#55

# Building Practical Workflows

**by Howie Fenton**
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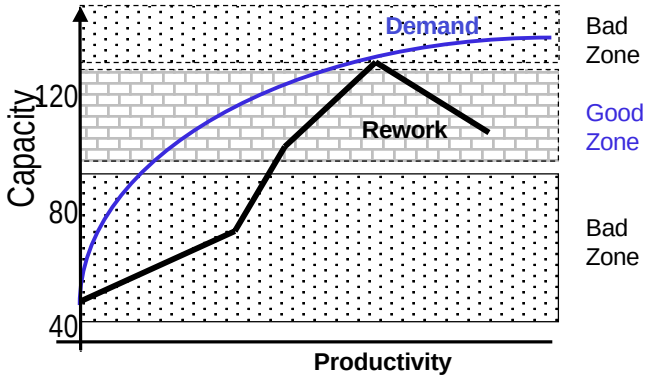
NAPL is a not-for-profit trade association providing companies with the strategies, insights, and guidance to make informed business decisions, minimize risk, anticipate change, and profitably grow their business.

Have you seen us lately?
If you get the chance – stop by the booth #862 and say hello!

## The Workflow Zone




**Production is more efficient work when your busy**
**People are more productive when they are busy**
**How do you get into the zone?**
**What keeps you out of the zone?**

This symbol

new

means newly added slide, which is not in your handout.

For an updated handout give me an email address - that will not block an attachment

## 4 Steps to a Better Workflow

**1- Identify, Measure & Fix Bottlenecks**
- workflow is STEP, finding bottlenecks & fixing
- Measurements, 6 bottlenecks and solutions
- Increase productivity 15-25% (one more job/shift)

**2- Managing Quality / Color**
- Process control, running to spec's

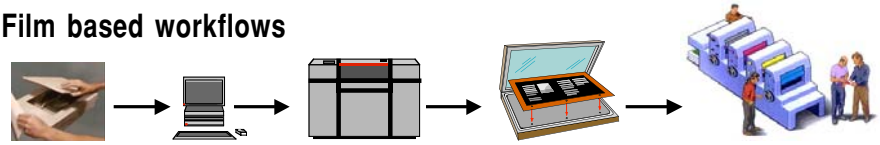
**3- Create Islands of Automation**
- applications, servers, DFE's

**4- Build Super-efficient Workflows**
- CIP4, JDF ≠ MIS, JDF: Good, bad and ugly

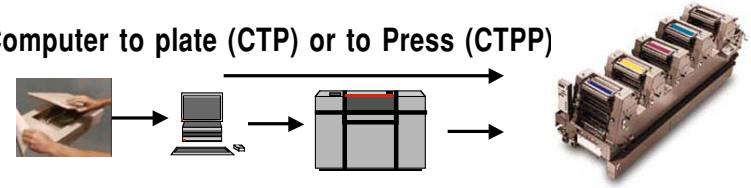
## Workflow is Equipment

Building Practical Workflows

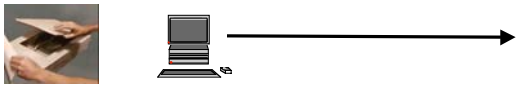
Film based workflows



Computer to plate (CTP) or to Press (CTPP)



Digital Printing (non-impact)



b & w

color

## Workflow is Staff, Training & People

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**Front end workflows**
**(sales, estimating, CSR)**


**Production workflows - (prepress, printing, finishing)**


## Streamling Steps = Faster Turnaround

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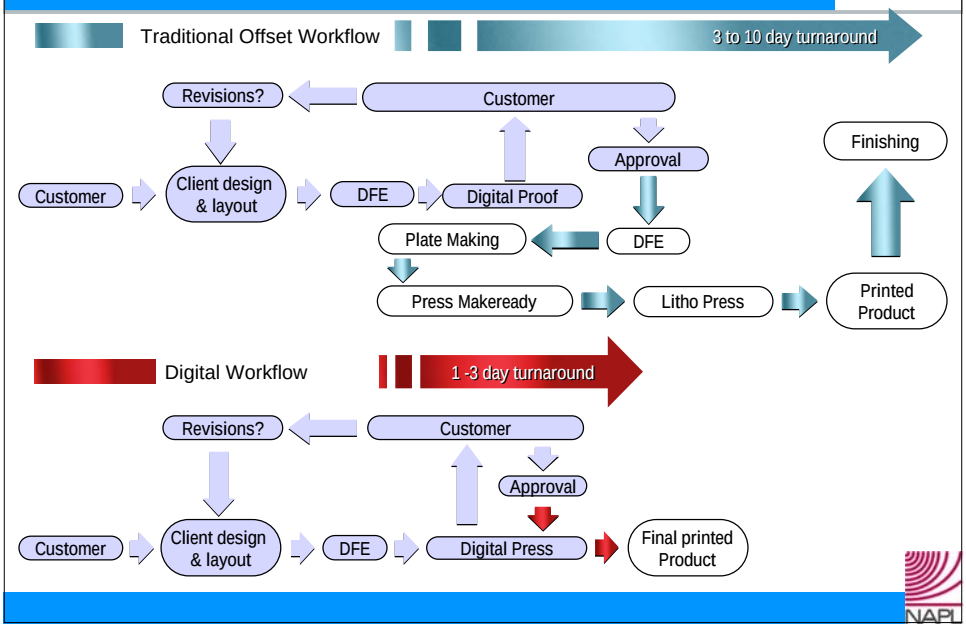

## #1 - Find Your Bottlenecks & Fix

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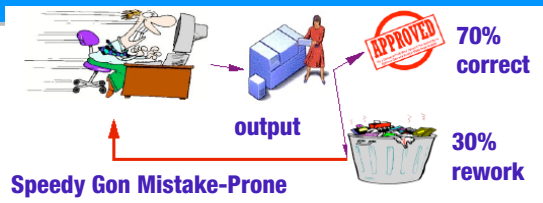
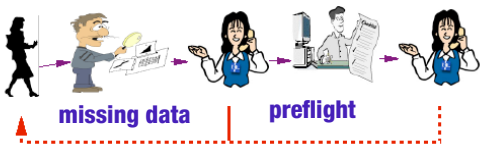
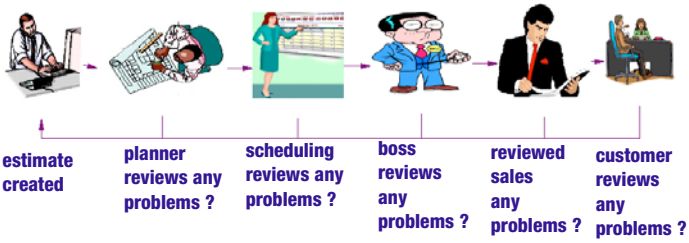
**Production Bottleneck**




**Preflight Bottleneck**




**Estimating Bottleneck**

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## Look For Piles

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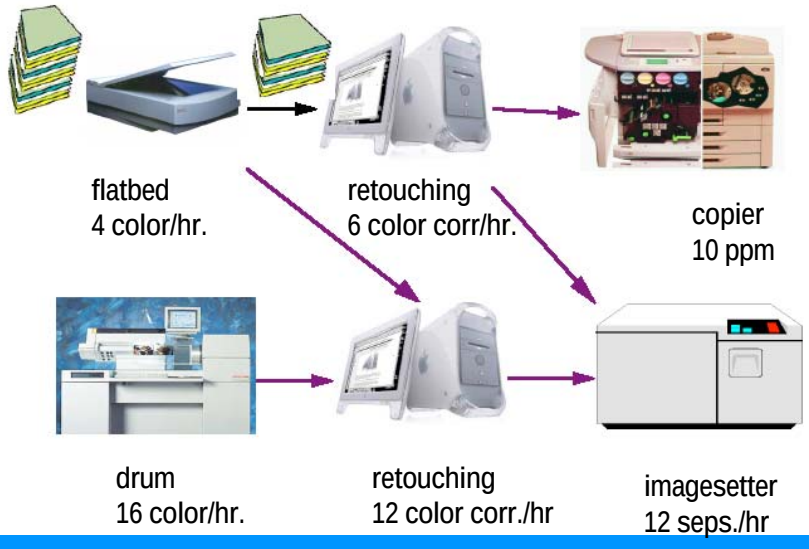


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## Flowchart Signs

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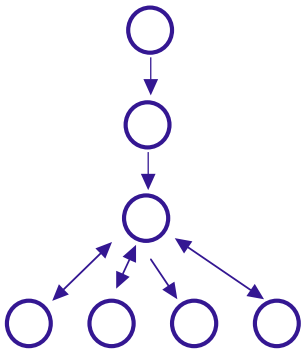
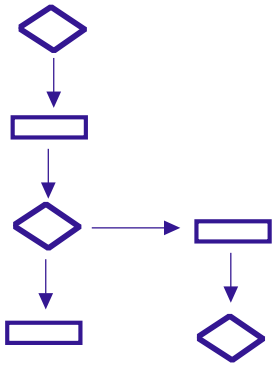
### Too Many Arrows



### Too Many Decision Box



## Measurement Complaint

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Can't Measure Digital Performance?

- Sometimes 15 min. to preflight other times 4 hours
- Sometimes its 8 minutes for one scan or 8 hours
- 1 file print 4 seps/ hour another 4 hrs for one separation

Too much variability (measure) -> make smaller categories

More Specific Measurement Categories

- Not all scans - 35 mm scans, 4x 5, 8 x 10 etc.
- Not all pages -1200 dpi, 2400 dpi / b&w vs color
- Not all preflight - Preflight for xyz prepress, abc design

## May be Wrong Measurement



Output / Hour

- scans/hour
- preflight/hour
- film output/hour
- proofs/hour
- retouched/hour
- printed pages /hour

Output / hr measures doesn't tell the whole story

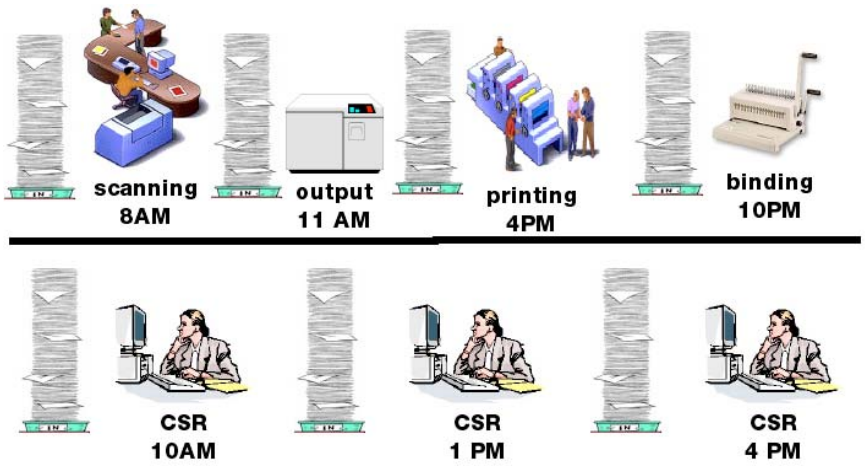
- Mistakes, problems, issues occur (rework or spoilage)
- Output / hour can look artificially good without rework

Ratio's best measure

- Percent of sales dedicated to payrole (i.e. 25%)
- Chargeable press time (i.e. 65%)
- Bad plates / good plates (i.e. 5%)
- $ Sales / employee (i.e. $125K)
- Rework $ as a percentage of sales $ (i.e. 1.5%)
- Average time to make-ready (i.e. 15 minutes)

## Static Vs Moving Bottlenecks





## Address 1st & 2nd Bottlenecks

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**4 - Color/hr. ->** **6 Color Corr/hr. ->** **10 Copies/hr. = 4pgs/hr**

**Add scanner**
**8 - Color/hr. -> 6 Color Corr/hr. ->** **10 Copies/hr. = 6 pg/hr.**

**Add 2nd computer**
**8 - Color/hr. -> 8 Color Corr/hr. ->** **10 Copies/hr. = 8 pg/hr.**

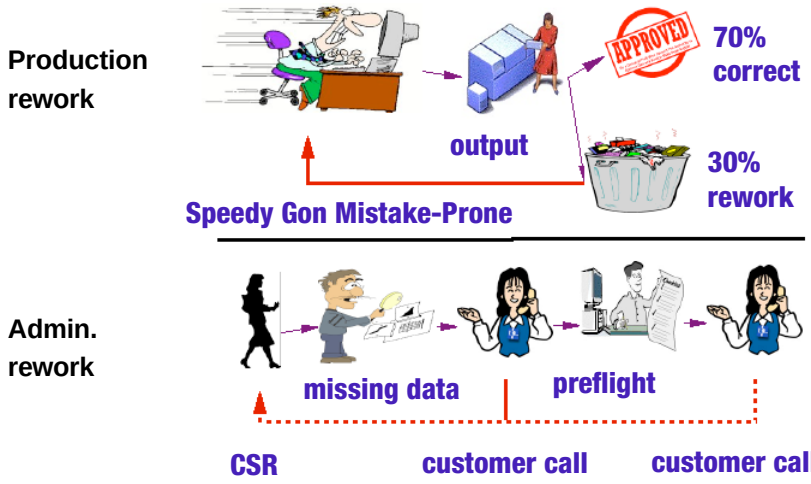
## 6 Bottlenecks & Solutions

Building Practical Workflows

**Production rework**
**Administration or preflight rework**
**Physical plant layout**
**Estimating**
**MIS or IS**
**Photoshop**

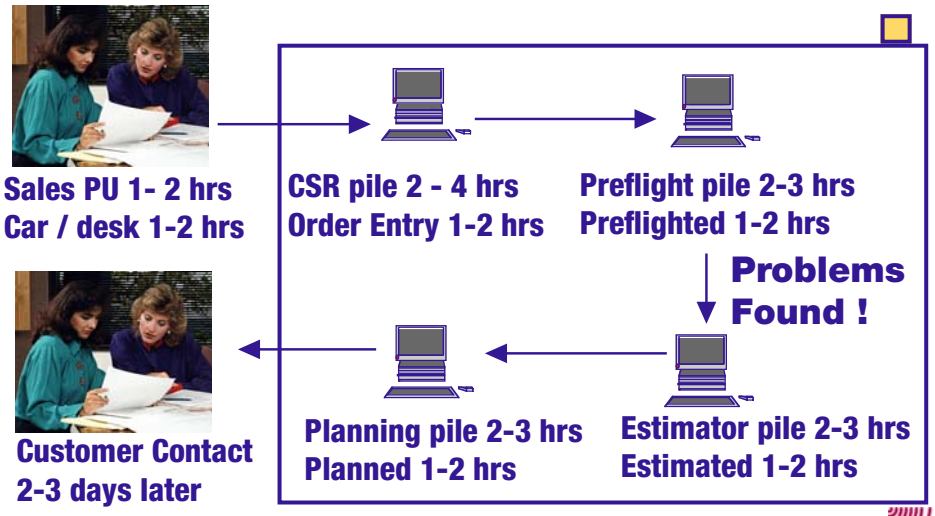
## Rework Hidden Bottleneck

Building Practical Workflows




## Preflight Bottleneck

Building Practical Workflows



## 3 Fast Response Preflight Solutions

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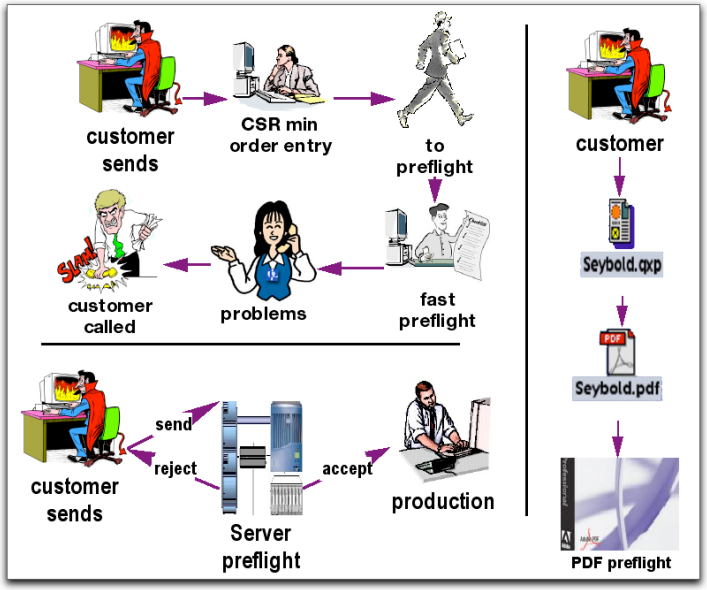
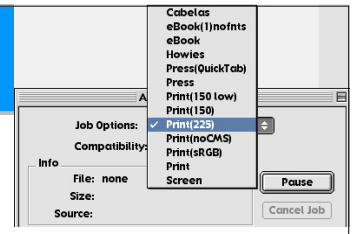
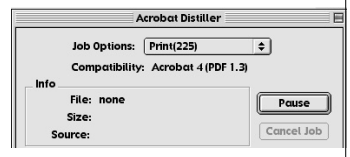
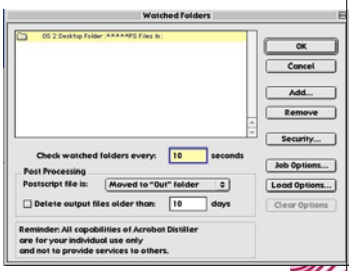



## Automate & standardize PDFs

- **Can automate PDF creation**
  - create settings (i.e. press, monitor)
  - Send to creators
- **Print to watched folders**
  - set up on a dedicated machine
  - everyone creates PDFs the same way
- **Send "settings file" for Distiller**
- **Send PDF/x files**
  - PDF/x1a and PDF/x3 are used as "BlindExchange" formats
  - Popular with publishers such as Time and BusinessWeek




http://www.direct2.time.com/, http://www.bwadspecs.com

## PDF->HTML conversions

new


**Varity of tools and suppliers**

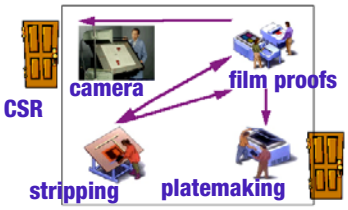
**Vertis complete solution to transform print catalogs to web, build db and shopping cart**

**Others**

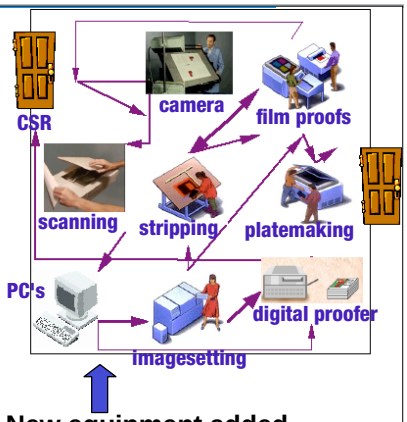
- PDF Online
- PDFToHTML
- Click to Convert
- Amber PDF converter
- PDF to HTML
- Adobes online PDF converter
- GlobalShareware
- PDF Ripper


Source: Images Vertis, 340 converters pdfzone.com

## Plant Layout

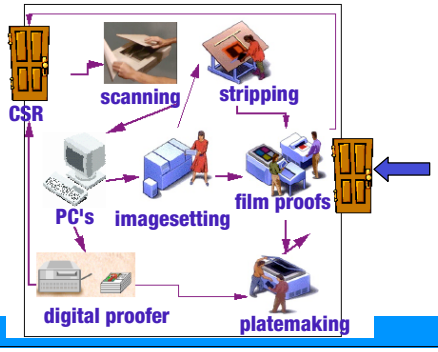



Original plant layout




**New equipment added**

Scanner, imagesetter, proofer



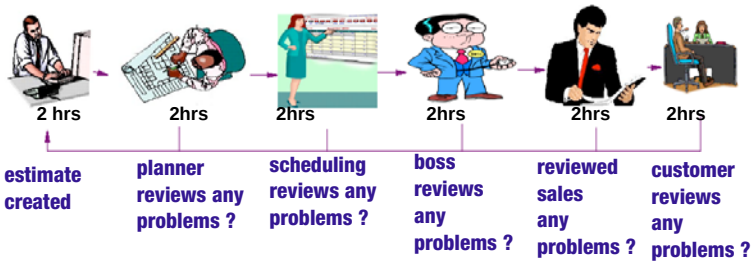

**Reorganize base on workflow**

Less accumulation in piles

Less damage in transport

## Estimating / IS Support

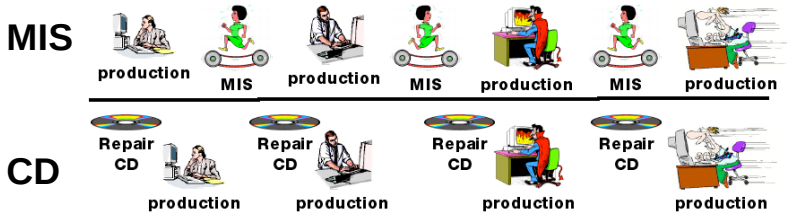
Building Practical Workflows




Too many people & steps

Solutions

- spreadsheets
- templates
- price list




Problem - computers crashing

Solutions - Create repair tools on each desk (NDD, disk first aid) with instruction

## Photoshop Bottlenecks

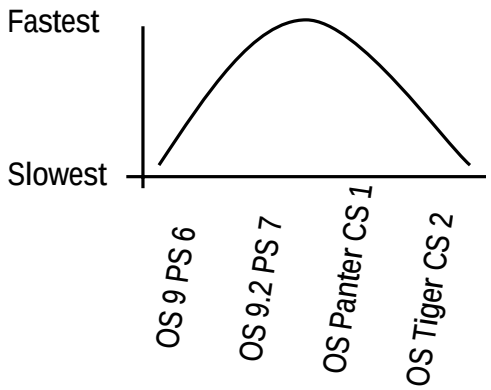
Building Practical Workflows

**Bottlenecks can be surprises**

- Assume newer is better but not always

**Different versions of Photoshop and the OS result in different levels of performance**

**Sometimes older software has less features but faster for what you do!**




Source: www.adobeforums.com/cgi-bin/webx?13@316.oPakeG3EQao.8@.3bbbeddc/0

## 2nd -> Managing Quality / Color

Building Practical Workflows

Usually equipment calibrated when installed
But not checked again until a problem develops
- May print for days or months wasting time and materials

All equipment drifts in performance
- some very slowly - monitors & scanners
- others fast and wide - toner devices, inkjets

Better solution is to check regularly aka process control
Determine acceptable and unacceptable drift -
- based on equipment, customers demands, and staffs motivation

Easy to check regularly
- Once a month, chart, monitor
- Catch problems earlier and fix

## Implementing Process control

Building Practical Workflows

**All equipment drifts in performance**
- **some very slowly - monitors & scanners**
- **others fast and wide - toner devices, inkjets**

**The solution = Process control**
- **measuring targets to check if equipment is working properly**

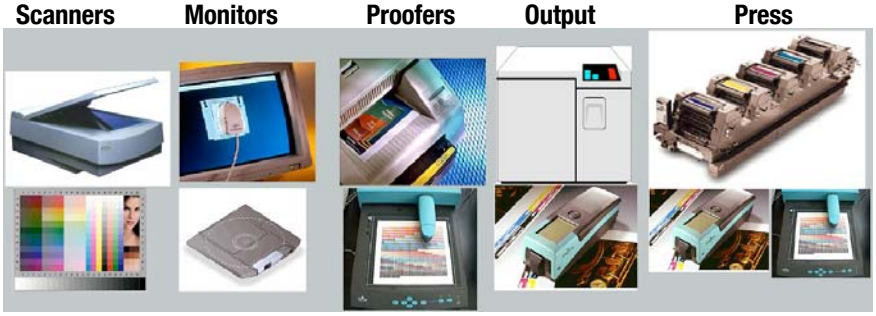
**Problems - Need formal tolerances for drift**
**Solutions:**
**1 Create tolerances for acceptable drift**
- **Pick a measure (dot percent, density, ΔE) & measure**
- **Determine acceptable and unacceptable drift**
- **Proofer, Imagesetter, CTP, press**

**2 Create of procedures for inspections**
- **Inform everyone, chart, monitor**

**3 Schedule inspections**
- **2ce day, 1 week, 1 month**

## Color Management

Building Practical Workflows




**For CMS need: CMS software, spectrophotometer, colorimeter, densitometer**

## Advantages of CTP

Building Practical Workflows

**Increase quality on press**
- Up to color faster, less paper waste and spoilage

**Increase productivity of prepress**
- Do more work with less people

**Streamline your workflow**
- Grow you business profitability

**Reduce turnaround time required for jobs**

**Increase your competitiveness**
- Strengthen your ability to survive long term

## Run to Spec's


**To print in high quality and reduce errors need to adhere to specifications**

**Spec's include**

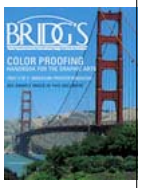
- **Digital file prep: program support, resolution, fonts,**
- **Color / Production: dot gain, ink density, grey balance**

**Some of the spec's are for the service provider**

- **SWOP, GRACoL, SNAP, Bridges**

**Some spec's are for the creator and customers**

- **Photoshop determines color space, dot gain, resolution**
- **Acrobat determines compression, font embedding**


## Run to numbers

Building Practical Workflows

**Press >**

**Proof**

**v**

### Print Characterization Chart

| Paper/ Substrate | LPI= Line Screen | TAC= Total Area Coverage | SID= Solid Ink Density | | | | PC= Print Contrast | | | | TVI= Total Dot Gain % | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | K | C | M | Y | K | C | M | Y | K | C | M | Y |
| Grades 1 and 2 premium gloss/dull coated | 175 | 320% | 1.70 | 1.40 | 1.50 | 1.05 | 40-45 | 35-40 | 35-40 | 30-35 | 22 | 20 | 20 | 18 |
| Grades 1 and 2 premium matte coated | 150-175 | 300-320% | 1.60 | 1.30 | 1.40 | 1.00 | 40-45 | 35-40 | 35-40 | 30-35 | 24 | 22 | 22 | 20 |
| Premium text and cover (smooth) | 150 | 260% | 1.30 | 1.15 | 1.15 | 0.90 | 35-45 | 30-40 | 30-40 | 25-35 | 26 | 22 | 22 | 20 |
| Grade #3 coated | 150 | 310% | 1.65 | 1.35 | 1.45 | 1.02 | 45 | 40 | 40 | 35 | 22 | 21 | 22 | 18 |
| Grade #5 coated (SWOP) | 133 | 300% | 1.60 | 1.30 | 1.40 | 1.00 | 35-45 | 30-40 | 30-40 | 20-30 | 22 | 20 | 20 | 18 |
| Supercal SCA | 133 | 240-260% | 1.50 | 1.25 | 1.35 | 0.98 | 23 | 21 | 21 | 20 | 28 | 26 | 26 | 24 |
| Supercal SCB/SCC | 120 | 240-260% | 1.35 | 1.10 | 1.15 | 0.95 | 20 | 19 | 19 | 18 | 28 | 26 | 26 | 24 |
| Uncoated offset | 110 | 240-260% | 1.25 | 1.00 | 1.12 | 0.95 | 20 | 17 | 16 | 17 | 28 | 26 | 26 | 24 |
| Newsprint (SNAP offset) | 85 | 240% | 1.05 | 0.90 | 0.90 | 0.85 | 16 | 13 | 12 | 15 | 30 | 30 | 30 | 30 |
| Newsprint (heatset) | 100 | 240% | 1.20 | 1.08 | 1.15 | 0.95 | 16 | 13 | 12 | 15 | 35 | 32 | 32 | 30 |

Sources: SNAP, GRACOL, SWOP, and other industry groups

| Color | Recommended Dot Gain | Recommended Tolerance |
|---|---|---|
| Cyan | 23.70% | + / - 2.0 |
| Magenta | 21.10% | + / - 2.0 |
| Yellow | 15.80% | + / - 2.0 |
| Key | 22.40% | + / - 2.0 |

| Color | Recommended Density | Tolerance |
|---|---|---|
| Cyan | 1.38 | + or - 0.05 |
| Magenta | 1.52 | + or - 0.05 |
| Yellow | 1.03 | + or - 0.05 |
| Key | 1.54 | + or - 0.05 |

**www.swop.org/certification.html**

## 3rd -> Build Islands of Automation

**Use application automation**

- Acrobat, Photoshop, Illustrator batch functions

**Off load tasks to servers & DFE's**

- Server: DAM, MIS, OPI, PDF creation
- DFE: ICC profiles, In Rip trapping, imposition

**Unattended automation across devices**

- CTP systems that offer CIP3 and ink key presetting
- MIS software for job estimation, tracking, billing
- Template driven design driving digital presses

**Goals**

- Increase production productivity, decrease production costs, increase convenience (value) for customers

## Why automate (Warning not for anyone with heart problems:)

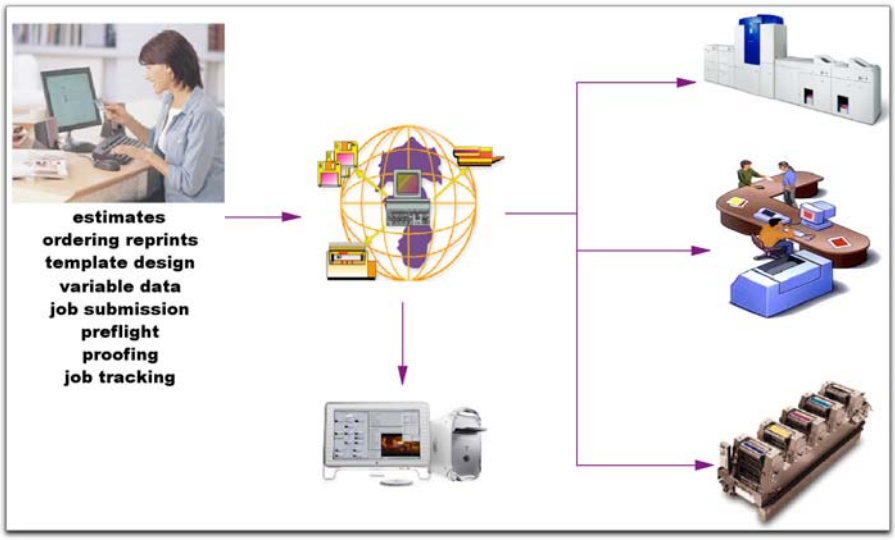
Building Practical Workflows

- Bad communication to estimating results in inaccurate quotes, long turn times, re-planning and lost work or non-chargeable rework.
- Sales and CSRs waste too much time on paperwork or looking for information.
- Poor internal communication – resulting in non-chargeable rework
- Reporting AA's and customer changes, is inconsistent, resulting in lost revenue
- Lack of up-to-the-minute business data available when making critical decisions.
- Priorities not defined, results in bottlenecks, job delays, excess overtime
- Jobs get "lost", resulting in delivery delays and unhappy customers.
- Shop floor data collection is slow, incomplete and/or inaccurate, making estimating, costing / pricing difficult.
- No inventory system. Materials are used without being identified with a job, or posted to the job at the wrong cost.
- There is no process to track and/or post waste.
- Invoices are late, unclear & inaccurate with missing material, alteration & shipping
- Non-integrated systems require redundant data entry making sharing of information and collaboration difficult, increasing mistakes error.
- Company's financial status is often a surprise at the end of an accounting period!

**Source: EFI ABC's of Print MIS**

## Value = Convenience = On Line

Building Practical Workflows




## Examples New Web Services

Building Practical Workflows

new

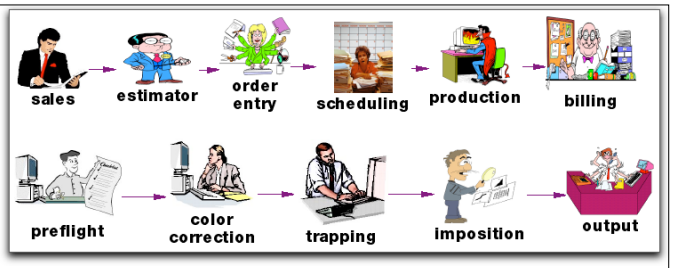
### Ready-page.com

- Husband and wife design company
- Creates catalogs, brochures & corp id material
- And accepts files submitted via web browser
- Automatically, 24/7, they create PDF's, preflight and send back soft proofs

### Message

- You don't have to be a "big guy" to offer web based services

## 2 Workflows




**Both MIS and production workflows will become more automated**

- These two workflows have some overlap but also require very different tasks
- JDF will allow more collaboration

**Expensive high end systems will be used be larger companies**

**While smaller companies use 2 different systems**

## CIP3

**CIP3** (Inter. Cooperation for Integration of Prepress, Press and Postpress)

- 1st attempt to automate the process used PPF = Print Production Format to preset equipment (press ink keys)

**CIP4** (Inter. Coop. for Integration of Process, Prepress, Press & Postpress)

- Job Definition Format (JDF) a independent standard
- JDF is XML data inside a PDF file that includes:
  - eCommerce: web based input (quoting/ordering) and output (email)
  - Pre-press & press: process control and color management
  - Connections to MIS: estimating, tracking, billable time,
  - Postpress: finishing & shipping room

## #4 Build Super-efficient Workflows: Puts the pieces together

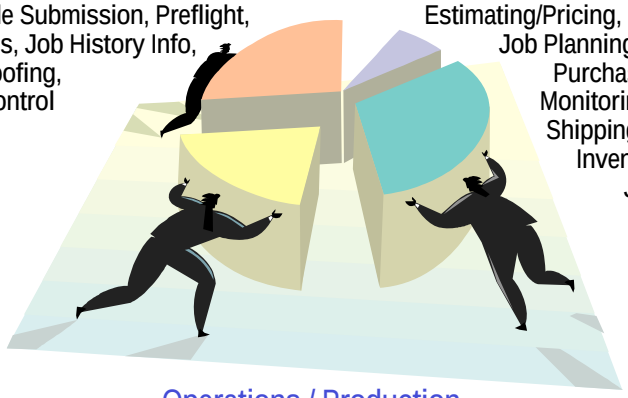
Building Practical Workflows

### Customer Interface

Quoting, File Submission, Preflight, Order Status, Job History Info, Pricing, Proofing, Revision Control Tracking, Billing

### Business Process

Estimating/Pricing, Order Enter & Job Planning, Scheduling, Purchasing, Machine Monitoring & Tracking Shipping, Accounting Inventory Tracking Job Reporting



### Operations / Production

In-RIP / In-server functionality (CMS, JDF), Variable Data Tools, Content Management, Job Ticketing, Tracking, Preflight, Proofing, Web Management, Print, Finish, Distribute

## JDF for super- efficiencies

**JDF is an XML-based format standard**

- Based on the CIP3´s Print Production Format (PPF) and Adobe's Portable Job Ticket Format (PJTF).

**Includes JMF, the messaging format of JDF and functions as an interface between the production equipment and MIS Systems**

- Provides a job tracking functionality and could, be used to establish a queue, or determine its status

**JDF adds a "header file" to the PDF file**

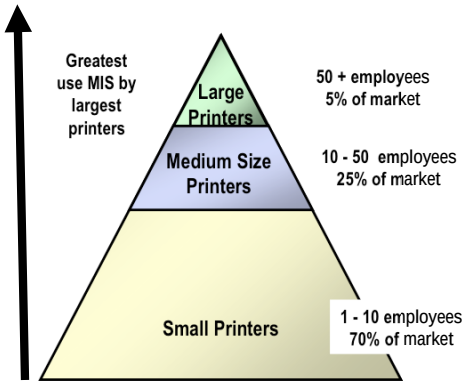
- It describes the job, and includes info such as the customer name, billing data, and shipping instructions.
- It also includes job specs such as page size, number of pages, cover, color, binding, content format (PDF, etc), deadline, and even packing instructions.

## JDF not limited to large companies

Building Practical Workflows

**You don't have to have a MIS** system to take advantage of JDF technology

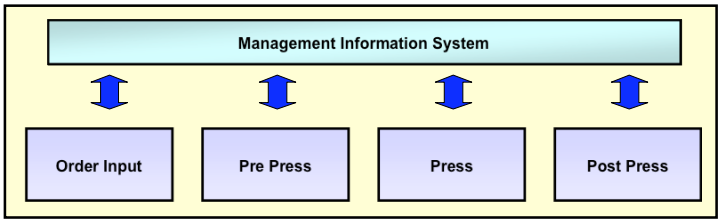
- MIS systems help track and measure productivity and cost & improve billing
- JDF will be added to MIS systems
- But many printers do not use MIS systems, and have no plans to make such an investment
- Just because not using MIS does not mean can't take advantage of JDF technologies



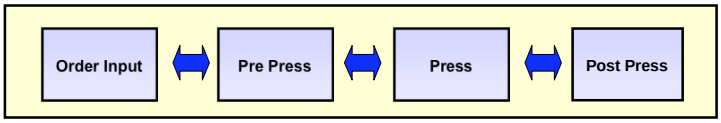

## JDF with or without MIS

Building Practical Workflows

1 JDF controlled by MIS




2 Serial JDF control



## Example: JDF without MIS

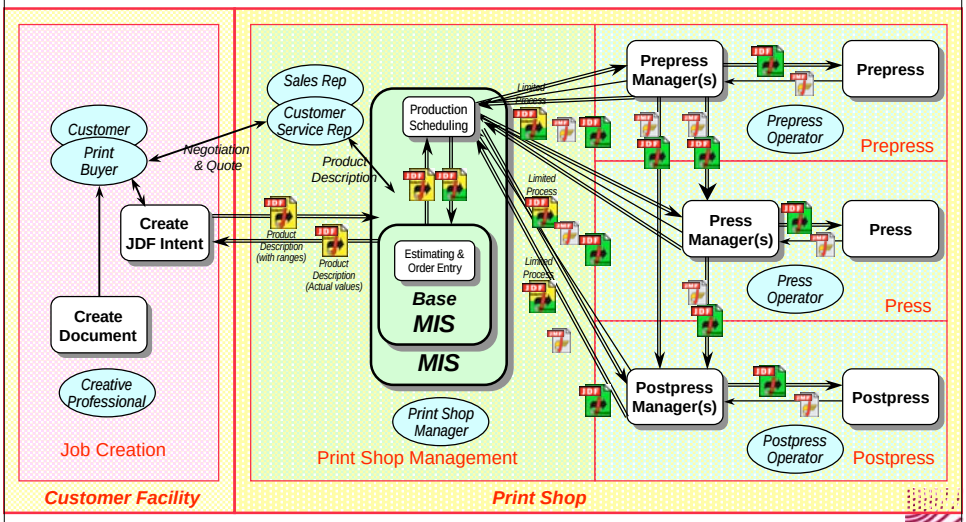
Building Practical Workflows

new

- **A Duplo DC645 finisher - slits, cuts and creases paper up to 120-lb. cover in a single pass**
  - **Used near-line or in-line (digital press), it can be managed by Symbio software (Objective Advantage cost around $5,000)**
- **After printed the operator places the stack into the infeed of the DC-645**
  - **Symbio sends a JDF file to the finisher**
  - **From the JDF information or bar codes, the slit, cut and crease functions are automatically set.**
- **A 13-min manual task is cut to less than three**

## CIP4 / JDF is an end to end solution

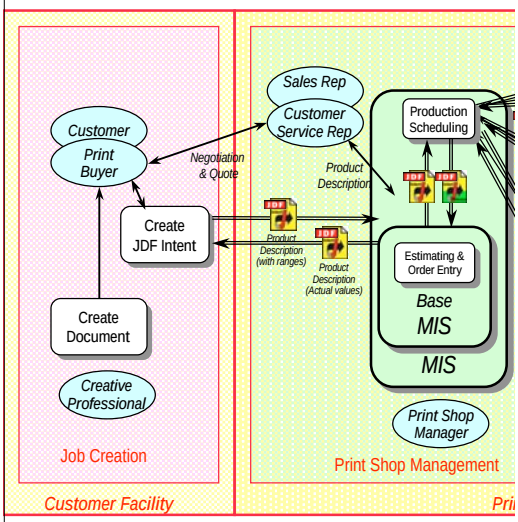
Building Practical Workflows




Source:Heidelberg

## Customer Interface

Building Practical Workflows




**Part 1: Product Definition Interface & Intent**

1st communication between print customer and printer
- Could be online via estimating or bids or quoting process
- Or JDF templates created by service providers

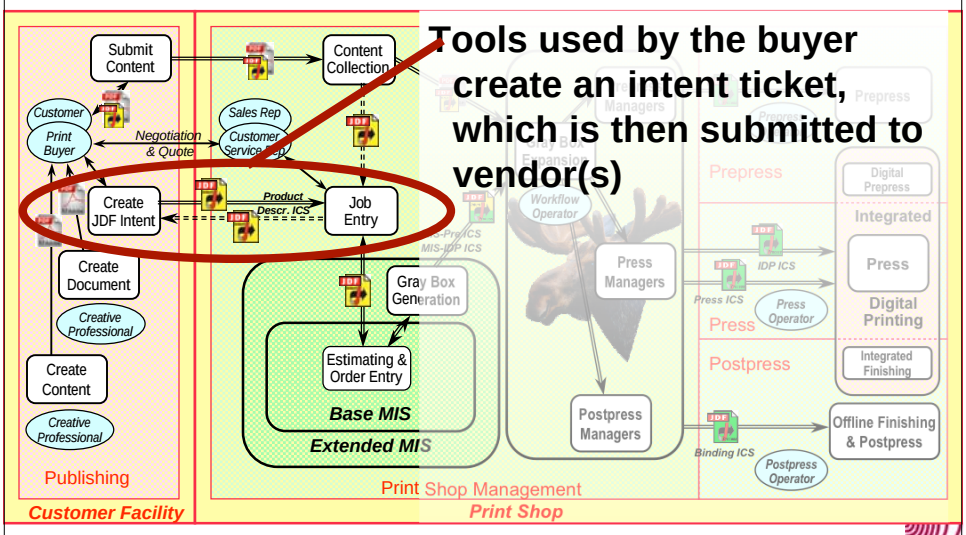
PrintTalk used for definition of the business transaction

JDF information automatically placed inside PDF files
- Digital cameras, page layout

Source:Heidelberg

## Product Intent

Building Practical Workflows



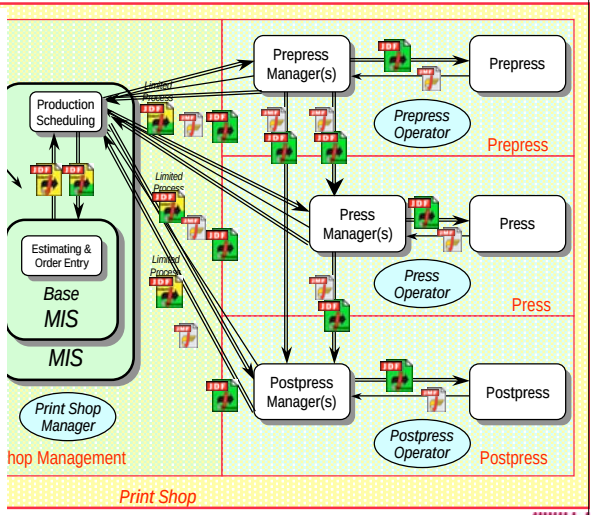

**Tools used by the buyer create an intent ticket, which is then submitted to vendor(s)**

## Print Production

Building Practical Workflows

**Part 2: Process Definition**

- MIS managed environment
- MIS created initial job (ID and Ticket)
- May need to preflight JDF information
- MIS creates "Process" nodes or "Gray Boxes"
- Production Manager expands Gray Boxes to Process nodes
- JMF used for feedback




Source:Heidelberg

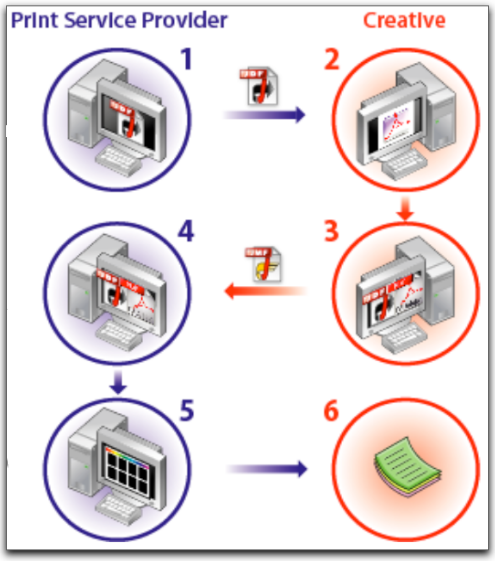
## MIS / JDF template workflow

Building Practical Workflows

Create JDF template
Embed prefight
CMS profiles
& PDF settings

MIS system
Job jacket created
Schedule created
Job tracking started
Feedback from shop floor
data collection begins

Print Production
Automatic Ink keys
Auto finishing options
Create invoice




Store JDF template
Start testing

Create New JDF
Create and verify PDF schedule
Submit files

Receive job

## Good News / Bad News About JDF

Building Practical Workflows

**Good news - Years of effort being placed on**
- the langauge and equipment to work

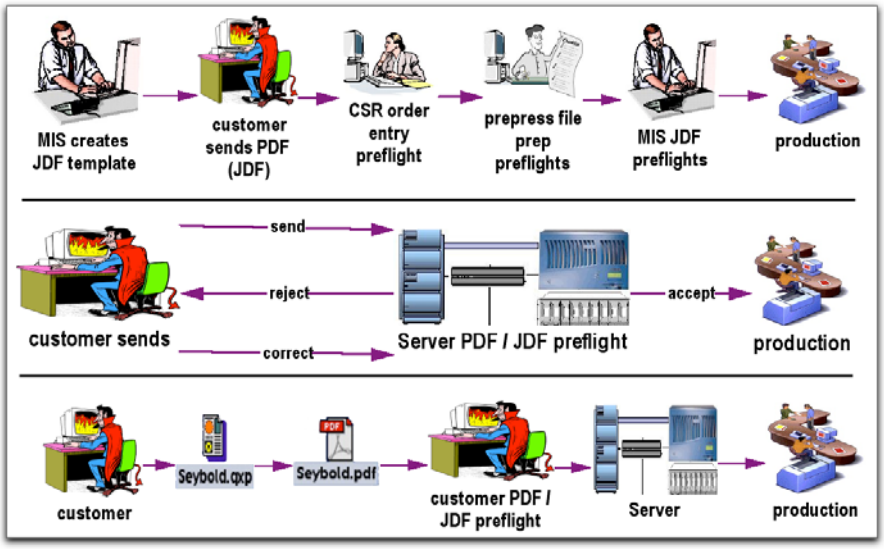
**Good - interop tests show**
- Beta sites are working & getting ROIs
  - CIP4.org, www.ngppartners.org/case_studies.htm

**Bad news**
- Generally requires new equipment
- Greater need for upfront production planning
  - JDF info from clients will need to be preflighted and corrected
  - Job planners, CSRs, MIS staff will need to learn internal equipment capabilities (prepress, press, postpress) and JDF

**Good News (Most likely)**
- New customer preflight and server JDF preflight tools will most likely appear

## A tale of 3 JDF workflows

Building Practical Workflows



# Thanks



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- My newsletter
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**Other Sources:**

- www.napl.org/randeconcil.aspx
  - R&E Council and Digital Smart Factory
- www.CIP4.org
- www.ipa.org
- www.HowieFenton.com

If you get the chance – stop by the NAPL booth #862 and say hello!

For an updated handout give me an email address - that will not block an attachment