[1]One example of how the test was interpreted and reproduced is shown following page 26.

In March of 1994, a workflow workshop was held at the Linotype-Hell User Group (L-HUG) meeting. The basis of this workshop was an evaluation page that was given to numerous L-HUG members to produce in their shops.[1] The resulting workshop turned out to be one of the best sessions at the meeting.

The evaluation page

The workflow evaluation page was developed by the Technology Committee of L-HUG. Designer Kevin Simms of Linotype-Hell Company executed the design. Eastman Kodak Company duplicated the transparencies. Linotype-Hell Company supplied the fonts. The 8.5 x 11 inch page consists of three images which are merged with encapsulated PostScript files, logos, and text. The page was designed to present some specific difficulties in production regarding scanning, silhouette masking, trapping, knockouts, color correcting, cloning, overlapping, and vignettes.

Each participant received the following package:

• Three 3.5 inch computer disks containing compressed versions of all the components in the job

• An instruction sheet describing the file decompression technique

• Three 35 millimeter slides (a starry sky, a dragon fly, and a mountain lake)

• Specific layout and job instructions (shown both as written instructions, as an overlay, and as a QuarkXPress page layout)

• A low resolution color composite of the page

• An evaluation form for recording the workflow process

Participants received the package and produced the job without any further feedback. The intention was not to see who could produce the 'right' or 'best' result, but simply to see how a wide range of shops would handle the challenge given to them.

Each company was requested to submit four films, either a digital proof, a conventional prepress proof (or both), and a completed evaluation form

At the user group meeting, the completed pages were displayed. Each page had been given an identifying number known only to the producer of that page. The data from the evaluation forms captured information on the workflow approach, the hardware and software used, and the time required for each step. As a final challenge, some companies elected to do the job not only as four colors, but also as CMYK plus two Pantone Matching System (PMS) colors.

Workflow steps:
• Order entry
• Pre-flighting
• File preparation
• Scan preparation
• Scanning
• Intermediate film
  and the creation of
  a proof
• Color correction
• Retouching
• Stripping/trapping
• Data processing
• Final output
• Proofing
• Error correction
  (number of cycles)

Workflow

There are many different ways to produce the evaluation page. Workflow may be divided generically into the categories shown in the box above to the left. Different shops reported their workflow differently. Few shops would consider all of the steps listed above as part of their production process. However all of the results collected in the L-HUG evaluation test may be categorized using these headings.

Topics of discussion

A few selected topics produced the most intense discussion at the meeting: pre-flighting, choice of equipment, productivity, times, tracking systems, and customer charges. The following descriptions are based on attendee notes of the session.

Pre-flighting – Pre-flighting a job is one of the most important parts of the workflow process. A pre-flight check assures that all parts of the job are in-house, that no photograph, illustration, font, or instruction is missing. Pre-flighting should be performed shortly after the job is received (even if actual work on the job will not proceed for some time). If it takes four days to discover that something is missing, the customer will see you as disorganized, even if the omission is the customer's fault.

Some companies employ a 'work cell' or 'womb to tomb' team method in which the same person or group of people, handle a job from beginning to end. This increases the sense of pride in a job and also makes it less likely that someone will hand an unsolved problem to someone else in the production cycle.

Finally, some companies leave correction issues to the client. They run the job as supplied and let the client determine what is wrong. (Of course this is more likely to be the case in a high-volume service bureau rather than in a repro shop.)

One last caveat, where time is the key issue, for example on overnight rush jobs, production workers must have a customer contact phone number that they can call at all hours if there is a crucial question regarding the job.

Choice of equipment – Participants in this test used a wide range of equipment including Macintoshes, ChromaCom 1000s, ChromaCom 2000s, DaVincis, Combi IIs, Orions, Prismaxes, and some hybrids. One open question posed by session participants was, "How do you decide which of your tools to use?" For example, a shop may have multiple scanners ranging from desktop models to high-end repro scanners. Client quality expectations as well as cost structure ultimately play a role in this decision.

Related to this is a question regarding color management of different scanners, "How can you assure that if the same job is done on different scanners, the result will be the same?" For shops that use different types of scanners from low to high-end, this is clearly a difficult issue that depends upon factors like device quality, operator experience, and shop color management standards.

Productivity – Regarding productivity, a number of session participants stressed the importance of a central spooling station or image server. The key issues for these users is the time that it takes for the job to clear the workstation screen so that a new job may begin.

Times – It is misleading to focus solely on the amount of time taken to produce a job. The fastest jobs are not necessarily the best ones. The time to complete the job ranged widely among the thirty-five entries, all the way from three hours to nearly seventeen hours.

To draw appropriate conclusions based on the amount of time it takes the participant to complete the job, full and accurate information must be submitted on each step of the process. Unfortunately, many participants returned timing results with categories left blank or multiple categories combined into one larger category. For example, not all participants submitted the scanning time, though obviously they must have scanned. And, some shops chose to do the job as four color, while others used six colors. For the purpose of drawing reliable conclusions, this makes the task very difficult. In future tests, a stricter outline for submitting time and results will be given so that generalizations will be able to be made from the results.

In addition, how can you determine whether a fast time means a proficient operator rather than a sloppy one? To be fair there should be a system for grading the quality of the evaluation pages.

Tracking systems – An automated job tracking system is particularly useful in a test like this because it provides an unbiased accounting of the amount of time assigned to tasks performed by various workers.

Customer charges – A shop performs a test such as this free of charge solely for the opportunity to learn more about the workflow process. Some session participants were curious to know the answer to the following question: "What would you charge a customer for a job like this?" or perhaps more truthfully, "What might you get paid for a job like this?" For a number of reasons, these questions were not fully answered. Regional pricing differences, reluctance to place a price tag that would be repeated without considering the complexities involved in this job, and competitive issues all made discussion of this topic difficult. Indeed, a job such as this might be handled differently had it been an actual job and not just a test.

Regarding mistakes and error cycles session attendees agreed that the customer pays for their own mistakes (author's alterations or AAs), while providers pay for their own mistakes (printer's errors or PEs). Drawing these lines clearly and quickly makes users feel a part of the process rather than the victims of it. One participant felt that they have a lower rejection rate on bills when the bill goes out with the job or very shortly thereafter.

One example

No one workflow example can show the multitude of methods that might be used in the completion of the evaluation page. However, an example helps to provide a starting point for discussion. With that in mind, the workflow description on the following page shows how Brian Geiger of the Linotype-Hell demonstration center approached and completed this job using DaVinci. The example of the evaluation page shown following page 20 is was also created using DaVinci.

Conclusion

This workshop provided a marvelous insight on how different shops choose to handle a given job. The workshop was so well-received that L-HUG members intend to do a similar test evaluation in the coming year. (Twenty-seven companies took part in the test. Thirty-five total entries resulted because some participants submitted multiple entries.) Participation is limited to Linotype-Hell User Group members. For information on L-HUG membership or on the future evaluation test, please contact John Wigginton, executive director of L-HUG, at 803-768-1212.

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Workflow example: DaVinci

1. Pre-flight
• Check to be sure that all job components are available and usable: fonts, EPS files, logos, page layout, and the 35 mm slides.

2. Macintosh preparation
• Download fonts to the RIP and workstation as necessary.
• Generate a bypass template to strip to as well as a vector and a bypass file
A QuarkXtension called X-DaVinci allows DaVinci users to bring a QuarkXPress layout into DaVinci. It arrives as a vector file and a bypass file. The vector file may be altered (for example, assigned a different color. The bypass file, as its name implies, contains data that is simply passed along unchanged.

3. Convert vector file
• The vector file from X-DaVinci is used to generate stripping masks: In this case they should be vector format, font size = 0.
By setting the font size to zero, not only linework, but all fonts are converted to vectors. Had the font size been set larger (say at 12) all fonts larger than 12 point would be converted to vectors, fonts smaller than 12 would not.

4. Scan images
• Scan the images of the the stars, the mountains and the dragon fly
Certain steps may be done simultaneously rather than sequentially. For example, you may scan at the same time you are converting the vector file.

5. Cut silhouettes
• Cut silhouettes for the images of the mountains and the dragon fly

6. Color corrections
• Global color correction must be done to improve the image of the mountains. This may be performed on the scanner. Some correction is also necessary to bring out the white of the stars in the starry sky.
• Selective color correction must be done to adjust the color on the larger of the two dragon flies. This requires a mask. Duplicate the silhouetted bug, then mask and color correct it.

7. Background extension
• To make the image of the dragon fly fit within the triangle mask, the background must be cloned to extend it slightly.

8. Page construction
• The construction of the page requires a number of steps including positioning silhouettes to bypass template, ghosting white mask and dispersing edges, positioning EPS bypass globe, creating the triangle, creating a black overprint shadow, and weaving the wings of the dragon fly between the stems of the **"H"**.

9. Trapping
Trap the words **creative** and **thinking.**
The trapping process would involve another step if the two additional Pantone colors had been used to print this job.

10. Page processing
Lamination of the four color portion
Lamination is the process of pre-RIPping a completed page to prepare it for output. Lamination simplifies the calculations required by the raster image processor (RIP) at output time.

11. Output and proof
Output films and proof. If the proof is acceptable, the job is complete.
If this job had been done with two extra PMS colors, it would require three laminations and three outputs (one for CMYK and one for each PMS color).

The job shown on the opposite page has been printed using CMYK inks. The films for the job were output to a Linotype-Hell RIP 60 and a R3030. (Note: If you are missing the page containing the printed color sample, please call 800-842-9721 to request a copy.)