

Printers from around the world visited the Tsukuba Plant on March 12 to discover Komori’s latest solutions for the growing packaging market. The solutions were many but they could all be summed up in one word: automation. Automation of printing processes such as makeready, automation of materials handling, and automation of total print quality control and assessment. But this open house event covered more than technologies and products. The day’s proceedings reacquainted the visitors with Komori and provided opportunities to compare notes with packaging producers in other markets and other countries. The buzz from this chemistry grew throughout the day and peaked during the nighttime festivities. The printers were welcomed to Tsukuba by Toshiyuki Tsugawa, Operating Officer and Group General Manager of the Overseas Sales Group, who pointed out the extent of Komori’s commitment to this rising market segment. Following a showing of the latest corporate video, the day’s main presentation, ‘Komori Packaging Solutions,’ was delivered by Doug Schardt, Product Manager from Komori America Corporation.

Rundown on the packaging industry

Mr. Schardt’s briefing pinpointed the industry trends that all printers in this market face and highlighted the main elements of the day’s demonstration, specifically those that impact profit and ROI. Market needs in this field are much the same as in other segments of printing: shorter runs, tighter turnarounds, and greater diversity. Komori’s answer is PackagingOnDemand: the Lithrone GX40 and Lithrone GX40RP, in particular, supplemented by half-size offset machines, digital printing systems, and a multitude of peripherals and PESP products that add up to a total, customizable approach.

Priority on distinctive performance

Emphasis was on the highly evolved technologies incorporated in the KHS-AI quick start-up system, the PDC-SX scanner and the PQA-S inspection system - the key mechatronics that distinguish Komori from other manufacturers. Smart Sequence for preprogrammed optimization of job changeover items, and Smart Feedback for automation of changes after makeready. The key strengths of the Lithrone’s robust inker and Komorimatic dampening system. And above all, the higher level of performance made possible by the tight integration of these systems and technologies in Komori’s flagship machines.
forget the bright atmosphere, orderliness, advanced technology and precision production that I saw at the Tsukuba Plant. The courteous, enthusiastic instructors were very impressive. The course we took connected theory and practice together in a way that I could really relate to. The interactive teaching technique made the material very accessible.” A printer from Taiwan said: “This course really taught me the importance of plant management. Plus, I realized how our traditional image of customers and their needs has been completely revolutionized. Automation and Technology are the basis of printing now. Finding qualified operators is difficult at present, but I think that if I can convey to my employees the essentials of what I learned, this training will have a very good impact on them and our company.”
The printers reached for printing samples to take home and swarmed up on the machine to verify different aspects. The eight-color Lithrone GX40RP reverse printing press — a one-of-a-kind machine manufactured by no other maker — printed both sides in one pass using Komori H-UV ink. Highprecision CCD cameras inspected both sides simultaneously. Reliability and predictability incarnate. And then the six-color Lithrone S29 performed. Flawlessly laying down ink on a clear plastic substrate. And the demonstration was over. Stunning results on a variety of difficult jobs. Package printing perfection.

**Sheet Numbering System**

Inkjet numbering system on feeder board prints unique serial number on each sheet for inspection traceability. Production reliability ensured because number is used to trace prepress errors and printing defects.

Mr. Van Bolhuis says: “We try to steer away from competing on price. Instead, we aim at adding value for our customers by creating smart solutions. Not only innovative packaging that stands out from the rest but also — based on our 100 years of experience in this field — designs that can be produced in the most efficient way.”

**Understanding customers needs**

Jan Smulders, Operations Manager at Schut, explains the importance of customer intimacy in getting the solutions exactly right: “We cater to both clients in the nonfood and food sectors. The first segment uses packaging mainly as a means to increase sales, while the latter is looking for ever-more efficiency. But to find out how we can really serve both groups best, we need to be very close to them, understand their business, speak the same language and build long-term relationships. That is why we tend to focus mainly on the Dutch market.”

Van Bolhuis adds: “We want to offer our customers a complete portfolio of services under one roof - ranging from design, CAD, DTP and prepress to printing and finishing. That gives us the flexibility we need to ensure fast turnaround, guaranteeing a short time-to-market for our clients.”
SeaChange had a strong niche business in place from the acquisition, including a solid packaging customer base, personalized children’s book business, retail signage plus election ballot production and programming for 16 states. The strategy for the future is to grow packaging and expand into the commercial market. “We’re very different from most printing companies who have a presence in the commercial market and then try to expand to other niche areas”, says Hannon. The key to that expansion was the addition of sales and marketing professionals with strong backgrounds in the commercial world. Adding Wendi Breuer to the executive team as the Vice-President of Sales and Marketing was

“Our goal is to create strong new business growth in the high end commercial print market, bringing technology solutions to customers to help them grow their business.” - Breuer.

“Our goal was to create an environment that reflects our corporate culture and our brand. It was important to incorporate a contemporary approach illustrating to our customers and prospects, as well as our employees that we were a forward thinking company positioned for a healthy future,”

“Having the right team in place is key to our success. It was the essential building block for us,”

“Our employees are incredibly excited to be part of a financially sound company with a future. They are seeing new customers come through here on a regular basis, new equipment being installed, a lot of positive things. And we make sure to thank them every day,”

-Wendi Breuer

“A lot of businesses are digital savvy. Our job is to help them with the decision to complement their digital media with print. “IT will play a crucial role in our strategy to grow our commercial and direct mail business. We’ve got some exciting new products and services on the horizon,”

-Friederichs.
What kind of job position?
The seniority of both visitor and exhibitor personnel was high. As a consequence, visitors attended looking for expertise and partners to assist them in solving very specific technological problems. Customisation was highly sought after. This is logical as no two manufacturing lines are identical. Technology must flex to align with the specific need of any particular manufacturing line.

What kind of industry did they come from?
Usually in an exhibition events as per research data collected visitors came from two key sectors, manufacturing and printing. Unusually for print technology exhibitions the majority came from the manufacturing sector with nearly 52%. The aim of the show was to connect print technology with a community of buyers and specifiers from the manufacturing sector, whether end manufacturer or tier 1 or 2 supplier. In addition to these 2 key sectors, visitors came from a number of key industries, from automotive and aeronautical through to medical, metal manufacturing, renewable energies and pharmaceutical.
What are the ongoing trends in the global printing market?

- Our customers are also changing too for small craftsman to industrial enterprise
  Chances and challenges relevance for our customers.
- The digitized trend transforms entire industries and business models within the next five years 80% of companies will have digitized their value chains.
- Digitization will lead to higher production and resource efficiency
- An important key is the integrated analysis and the utilization of available data
- Digitization of product and service portfolios is the key factor for sustainable success
- Digitization enables new digital business models
- The horizontal process integration is the best way to fulfill customer requirements

Key Points to remember:

Additive Manufacturing is becoming more cost-effective and widely available. Products ranging from titanium components to human tissue can now be “printed.” Its use is increasing dramatically with new materials and applications, so national security opportunities and challenges must be addressed proactively.

National security advantages come from manufacturing and applications, namely, the ability to create specialized suitable accessories of printing machinery from an ever-growing industry. Additive manufacturing could reduce material use, build time, weight, and delivery times. This will bear directly on operations.

The ubiquity of this technology means that these advantages will be available to consumers and America’s rivals. Its consumer applications may create legal challenges.

This technology could be part of a manufacturing revolution, allowing innovation and production especially when considered with other technologies.

Another major benefit of machinery parts is the fact that complexity in conventional manufacturing, increasing design complexity entails increased costs. Allows for complexity to increase independently of cost. By very nature of layer-by-layer additions, one can optimize in a given engineering component’s strength, durability and other material properties. For example, in the multi-colour printing machine such as Heidleberg, Lithrone etc., one typically desires high strength, efficiency and performance from time to time. Weight savings translate into savings on fuel consumption. From manufacturing is fundamentally limited in its ability to remove material from the printing components to optimize these conflicting parameters. With however, one can have comparing the manual of machine. Moreover, the suitable design from manual becomes a more effective in substitute spares in well established press room.
Drupa? A reasonable success for print?

Drupa 2016 not only provided a lot of opportunities to generate business but also to update one’s knowledge about the latest trends and technologies in printing.

How has the Drupa year been for TechNova?

TechNova had a large deputation to Drupa 2016 with clear objectives. Our team visited Drupa 2016 achieved most of them quite satisfactorily. One of the critical objectives was to assist our Indian customers identify and evaluate technologies, systems and consumables on offer at Drupa 2016, with the help of our alliance partners.

Any business deals concluded?

We were able to help many of our customers conclude deals, and have initiated many more that would fructify soon. Our customers have given a resounding yes to TechNova’s transformational strategies and made sure we have enough reasons to cheer.

TechNova has been at the forefront of inking new alliances? Be it: Konica Minolta and Duplo in the past or the recent one with Esko?

TechNova has always been at the forefront of innovating for our customers, be it by developing and manufacturing in-house or making the best-in-class solutions, products and services available to the Indian graphic arts industry through alliances. Today, customers are feeling the need to have a partner they can trust to help them make meaning of hybrid ecosystems, connecting offset and digital printing technologies.

What is the strategic rationale behind the slew of alliances?

It is by virtue of various domestic and global alliances that we have been able to introduce products like spray damp systems; a range of software for quality and productivity enhancement; high-speed low-energy automated CTP systems at entry level costs; inkjet CTP systems; and specialised services. All our alliances are formed with the singular purpose of making the best end-to-end solutions available for our commercial, publishing, packaging and newspaper printing customers and keeping them ahead of the curve. We are venturing where our customers want us to be in: green, digital and packaging.

Our estimate indicates the offset plate usage in India is 40 million sq/m. At the existing currency rates; this works out to a market size of USD 164- to USD 175-million.

India’s consumption story is still intact and as an essential consumable, plates will ride that growth. The usage of offset plates in India has continued to grow in the last few years albeit at varying growth rates. This is in contrast to other developed print markets globally, which have seen a sharp decline.

Are these healthy numbers?

Yes, while the top segment is fiercely embracing green plate technologies, conversion to digital plate technologies at the mid-bottom of the pyramid continues.
NMD: **What have been the growth drivers?**
CGR: The major growth drivers in India are: a green journey, sustained conversion to a digital plate workflow, India’s GDP growth trajectory, government’s drive for literacy and the continuous excellence of Indian printers.

NMD: **The question on many lips: how does the print industry work to build print optimism?**
CGR: This is something that we all need to work on. The Indian printing industry has many inherent strengths, such as: entrepreneurship in our DNA, a tech-savvy nextgen, IT and engineering talent, English speaking population, low-cost manpower, etc. We are blessed with a large domestic market being driven by stable political environment, robust economy, growing GDP, various literacy drives by the government, and a real opportunity to become a major hub for exports in book printing and packaging printing segments.

NMD: **In what way can one boost the print climate in India in 2016-17?**
CGR: To exploit these opportunities, we will need to overcome the challenges we face, which are both external and internal, by formulating well thought-through competitive strategies and practicing operational excellence in terms of technology, quality and cost management.

NMD: **By the end of 2015, almost about 50% of Indian newspapers had opted for chemistry-free plates...**
CGR: When TechNova introduced VioGreen plate in 2010, India became one of the only four countries in the world to have its own chem-free violet CTP plate. Within five years the Indian newspapers have converted 50% of their consumption to chem-free plates. This is primarily due to the major reduction in water and chemistry usage they experienced, without compromise in printing quality. This dovetails very well with the other sustainability initiatives of newspapers.

NMD: **By when will this number be 100%?**
CGR: Indian newspapers are embracing green plate technologies at a rapid pace. We are committed to fulfil this appetite faster and hope to convert the balance 50% in less than half the time it took to convert the first 50%.

NMD: **Is this a part of TechNova’s Go Green strategy?**
CGR: Yes, we are very proud to see that Indian newspapers are at the forefront of the green printing movement. We are privileged to be a partner in this journey.

NMD: **What has been the trickle-down effect of Go Green among Indian newspaper plants?**
CGR: Indian newspapers are embarking on multiple environmental projects even outside of printing, like water conservation, reduction in the disposal of harmful effluents, tree plantation drives, and are seeking the green gene in products other than just plates. TechNova supports the Go Green journey of Indian newspapers by supplying not only green plates but also a whole bouquet of green chemicals, water filtration units, low-energy CTP systems, etc. We are fully committed to innovate, develop and manufacture more and more green products for the graphic arts industry in general and Indian newspapers in particular.
NMD: **What has been the success rate?**
CGR: Customers are excited with these introductions and the conversion rate is very steep. We are more than happy to supply and support whichever technology our customers choose, based on the nature of job and process needs.

NMD: **One of the silent success for TechNova has been the iCtP (Inkjet CTP) base in the Saurashtra region of Gujarat plus mofussil parts of India.**
CGR: We have an installation base of 300+ SmartJet inkjet CTP solutions, predominantly in the newspaper and book printing segments. We continue to keep our successes silent. We measure our success by the level of satisfaction our customers express and the benefits they accrue from the solutions we provide and we believe that this is a constantly moving target. TechNova’s SmartJet inkjet CTP solution is currently using MetiJet metal inkjet plates, Polijet polyester inkjet plates, and Posijet clear inkjet films.

NMD: **Has TechNova underplayed its hand with this no-process low-cost CTP system?**
CGR: Rather than celebrating this success, our team is keenly focused on fine-tuning the GreenJet chem-free metal inkjet CTP plate, which will be imaged by the same system and can be taken to the press directly after imaging, eliminating the exposing, processing and developing stages. GreenJet will be a big value addition for our iCtP customers.

NMD: **A lot of SME-size printers want to know where is the next big buck in print industry going to come from? What would you say to such printers?**
CGR: It will continue to come from packaging. It will come from offline specialised varnishing, food-grade barrier coatings application, from specialised digital work like photo albums, art reproduction, etc. Print is transforming from “print of messages” to “print of things”. Seek every opportunity to innovate. Go Green, Go Digital, Go Packaging.
Chemistry-free vs processless plates? What’s the difference?
Both are environment-friendly CTP plates. That’s where the similarity ends, everything else is different. The chem-free variety is available for both violet and thermal imaging technologies. However, the process-free variant is available only for thermal imaging technology.

And this is not so for chem-free?
After imaging, the chem-free plates need to be passed through a small foot-print clean-out unit for removing the non-image area with the help of a PH neutral gum. The process-free plates are directly mounted onto a press after imaging and the non-image area is removed on the press. To answer your question, both the variants have benefits and challenges which are unique to each.

What is TechNova’s offerings in this range?
TechNova offers a full range of green CTP plates, viz. VioGreen Plus, the chem-free violet CTP plate; Azura TU - the chem-free thermal CTP plate, and Azura TE - the process-free thermal CTP plate. We are technology neutral and are happy to hand-hold our customers to evaluate and select the best plate which is suitable for them. This is based on the customer’s business needs, nature of jobs and process parameters.

TechNova’s seven-step guide for printers to consider while making a choice between a chem-free plate and a process-less plate
1. Since the coating from the non-image area of a chem-free plate is removed in the platemaking stage itself, dot measurement and plate calibration is much easier as compared to the process-free plate.
2. In the process-free plate, mistakes if any, become evident only after the plate has been mounted on the press, leading to machine downtime.
3. Since removal and cleanout of the non-image area of a process-free plate are carried out on the press, it leads to precious machine time loss and high paper wastage during makeready.
4. The dampening solution and ink on the press could get contaminated with the removed coating from a process-free plate. With the chem-free plate, this is done in the plate making stage itself.
5. Fingerprint sensitivity of process-free plates is very high. This may result in the non-image area, having fingerprints catching ink on the press leading to an increase in paper wastage and machine downtime.
6. Chem-free plates can work with standard press room chemicals whereas process-free plates require compatible pressroom chemistry to achieve optimum performance.
7. Since the chem-free plate is more robust, it is capable of giving higher run lengths as compared to a process-free plate.
**Drupa 2016**

Number one event for print and accross-media solutions. happend at Germany, from May 31st to June 10th Drupa, the industry’s leading global trade fair; is the gateway to promising visions and the focus of futuristic technologies that are driving the market forward and opening up great opportunities and potential for growth worldwide.

**In 19 exhibition halls, around 1,500 exhibitors from over 50 countries** will present brand-new business models, best-practice examples, forward-looking concepts, and technological innovations and solutions for your business. The Drupa trade fair is the global successful event for the whole sector.

The drupa exhibition is the only print event in the world where the entire value creation chain is presented – from machine manufacturers and suppliers to IT specialists, right up to cross-media and financial services providers. For an overview of the products and sectors represented at drupa
The leading international trade fair for print and cross-media solutions kicks offed with a new strategic focus, improved scheduling over eleven days, a new look and greater frequency running every three years. Under the motto "touch the future" drupa places the industry's innovative power centre stage and provides a platform for future technologies. **The focus is especially on next-generation and highlight themes such as print, packaging production, multichannel, 3D printing, functional printing or green printing.**

As per discussion with **M/s. Mayur Enterprises** - Managing Director, Bangalore who took active participation from India made elaborate approach in respect visiting individual stall, seminar demo of latest machines from Heidelberg, Komari, and other countries seems to be amazing product suitable to today’s & future state of printing technology. since "**With this strategic reorientation and its focus on future and highlight themes we are obviously on the right track. Because the response of international upstream suppliers to the industry has been very good – which was not a given in view of the difficult market environment,**" explains **Werner M. Dornscheidt**, President & CEO at **Messe Düsseldorf GmbH**. To the tune of more than **1,820 exhibitors** from **54 countries** will give impressive proof of the versatility and innovative power of their sector from 31 May to 10 June 2016 in all 19 Düsseldorf exhibition halls. **"International global players and market leaders will present themselves alongside aspiring newcomers and innovative outfits from throughout the world. The complete spectrum of print and cross-media exhibits and topics will be represented. Such a comprehensive 360° view of the entire industry is provided by nobody but drupa,"**

**Make Ready** No more flying blind – with Prinect Inpress Control 2, the first measuring results are delivered after

and the run is ready to start in under **1 minute.**

Accurate ink presetting makes the difference – the Color Assistant Pro software means that **fewer than 60 sheets** may be needed before the run can be started.

50% less makeready time with AutoPlate Pro compared to AutoPlate.

Protective liner instead of bare metal – cleaning the ink fountain takes just

**1 minute instead of 5 –10 minutes.**

**Top energy efficiency** at maximum production speed.
The mega trend at drupa 2016 will be Print 4.0 as Claus Bolza-Schünemann, Chairman of the drupa Committee and Chairman of the Board at Koenig & Bauer AG explains. “Print 4.0 enables individualisation and personalisation in digital printing. In the face of high-quality packaging and the rapidly diversifying range of solutions in industrial and functional printing this digital networking of machines and systems offers the solution and guarantee for efficiency and competitiveness. Print 4.0 is the mega trend at drupa 2016. This is very clear even at this early stage.”

Another major future theme at drupa 2016 is functional printing. Across the globe there are many application examples for printed electronics. Touch sensors on furniture surfaces, Bluetooth loudspeakers from paper or conductive inks are no longer science fiction thanks to innovative printing technology. drupa 2016 picks up on this highlight theme not at one but several points:

1. Under the PEPSO brands various exhibitors will be represented with stands on the theme of Printed Electronics Products and Solutions.

2. The OE-A (Organic Electronics Association) covers the topic with its members at "dip" (Hall 7.0).

3. ESMA, the European for Screenprinting, Digital and Flexoprinting Technologies, addresses this issue with a programme in Hall 6 (Stand C02) and Hall 3 (Stand A70).

4. And finally, VDMA (Hall 7A, Stand B13) also offered a number of activities at its "Showcase Industrial Printing" feature.
Reaffirming its trust in the Heidelberg brand, Parksons Packaging successfully installed the second Heidelberg Speedmaster CX 102 six-color press with coater at its Chakan unit near Pune, within a year of investing in the country’s first Speedmaster CX 102.

“Our relationship with Heidelberg is time-tested. Time and again, we have empowered our business with Heidelberg presses,” states Ramesh Kejriwal, Chairman Parksons Packaging. He adds, “The Speedmaster CX 102 is a surefire winner with the Inpress Control technology. Not sure, if I should call it Inpress or Impress, because the quality of output is extraordinary. Our decision to go for a second CX 102 was a breeze.” One of the most technologically evolved solutions from Heidelberg; the Speedmaster CX 102 is designed to cater to complex quality requirements in the packaging industry. This press is a great combination of the state-of-the-art technology of the XL class with the tried-and-tested platform of the Speedmaster CD 102. Peter Rego, HIN’s Business Head – Equipment sales, states, “Parksons is one of our highly valued partners.

We are more than happy to announce our second CX 102 installation at their Pune plant. Production is already in full swing now at the Chakan unit. The New impress Control Gen 2 automatically measures and controls color and register on the fly and at any speed. About 40 to 60 sheets are all that are needed to get into production without any pull by the operator. Ink and register are monitored and corrected automatically throughout the entire run. Everything is fully automated. This helps reduce wastage and shorten make-ready times,

From Left: Jeevan (Production Manager); Salvi (DGM) & K.K. Sharma (Operations Head – Parksons’ Chakan Plant, Pune)
M/s. Ravi Graphics

At Ravi Graphics we are home to the industry’s most enviable technology, we have teamed our robust systems with the most moderns set of software making our production house a self-sustaining, system driven entity.

With the help of our ERP system, we manage all our processes right from order to dispatch in a smart networked manner. Our operations are conducted under strict supervisions and adhere to all the relevant legislations and regulations.

From laminations to bindings, software to power back-ups, we have made our selves smart enough to cater to all your printing needs.

We believe in staying green and doing our bit for the society we live in. M/s. Ravi Graphics ensure that our waste management systems are regularly maintained and that our operations do not cause any harm to the environment or the people staying around our units.

**Strengths:** The first name in commercial printing, publishing & packaging, we specialise in book publishing, annual reports, brochures, journals, newsletters, fabrics, posters, danglers, calendars, visual aids, carry bags, greeting cards, invite cards, garment tags, colour cartons, labels, stickers and many other printed materials, we possess the latest technology, roland 5 colour cpc offset machine plus four offset printing machines, new generation ctp computer to plate, binding and fishing. Book Publishers.
From the desk, Mr. Sheshachala, Design – Manager Himalaya brand a herbal health care product comments the company has distinct quality logo to represent the company in global market. Purely a 'Ayurvedic Medical Concepts'. Stake holders around the world were waking up to the advantage of herbal and natural products for their personal care needs.

The brand products, label and packaging, corporate books, marketing literatures for doctors and calenders are very challenging in the technology age. The logo itself a special colour in panthone apart from the regular offset multi-colour printing, that itself a unique about the brand design manager and his team has strong commitment and task towards visual designs related material has stated, innovative finish is key along with accuracy and never compromise in quality and deadline from press shops. Some of the press who can match to company requirement such as M/s. Pragathi Printers – Hyderabad, M/s. Silver Point – Mumbai, M/s. Sudhindra Printers – Bangalore who are doing services to company from several decades.

As per the observation & analysis, suggests the Industrial printing requires a high level of technical competence. Print that is part of the process of manufacturing must be able to withstand rigorous testing, whilst providing precise and accurate finish, enduring harsh environments whilst withstanding forces that traditional print cannot match.

“Understanding change and new developments is important for any fast-evolving industry. especially on miniaturized surfaces, must be able to be applied economically to shapes, forms and surfaces which are not optimized and are sometimes outright unfriendly for print, and it has to be supremely durable on products that long outlast their communications' 'lives' at retail. The appearance of products largely embodies in fact the perception of the product”

In order to make the right decisions about the right technology, commented in feedback that they valued connecting with a high level of expertise on stand so they were able to fully understand the potential of the technology, providing answers to technically challenging production.

Understanding change and new developments is important for any fast-evolving industry.
Printing, today and tomorrow

Working for global companies and delivering world-class design solutions that cater to the customers across geography is a serious challenge.

Communication design plays a pivotal role in understanding the requirements and rendering benchmarking financial reporting by penning down the accuracy of data, clarity of content, accessibility of information and creatively presenting with rich supporting visual elements and engaging info graphics to align the company’s vision statements and forward looking business strategies.

Next level is taken for printing the financial report with common best practices that adheres to legal aspects of Securities and Exchange Board of India (SEBI). Stringent corporate governance norms dictate on various aspects that companies adhere to. For example, looking at the environmental challenges, consuming paper comfortably is a faceoff for companies and printing industry. In today’s context most of the corporate company’s use 80 to 100% recycled paper. These papers are slight costlier than the regular paper used. These papers have some drawback on maintaining the vibrant color story through the document or report.

Delivering out of the box printed document with traditional offset printing requires real best expertise with advance machines like HEIDELBERG offset printer etc…. What is conceived and designed in the design desk should align with the printing output. Maintaining the client’s expectations is the demand that every printer would promise as an agreement.

“Printing process consists of three common level, that is pre press, press and post press”.

Once the print ready files are available, the digital copy is made to negative films and then made to four color CMYK metal plates that will go on the offset printing machines and will be ready to printing. If there is any special pantone colors required there will addition plate added to make it five color printing.
Using recycled papers have challenges with color intensity. The output would look little downplayed if you compare with regular papers. In this case you need to choose color that really standout rich to look at. High-end machines have capability to stop the printing in-between and alter the color intensity and continue printing. Today most of the process is automated starting from printing, cutting, biding and packaging.

In the recent past the advent of World Wide Web and networking brought people across the world more closely and communication become very immediate and live.

Lifestyle and business culture is moving in the fast phased manner. In the midst of this, offset printing technology is going through a transformational time. Digital printing is pushing the way forward in convincing and taking decision faster than to wait for the offset proof to come.

Both the offset and digital printing technologies have their advantages and disadvantages on cost, speed, quantity and quality of the prints.

**Time will dictate as the speed and demand of the global scenario.... Who will survive? Offset or Digital?**

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**Worldwide PPV**

**Digital technology important for growth**

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1 Gallus/Heidelberg relevant part only (Folding Cartons & Labels)
2 Gravure, Screen, Letterpress and not Gallus/Heidelberg relevant Flexo

Source: Heidelberg estimate—June 2015, Industry statistics, PIRA, Fakta Färg, Primir (GAMIS), Global Insight

Digital: Only Digital Production Devices are taken into consideration ------- Base Year 2009

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As researcher’s say – “technology keeps moving... same time work on materials tested and strong mechanism of system in press room are vital”.

It provides the reader with accurate and well-researched forecasts for the future. New standards in operating philosophy and helps to dake the crucial step towards fully automated job changing with push to stop and navigate through complex make ready processes.

After reviewing the researcher state “A lot of changes happening in pre-press, press, post-press due to technology innovation and material science. From the point of view of customer exceeding expectations and confirms that new approach to business with customers and partners and at the fore front of strategy, is the right director moving forward, are high in demand examples advantages printing technology offers matching solutions for all their applications while opening up new lines of business and business models. Today’s surrounding, stunning graphical quality results are high in demand “The print industry is constantly re-inventing itself and offers a wealth of high-potential facets. A new application offering significant added value particularly in the areas of productivity advancements, reduced make ready waste and fewer press wash-ups, commercial print and publishing, end-to-end solutions.

Customers looking to ensure the long-term future of support to their businesses. In turn, commitment far beyond is to give them the long term support to achieve their goals.

Even establishments are thinking about how to give output at a minimum time duration of the labour issues, during finishing department in printing press.

Researcher has reason to look towards the future with optimism.
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