CMIC SUMMIT 2012

ROCHESTER INSTITUTE OF TECHNOLOGY

CMIC

CROSS-MEDIA INNOVATION CENTER at RIT

AGENDA

THURSDAY, OCTOBER 18 continued

7:00 - 8:00 PM   DINNER

8:05 - 8:15 PM   **BRUCE JAMES INTRODUCTION**
Dr. Jeremy Haefner
Provost and Senior Vice-President
Rochester Institute of Technology

8:15 - 8:45 PM   **DESSERT SPEAKER**
Bruce James
24th Public Printer of the United States and
Chairman-Emeritus RIT Board of Trustees

9:00 PM   ADJOURNED

FRIDAY, OCTOBER 19

7:30 - 8:00 AM   CONTINENTAL BREAKFAST

8:00 - 8:30 AM   **EXPLORING STRATEGIC BUSINESS MODELS**
Jeff Allen
Vice President
Standard Register

8:30 - 9:00 AM   **THE PACKAGING OPPORTUNITY**
Kevin Karstedt
President
Karstedt & Associates

9:00 - 9:30 AM   **MINIMIZING COLOR VARIANCE**
Bruce Myers
Professor
RIT School of Media Sciences

PRESENTERS

than 30 years, he founded and led 13 technology-driven printing and publishing organizations operating throughout the world. In addition to numerous business boards, Bruce has served on and chaired more than 20 governmental, charitable and educational boards, commissions and task forces.

Kevin Karstedt

Kevin Karstedt is CEO of Karstedt Partners LLC. Kevin has been involved with digital packaging graphics production and digital printing since the mid 1980s and is considered both a pioneer and a visionary with regards to digital printing and digital workflows. Since 1996 Kevin has been on the forefront of digital technologies that affect the production and execution of printed packaging and labels. He works with brand owners, package printers/converters, graphic service providers and companies who develop tools for use in the package development and printing industries including digital workflow technologies and digital printing. In 2012 Karstedt Partners authored a comprehensive research report titled Packaging: Evaluation of Vertical Markets & Key Applications for PRIMIR the research arm of NPES. Karstedt has contributed to two other packaging studies for PRIMIR and was the author of the first Digital Printing for Packaging report for Pira in 2000.

Bruce Myers

Bruce Leigh Myers, Ph.D. is an Assistant Professor in the School of Media Sciences at Rochester Institute of Technology with over twenty five years of extensive industry experience. Dr. Myers worked as a resident professor in Graphic Communications at Kean University in the early 2000's, and served over twelve years as an Adjunct Instructor teaching theoretically based Graphic Communications concepts at New York University. Industry experience includes over fourteen years in various sales, training and management positions at X-Rite, Incorporated and eleven years in technical, sales and management positions at Agfa. Bruce Myers earned his Ph.D. in Graphic Communications from NYU.

Michael Riordan

Michael Riordan is a full-time faculty member at RIT's School of Media Sciences where he teaches coursework focused on publishing and production. Through his research, he has worked closely with publishers, print service providers and creative agencies to help improve their workflows and has worked with CGATS and standards organizations to develop quality assurance mechanisms to support the same. Michael presents regularly at industry events, has published several technical papers, served as co-editor for the Pocket Pal: A Graphic Arts Production Handbook and was the 2008 PGSF Educator of the Year.

SESSIONS

MINIMIZING COLOR VARIANCE

FRIDAY, OCTOBER 19

9:00 AM - 9:30 AM

Bruce Myers • Profesor
RIT School of Media Sciences

EXECUTIVE SUMMARY

The general commercial print media has suffered from economic woes stemming from over capacity and "me-too" products, and pricing pressure from both domestic and foreign competitors. These conditions are the hallmarks of an increasingly commoditized industry. Competition from other media choices has further eroded the position of print in the marketplace. In response to these business conditions, many organizations have turned to strategies to design to improve profitability. The obvious strategy of trimming costs has been combined with approaches including bundling print with other related media to provide full marketing and communications services and restructuring sales compensation to align with profitability, commonly known as "value-add."

Relevant questions here include "Do these strategies conflict?" and "Could these practices ultimately prove to be counterproductive?" Clearly, a dialogue on these issues is in order. Further, it is relevant to examine the extent to which variation, and therefore costs, can be driven out of the process. One approach includes utilizing metrics that are heretofore relatively unknown: such metrics can be easily implemented into standard operating procedures for most print providers and suppliers.

One such metric is Illuminant Metamerism Index, which has been applied to the analysis of hard-copy color proofs in recent research. This particular metric holds promise for quality and process control applications to help educate stakeholders and minimize variation in color critical workflows.
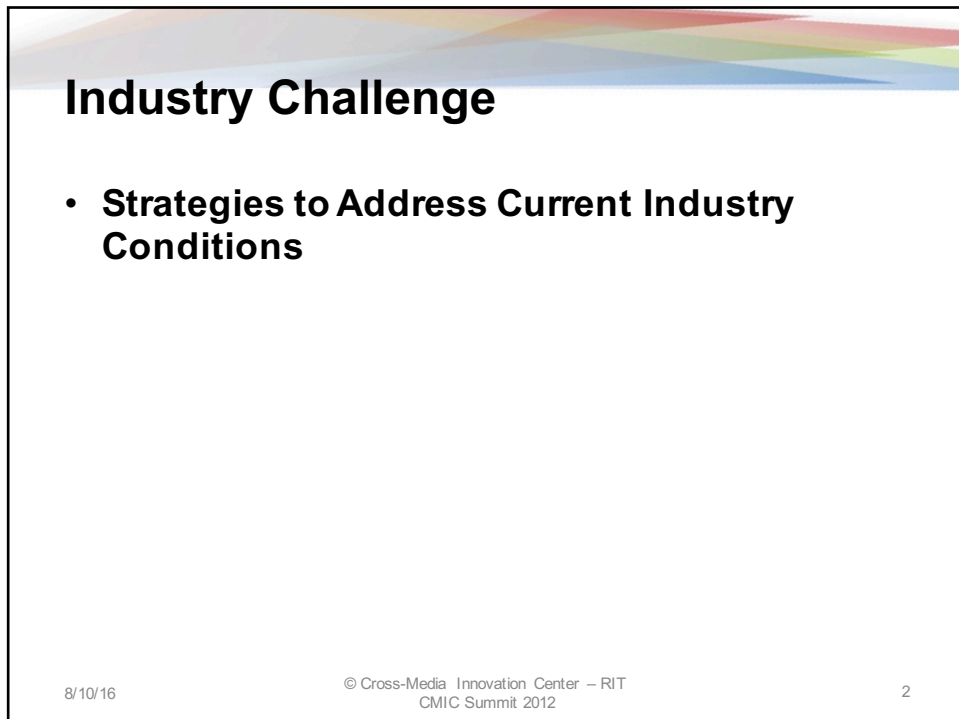
Metamerism Index: Improving Quality & Driving Variance Out Of Color Critical Workflows

Bruce Leigh Myers, Ph.D.
Assistant Professor
Rochester Institute of Technology: School of Media Sciences

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Industry Challenge

- **Strategies to Address Current Industry Conditions**

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Audience Survey

- **Which Strategy is the Best Response to a Commoditized Industry?**

A. Fire Unprofitable Customers	B. Trim Costs
C. Complicate Pricing Structures (including Bundling)	D. Compensate Sales Force of Profit Margin, not Sales Revenues (Value-Add)

Commoditized Industries

- **Overcapacity**
- **Me-too products**
- **Frequent price cuts**
- **Low barriers to entry**

The Playbook

- **Fire Unprofitable Customers**
  - Result: lose market share but improve profitability.
- **Trim costs and acquire competitors**
  - maximum scale economies in procurement, manufacturing, and distribution
- **Complicate pricing structures / Bundle**
  - Hard to make side-by-side comparisons
- **Value-add**
  - Compensate sales force on profit margin, not sales revenues

Situational Adjustments

- **Intense competition from other media**
- **Intense competition overseas**
- **Customer Paradigm Shift**
  - Raw materials
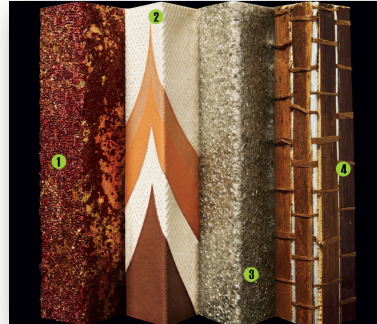 - Price

Are These Goals at Odds?

- Complicate pricing structures / Bundle
- Value-add

What About Differentiation?

- From Competitors
- As a Media Choice

Quality Attributes

- **Quality Defined from Customer Perspective**
  – Almost Always Related to Value Concept
- **Tactile Nature of Print**
  – Differentiation

Choosing the Right Metrics

- **Usefulness**
- **Ease of Use**
  – Fit into Current Standard Operating Procedures

One Such Metric

- **Metamerism Index**

$$\text{Metamerism index} = \sqrt{(\Delta L_{n1} - \Delta L_{n2})^2 + (\Delta a_{n1} - \Delta a_{n2})^2 + (\Delta b_{n1} - \Delta b_{n2})^2}$$

Descriptive Statistics: Metamerism Index for Color Proofing Technologies

Process	Condition	M	SD	n
Halftone 1	Yellow	0.830	1.90	55
	Cyan	1.889	2.72	55
	Magenta	0.707	2.96	55
	Black	2.083	3.62	54
	Total	1.374	6.78	219
Halftone 2	Yellow	0.797	.245	54
	Cyan	1.374	5.69	55
	Magenta	0.509	0.094	54
	Black	0.479	0.066	54
	Total	0.885	0.603	217
Inkjet	Yellow	0.888	0.178	55
	Cyan	3.072	0.759	55
	Magenta	0.567	0.129	54
	Black	2.881	0.539	54
	Total	1.853	1.230	218
Total	Yellow	0.839	0.208	164
	Cyan	2.234	0.823	165
	Magenta	0.595	0.211	163
	Black	1.815	1.070	162
	Total	1.372	0.966	654

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ANOVA for Metamerism Index by Proces and Condition

Source	SS	Df	M^2	F	η^2
Process	102.46	2	51.228	373.13***	0.538
Condition	299.56	3	99.853	727.30***	0.773
Process * Condition	119.19	6	19.865	44.690***	0.575
Error	88.14	642	.137	54	

p < 0.001

Individual Bonferroni Adjustments for Metamerism Index by Process

(I) Process	(J) Process	M Difference (I – J)	SE
Halftone Process 1	Inkjet Process	-0.479***	0.03545
Halftone Process 2	Inkjet Process	-0.968***	0.03553

p < 0.001

Individual Bonferroni Adjustments for Metamerism Index by Condition

(I) Condition	(J) Condition	M Difference (I – J)	SE
Yellow	Cyan	-1.395***	0.0409
	Magenta	0.244***	0.0410
	Black	-0.976***	0.0410
Cyan	Magenta	1.639***	0.0409
	Black	0.419***	0.0410
Magenta	Black	-1.22***	0.0411

p < 0.001

Individual Bonferroni Adjustments for Metamerism Index Process & Condition

Condition	(I) Process	(J) Process	Mean Difference(I – J)	SE
Yellow	Halftone 1	Inkjet	-0.580	0.071
	Halftone 2	Inkjet	-0.091	0.071
Cyan	Halftone 1	Inkjet	-1.183***	0.071
	Halftone 2	Inkjet	-1.332***	0.071
Magenta	Halftone 1	Inkjet	0.14 0	0.071
	Halftone 2	Inkjet	-0.058	0.071
Black	Halftone 1	Inkjet	-0.789***	0.071
	Halftone 2	Inkjet	-2.402***	0.071

Conclusions

- **Driving Variance Out of Workflows = Improved Quality & Reduced Waste**
- **Quality Metrics Can be Benchmarked from Other Industries**
- **Illuminant Metamerism in Proofing Technologies Can Be Both Process and Image Dependent**

Research Questions

- **What Other Relevant Metrics Can Help to Drive Variance Out of Print Processes?**

Audience Survey Results

- A. Fire Unprofitable Customers
- B. Trim Costs
- C. Complicate Pricing Structures (including Bundling)
- D. Compensate Sales Force of Profit Margin, not Sales Revenues (Value-Add)

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Thank You!
Q & A

Bruce Leigh Myers, Ph.D.
Assistant Professor
Rochester Institute of Technology
School of Media Sciences
blmppr@rit.edu

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