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Center Spotlight



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To find out about more alumni events, visit the [RIT Alumni Association website!](#)

A Note from the Editor

Hi there! We've made some changes to how we present our research summaries in an effort to make them more readable (e.g. more bullets, less figures). If you have any comments on our new style, we'd love to hear from you at printing@rit.edu. Thanks!

Printing Standards Survey Report

A number of printing industry influencers approached RIT in December 2008 and asked RIT to offer a process certification program to the U.S. printing industry. In 2009, a committee was formed of faculty and staff from the School of Print Media and the Printing Applications Laboratory to investigate this proposal. The committee submitted a research project proposal to the Printing Industry Center in November 2009 with the goal of conducting a printing standards survey in order to capture the view of printing companies regarding the role of printing standards applicable to workflow from data reception to printing.

The primary objectives of this month's research study, *Printing Standards: A 2010 Survey Report (PICRM-2011-01)*, by Robert Chung and Soren Jensen, were:

- To determine the view of printing companies regarding the role of printing standards in production workflow,
- To ascertain the issues and problems that arise when



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Our programs and services can help your organization make the most profitable use of new technologies, enhance productivity, boost customer satisfaction and produce a healthy

communicating with customers and when implementing color control, and

- To determine the percentage of participants who planned to seek process certification in the near future.

Sample Population

Companies involved in printing and/or related industries. The total number of respondents was 117, with 90 of the responses from printing companies. These 90 respondents were used as the basis of the survey's data analysis.

Methodology

The questionnaire consisted of three sections. The first section covered participant background (geographic locations, ISO 9001 registration status, and printing certification status). The second section of the questionnaire addressed five areas of a print production workflow: file creation and data reception, contract proof, CTP/press calibration, process control, and workflow efficiency. Graphic icons were used to guide the participants through the survey (see [Figure 1](#)). The third section of the questionnaire asked if the company would consider printing process certification within the next year and if it wished to submit a press sheet for a free check-up.

Figure 1. Workflow icons used in the survey

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The survey was distributed via an Internet-based tool and notifications about the survey were sent using mailing lists from select industry associations. The survey was open from May 1 to June 30, 2010—a total of eight weeks. Results were compiled and statistical analyses were conducted to determine if any significant differences existed between certain subgroups.

Results

- **Printing process certifications:** 30% had ISO 9001 quality system certification, while the remaining 70% did

bottom line.

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For more information on these and other programs, or to register for any of these programs, visit

printlab.rit.edu

About the eReview

The *eReview* is a monthly publication of the Printing Industry Center at RIT for registered Affiliate companies. Articles are also published in the quarterly printed publication *PrintReview*.

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not. Additionally, 20% had G7 qualification; 10% had PSO certification; and 60% had no other certification.

- **Use of CMYK color space in customer file creation:** 13% used ISO ECI, 24% used GRACoL, 26% used SWOP, 24% did not use a common CMYK color space, and the remaining 4% don't know which was used. The team believes that the above finding is proportional to the participant profiles; i.e., European printers use the ISO/ECI color space and U.S. printers use the GRACoL and SWOP color spaces. In other words, there is no single CMYK color space that is used as a global standard for file creation.
- **Color management practices:** Most printers (92%) have adopted color management in their digital proofing workflow with good results. A majority of printers (77%) use standard CMYK profiles as source color space. Many printers (70%) build their own proofer profiles as the destination color space in their digital proofing workflow. Consequently, 87% can produce hardcopy color proofs that match OK sheets better than their customers' proofs. In addition, only 47% of participants use a display-based soft proofing system.
- **Verifying the accuracy of individual proofs:** 39% of participants used a proofing verification system, 30% did not verify proofs, and 23% used manual methods to verify proofs.

Sub-group statistical analyses were as follows:

- **Company location and ISO 9001 status:** A Fisher's Exact Test showed a highly significant difference between the proportions of ISO-registered companies in North America and in other parts of the world ($p < .0001$). The proportion of ISO certification in other parts of the world (89.47%) is much higher than in North America (14.08%).
- **Company location and printing process certification:** A Pearson's Chi-squared Test showed no significant difference between the proportions of printing-certified companies in North America and in other parts of the world ($p = .30$).

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Contact the Center

Director:

[Patricia Sorce](#)

Communications Coordinator:

[Ashley Walker](#)

(Web site, publications, general info)

Mailing Address:

RIT Printing Industry Center
College of Imaging Arts & Sciences
Rochester Institute of Technology
55 Lomb Memorial Dr
Rochester, NY 14623

Ph: 585-475-2733

Fax: 585-475-7279

Web: <http://print.rit.edu>

Email: printing@rit.edu

Twitter: [RITprintcenter](#)

About the Center

Dedicated to the study of major business environment influences in the printing industry precipitated by new technologies and societal changes, the Printing Industry Center at RIT addresses the concerns of the printing industry through educational outreach and research initiatives.

Support for the Center comes from:

[Sloan Foundation](#)

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- **Printing process certification and ranking of technical issues:** Cochran-Mantel-Haenszel Tests showed that companies with process certification are not significantly different than companies without process certification in ranking (1) paper non-conformance due to OBA ($p=.10$); (2) proof and print not matching ($p=.60$); (3) inks not conforming to ISO 2846 ($p=.16$); and (4) scope of ISO 12647-2 being too narrow ($p=.60$).
- **ISO 9001 status and continuous process improvement:** A Pearson's Chi-Squared Test showed significant differences between the two groups. Companies with ISO 9001 certification tend to be more aligned with continuous process improvement ($p=.05$).
- **Company location and process certification:** A Fisher's Exact Test showed extremely significant differences between the U.S. and European companies in seeking process certification ($p<10^{-4}$). Among U.S. printers considering process certification, 50% of them were interested in seeking PSA certification, while the other 50% were interested in seeking G7 qualification. None were interested in PSO certification. Among European printers considering process certification, 75% of them were interested in seeking PSO certification, and the rest were interested in seeking either PSA or G7 qualification.

Conclusions

- The majority of printers use printing standards at many points within their daily production workflows. Printing standards are, therefore, important to the printing industry.
- Three quarters of the printers surveyed indicated that printing certification to a well-recognized standard was either a goal that the printer had already achieved (19%) or was planning to achieve in the near future (57%).

The survey also highlighted two major areas for improvement in today's printing standards:

1. **Relevance.** For standards to be valuable, they must be relevant to producing the goods demanded by the printer's

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customers. As an example of this type of problem, the survey showed that printers encounter serious problems when they attempt to use standards with papers containing high levels of optical brighteners (the most common papers found in the industry today).

2. **Global applicability.** In today's world of increasingly global supply chains, truly global standards facilitate efficiency by allowing all members of the supply chain to embrace common goals. The survey results indicated that printers tend to seek certifications based on regional influence, and that a truly global standard is lacking.

Recommendations

RIT's response to the survey findings was a call to action. The team conducted research aimed at improving the utility of printing standards when used with optically brightened papers and presented the results to ISO/TC 130. As a result, the Technical Committee endorsed implementing the solution proposed by RIT in future standards and future revisions of current standards. In a second presentation, RIT—as a representative of the U.S. delegation—made the case for harmonizing printing standards to ISO/TC 130. In response, the international standards community embraced the U.S. position and formed a new working group, WG13, with RIT as the convener. Finally, RIT will launch a rigorous, objective process for certifying conformance to printing standards—[PSA certification](#)—in 2011.

Complexity Rating: 2

Rating reflects complexity level of statistical analysis: 1=none, 2=moderate, 3=difficult.

2010-2011 Research Monographs

To read about this research in detail, download the monograph from: <http://print.rit.edu/pubs/picrm201101.pdf>

Research publications of the Center are available at: <http://print.rit.edu/research/index>

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