Challenges in N-Colour Printing

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ECG vs. CMYK
Challenge 1: Characterization

• Combinatorial Math:
  — $10^4$ vs. $10^7$

• Light-inks vs. Gamut Expansion
Multi-Vendor Approach for International Standards

- ECG target currently under development (since 2017) for 7-colour print systems.
- Development almost complete.
Challenge #2: Printing/Inking

- Curl of spider
- Ink loading
- Alignment (not as major an issue for inkjet)
- Screening
Characterization
Screening
Screening: KCMY

4 colors (KCMY):
- C = 15° / 75°
- M = 75° / 15°
- K = 45°
- Y = 0°
Screening: KCMY

4 colors (KCMY):
- C = 15° / 75°
- M = 75° / 15°
- K = 45°
- Y = 0°
Screening: KCMYOGV

7 colors KCMYOGV:
- \( C = O = 15° / 75° \)
- \( M = G = 75° / 15° \)
- \( K = V = 45° \)
- \( Y = 0° \)
Screening: KCMYOGV via FM

Different screen per color.

No frequency correlation between screens!

No moiré!
Challenge #3: Colour Separation

Obtain smoothness
Challenge #4: Calibration Measurement

Linear SCTV target curve creates equal distribution of tones

- 50% appearance (Lab value) is halfway between paper and solid
- Tone steps are equidistant across entire range
- Open smooth shadows and highlights

Uncorrected press run

Corrected by SCTV

Traditional EDA correction using Murray-Davies
Thank you!