



Thriving in the Digital Age **A Guide for Printers**

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Presented to XPLOR

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My Background

- 32 years on the dusty road of publishing
- 5 years directing Seybold Seminars
- 7 years studying the impact of the Internet on graphic communications
- 3 years studying XML, CMS, workflow and production automation
- A dozen books and 190 articles published



This illustrates my recognition that I may have a gloomier picture of where things are going than many in the industry. (Copyright Gahan Wilson)

Let's Get One Thing Clear!

- The best printers can and will continue to grow profitably
- Are you one of the best?
- The challenge is to manage a core shift in the market

Printing in North America is approximately a \$100billion market. There's going to be lots of work around for a long time. But the underlying conditions will get tougher and tougher; competition will be cutthroat, and price pressure constant.

Only the best will thrive.

Change is Accelerating

“When desktop publishing was launched into the world in 1984 it contained the shock of the new, and we thought we were witnessing a revolution. It was only later, when things settled down a little, that we could see that all we had achieved was the digitization of analog processes. We were still doing the same things for the same reasons, but with different tools; nothing had really changed.”

— The Columbia Guide to Digital Publishing

This is a quote from my contribution to The Columbia Guide to Digital Publishing.

Outline

- Paper & the paper industry
- Print and the printing industry
- Technology issues
- The economy
- Futures
- Content management

Paper is King

- Electronic publishing is changing the market, but most publishing revenue is still derived from products made from ink on paper
- (The billion dollar question is what the rate of change will be)

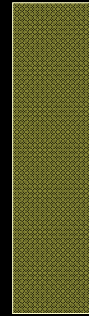
For most commercial publishing companies there has not been a dramatic shift in revenue earned from ink-on-paper to electronic, although all of these companies are heavily involved in the effort. But, as discussed below, it's the nature of technological change that the shift can accelerate very rapidly.

The Paper Industry in Crisis

- Pricing depressed for years; profits have collapsed
- Capital-intensive, low-margin (*sounds like printing*)
- Americans consume 3x the world per-capita average; 15x the Asian average
- There's a co-dependence between the paper industry and the book publishing industry

We've learned that paper making is both capital-intensive and low margin. [Just like the printing industry.] We were told that Americans consume three times the world per capita paper average; and 15 times the Asian average. We were told that the paper industry is suffering "the Enron effect" which is "absolutely heinous for the paper industry." [I noted that the Enron effect had also been absolutely heinous for most Enron workers and investors.] And we were reminded that there is a co-dependence between the paper industry and the textbook publishing industry.

Optimism in the Late '90s



Most rosy forecasts are just wishful thinking!

I had on my computer some relatively recent industry analyses of the paper business which reminded me that it was only a few short years ago that the paper industry was coming off of record price increases and was looking forward to maintaining margins and volumes well into this century. Now that things have not turned out as expected, are we to shed crocodile tears or real tears for the industry's misfortune?

Paper

“When you notice that the five largest paper producers have in combination less than 15% of global capacity, you know that the merger activity is nowhere near being finished.”

— Barry Crouse, Institute of Paper Science and Technology

What is to be Done?

In a commodity business...

- Meet in New York at the Waldorf Astoria
- Consolidate to eliminate competition
- Artificially remove capacity — “taking out 1½ million tons in paper capacity.”

In a commodity business, the leaders of the largest paper companies met in New York at the famed Waldorf Astoria and continued to develop and implement plans to artificially remove paper-making capacity, and to consolidate so as to eliminate competition.

Book Printers & Paper Prices

Managing the ratio of paper costs to print prices is traditionally the printer's largest challenge

| Year | Paper | Printing | Profits |
|-------------|---------------|-----------------|----------------|
| 1995 | +40.6% | +4.9% | -36.2% |
| 1996 | -14.9% | 0.0% | +26.8% |

— Source: Ron Davis, PIA

While this is specifically related to book printers, it illustrated the importance of paper cost in the economics and profitability of the printing industry.

Nature of the Printing Industry

in North America

- Nearly 40,000 suppliers

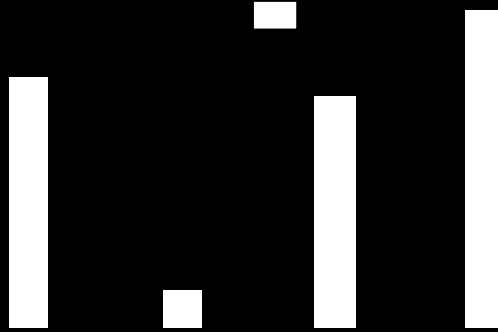
Though an estimated 8-10,000 printers have been sold, merged or gone out of business in the last decade, there are still far too many – the industry is fragmented.

The Printing Business

- Double-digit real growth prior to 1988
- Mostly below 5% growth in the 90s
- Slow to negative growth since 1997
- *If an industry grows more slowly than GDP, is it actually shrinking?*

The next charts will provide more detail...

Print Sales vs. GDP: 1985-2000



Source: NAPL

Print sales outpaced GDP growth in most of the postwar years, up until 1989. The recession of 1990-1991 disrupted that pattern, and since then, while print sales continued to grow through 2000, their growth has increasingly slipped behind GDP growth. Hence my question: *If an industry grows more slowly than GDP, is it actually shrinking?*

Printing Capacity

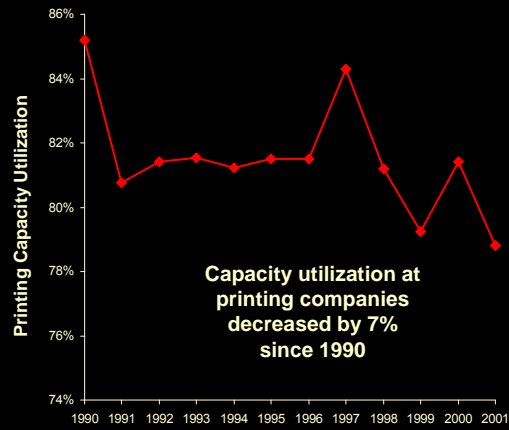
- Most printing companies operate below optimal capacity
- CTP and PDF workflow systems are moving prepress to full efficiency
- The industry is now re-tooling in the pressroom and bindery
 - adding 20%+ per year

Printing companies have operated below full capacity for some years.

While improvements in prepress technologies over the last 15 years moved work more quickly and economically through the prepress department, the pressroom and bindery, remained, until recently, largely untouched by technology improvements, and hence efficiency improvements.

But now that there is extensive retooling in the pressroom and the bindery, efficiencies are improving there also.

Utilization



Recent trends of decreasing capacity utilization and declining printing prices are squeezing margins for printers

Sources: Merrill Lynch Printing Industry Report, 1999; Federal Reserve Board printing capacity statistics

This chart illustrates the utilization problem, which, despite the smaller number of plants, I expect has become more serious since 2001.

The Print Dollar

| | |
|--------------|-------------|
| Sales | 5% |
| Admin | 20% |
| Paper | 40% |
| Prepress | 10% |
| Press | 15% |
| Bind | <u>10%</u> |
| Total | 100% |

A rough attempt to look at the cost of printing.

Cost Efficiencies & The Print Dollar

| | | |
|----------|------------|--------------------------|
| Sales | 5% | Contracts lower cost |
| Admin | 20% | E-commerce |
| Paper | 40% | Outside direct control |
| Prepress | 10% | PDF, JDF |
| Press | 15% | CIP3 + on-press controls |
| Bind | <u>10%</u> | CIP4, JDF |
| Total | 100% | |

Technologies and practices which could further reduce some of these costs.

Largest Discretionary Costs

Remaining

- Sales
- Administration
- Prepress
- 35% of total, reduced to ??

I think that these are the areas of expense where printers can most likely further reduce their costs.

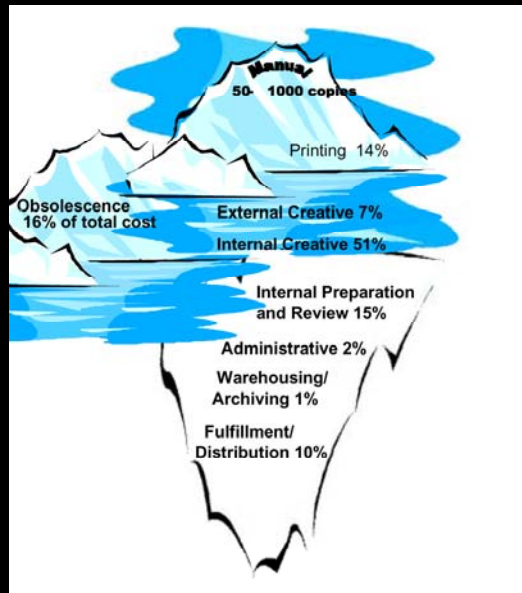
The Hidden Cost of Printing

is at the publisher, not the printer

- Administrative costs of PP&B
- Internal prepress costs
 - part of manufacturing
- Review/quality control
 - proofing

At the same time, as we all know, but too few of us acknowledge, the real cost of using print as a communication medium is not at the printer but at the “publisher,” whatever kind of publisher that is.

The Real Cost of Print



I do not recall from where I purloined this generic but useful chart that illustrates the “real cost of print.” (Notice to copyright holder: if you feel I am using this illegally, please advise, and I will remove it and/or pay you an appropriate fee.)

What few printers and even fewer print buyers readily admit is that the majority of the cost associated with print communication is below the surface of what is paid to the printer.

The Real Cost of Print

If I recall correctly, this chart is from the same source. It just presents the information in a slightly different way.

The Secrets of the Print Profit Leaders

- There's no magic bullet
- A series of small steps, well-executed
- For technology: strong ROI planning and execution

— Source: IPA 2000 Economic Study

While I am quoting a 6-year-old study, I believe the point remains absolutely valid today. We are all subject to “magical thinking” – that there must be some single secret step that will address the majority of our problems.

What the 2000 IPA study proved is that the “Secrets of the Print Profit Leaders” is doing everything (or most things) right, not just searching for a magic bullet to solve the problems graphic businesses face.

Demand Printing Will Explode

| | Total Print (Billion \$) | Total Digital | Color Digital |
|-------------|-------------------------------------|--------------------------|--------------------------|
| 1997 | \$100 | \$10.5 | \$6.7 |
| 2002 | \$127 | \$32.2 | \$22 |

Source: CAP Ventures

This data is also a little dated, but reflects my continuing belief that the only area of printing that will achieve significant growth in the coming years is demand printing (packaging is the second best prospect).

Variable *not* Short-run

- Recognize that all targeting has value
- Recognize that targeting demands precision
 - Finding something relevant to communicate
- Share of customer, not share of market
- “New technologies don’t just enable 1:1 marketing, they demand it.”

But the dynamism in demand printing is not short-run. You made get more per impression, but with far fewer impressions created. Not a great economic model. Variable data printing is again and again proving a strong ROI, and most closely monitors the paradigm change represented by 1:1 communication via the Web.

Printing is Manufacturing

- The graphic arts industry must get its act together from a manufacturing perspective
- CIM is the right concept
- PDF (and PDF/X), JDF and WA are the initiatives to follow

I think it is terribly important for printers to embrace the notion that “printing is manufacturing,” rather than a complex craft business. It may have worked in the past, but complexity only adds to costs and reduces productivity. Both buyers and printers must seek out manufacturing efficiencies.

Workflow Can Be Controlled

- PDF is a big part of the answer
 - Predictable (potentially) and independent
- Web-enabled
- JDF (Job Definition Format)
- We need to resolve the proofing issue

“Workflow Can be Controlled” is perhaps an overstatement – there is still much to be done. But it can certainly be controlled far better than most publishers and printers control it today.

Enfocus Certified PDF

- A “self-aware” PDF file:



- Contains its personal preflight settings, and knows whether it complies
- Contains its history of changes, who performed them and when; can roll-back to any previous version
- Quality and Edit history available at any time

I once worked closely with this company (no longer), but remain very impressed with their « Certified PDF » technology. Well worth looking into.

What Are We Looking for in a Proof (Soft, or otherwise)?

- Content
- Layout
- Line art
- Halftones
- Color
 - Process
 - Spot

Proofing is a key area where publishers and printers are not taking sufficient advantage of the low-cost digital and soft proofing technologies that can provide the same assurance as more traditional proofs.

Color can be Controlled

- CMSs are working
- Color control on press has been here for half a decade
- Press manufacturers are starting to support color control
- Closed-loop color control is here now
 - GMI, QTI, System Brunner, Heidelberg...

While color management is much more widely accepted than a decade ago, not enough publishers and printers are giving it the respect it deserves.

“I see dead people. They don’t know they’re dead. They only see what they want to see...”

I think that, as in so many industries, folks see and believe only what they want to see and believe. This is not a healthy approach to planning.

The NAPL Economy

- “Our industry’s upturn is on track...”
- “Will the positive environment offset the impact of structural challenges in the print industry? No.”

Beware the economic data and advice of your trade associations! They are basically in the business of assuring you that things are going to be alright. I think that the NAPL is more forthright than most, but still must satisfy their constituency.

“Economy On Solid Footing?”

- Inflation
- Consumer spending
- Real estate
- Avian flu
- U.S. deficit & weak dollar
- Middle East (Israel, Iraq, Iran)
- and...and...

And we must never lose sight of the macro economic issues. If you are an optimist, each of these challenges will sort themselves out without a significant negative impact on the U.S. economy. If you are a realist, you'll remain concerned that there could be some tough times ahead.

Advertising

- “New York, NY (February 10, 2004), Total magazine advertising revenue for the month of January 2004 increased 10.4%, compared to January of last year, closing at \$1,015,326,919, according to Publishers Information Bureau (PIB).”
- YTY, ad pages are dropping steadily, .95% in 2003, 3.2% in 2002, and 11.7% in 2001.
- The print advertising market is gaining revenue while losing volume

I find the advertising industry particularly prone to emphasize data that does not reveal the true picture of what's going on in print advertising. The essential story is that the number of pages being sold is dropping, although magazine publishers have managed to keep the per page price high enough to mostly mask this fact. Newspapers are having a little more trouble pretending.

Advertising

| | Total Advertising | Print Advertising | Total Share | Electronic Adv. | Total Share |
|------|-------------------|-------------------|-------------|-----------------|-------------|
| 2004 | \$266.4 | \$112.1 | 42.1% | \$93.7 | 35.2% |
| 2003 | \$249.2 | \$106.3 | 42.6% | \$86.2 | 34.6% |
| 2002 | \$236.9 | \$101.1 | 42.7% | \$81.6 | 34.4% |
| 2001 | \$231.3 | \$100.1 | 43.3% | \$78.0 | 33.7% |
| 2000 | \$247.5 | \$106.0 | 42.8% | \$86.1 | 34.8% |
| 1995 | \$165.1 | \$77.8 | 47.1% | \$50.2 | 30.4% |
| 1990 | \$130.0 | \$63.0 | 48.5% | \$38.0 | 29.2% |
| 1985 | \$94.9 | \$45.8 | 48.3% | \$27.8 | 29.3% |

As this chart shows, sadly print is commanding an ever-decreasing percentage of total advertising expenditures.



Newspaper Readership (I)

“Did you read a newspaper yesterday?”

80% “YES” in 1961

58% “YES” in 1999

(59.3% in Canada)

This is one of the saddest statistics I know. Newspaper readership is dropping sharply.

Newspaper Readership (II)

- 58% of all adults read a daily newspaper
- But only 44.6 percent of young adults (18-34)

– Audit Bureau of Circulations

And, of course, even more sharply amongst our youth.

Next-Generation Displays

16.3" Diagonal QSXGA Desktop AMLCD



Features:

a-Si:H TFTs
2048x(2560x3)
15.7Mill. TFTs
200ppi
60Hz frame rate

While many print apologists claim that the computer monitor is too stressful to read from over extended periods of time, the fact is that the resolution, color, and viewing angles are all improving rapidly and dramatically.

The Importance of XML

- eXtended Markup Language
- XML enables content management
- Combining of the power of style sheets with the power of databases
- Style sheets with meaning

Format, Structure & Symantics

- *Format* describes how content is intended to look when it is displayed or printed
- *Structure* describes the purpose of content
- *Symantics* describe the categorical relevance of content

The Information Avalanche

- Doubling the knowledge base:
 - 1750 – 1900: 150 years to double
 - 1900 – 1950: 50 years to double
 - 1950 – 1960: 10 years to double
 - 1960 – 1992: 5 years to double
- By 2020, information is expected to double about every 73 days!
- Paper can't provide data in a cost-effective and timely fashion

Growth in Electronic Documents

- 1995: 12 trillion electronic and paper documents
 - 90% of all documents were printed (in 1998)
- 2005: 20 trillion documents
 - 2005: About 50% will be printed
- Ratio of offset to digital print — 40:60
 - Offset @ 40% of today's volume

Source: Gary Starkweather, Microsoft Research
(and inventor of the laser printer)

Why Content Management?

- So much content...in so many formats
- Multiple products from the same content
- Time to market is *crucial*
- Customers want control (custom publishing)
- Process improvement

Enterprise Content Management

1. Workflow management
2. Asset management
3. Content distribution
4. Rights management

Tony described the four different components of content management systems:

1. Workflow manager
2. Asset management
3. Content distributor
4. Rights manager

The Value of Content Management

- Improve workflow
 - Reduce time to market
 - Control assets
 - Control rights and permissions
- Offer new products from the same content
 - Publish to multiple media

Publishing Transformed

- Bloggers and Weblogs
 - personal publishing +
- XML-based standards for syndication
 - SOAP (Simple Object Access Protocol)
 - XML-RPC
- There's more to success in publishing on the Web than traditional commercial transactions

I think there is lots of evidence available today that illustrates the kinds of transformations that will take place in publishing in the future. One great example is bloggers and Weblogs, a new(ish) form of personal publishing, now spreading wildly across the net.

Even more cutting-edge are the XML-based standards for content syndication, such as SOAP and XML-RPC.

We've tended, naturally enough, to see the Web as an extension of traditional commercial publishing, but there remains a chance that it will transform publishing in still unforeseen ways.

Reinventing the Wheel

“Here we are using the richest technological resources of the 20th century for the imitation of pressed wood pulp.”

— Ted Nelson, Seybold Seminars, March, 1988

I looked back into some files I had on my computer and found a quotation from Ted Nelson, who is widely credited as the father of hypermedia, and, some would argue, the real father of the World Wide Web. At a Seybold Seminar in March of 1988, Ted said "here we are using the richest technological resources of the 20th century for the imitation of pressed wood pulp."

He said also that "manifest destiny number one" is that we'll still be able to get paper while "the real cultural life of mankind" moves to the screen.

The Tipping Point

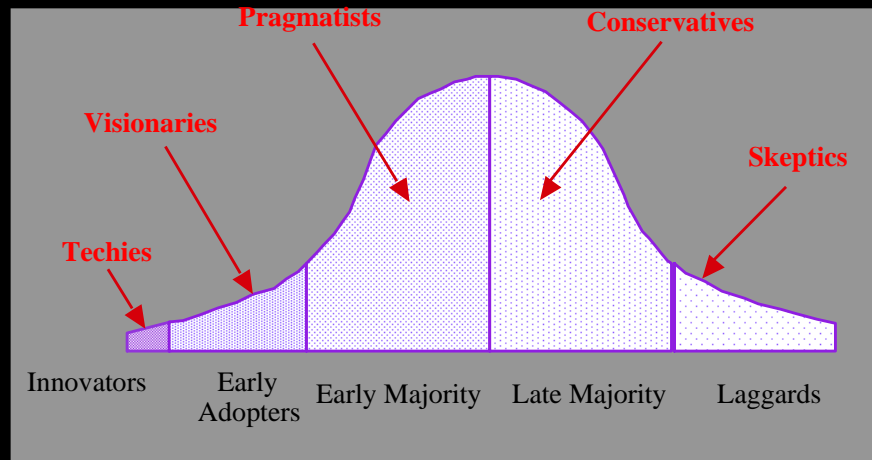
How Little Things Can Make a Big Difference

“...a book that presents a new way of understanding why change so often happens as quickly and as unexpectedly as it does...Ideas and behavior and messages and products sometimes behave just like outbreaks of infectious disease. They are social epidemics.

— Malcolm Gladwell

Ron Dunn use the term "the tipping point" and it reminded me of an excellent book of that name. I recommend the book highly to anyone who is interested on the likely future impact of technology on our society and economy.

Crossing the Chasm



Source: www.chasmgroup.com

I was reminded also of Geoffrey Moore's Chasm Theory, which delineates the pattern under which new technologies move into the mainstream. They move very slowly at first. At a certain point, when the pragmatists decide that the technology has value, they "cross the chasm" and take off like wildfire.

Pragmatists

- Primary Motivation:
 - Gain sustainable productivity improvements via *evolutionary* change
- Key Characteristics:
 - Astute managers of mission-critical applications
 - Understand real-world issues and tradeoffs
 - Focus on proven applications

We often assume it's the geeks and the rebels that account for the success of new technology. But the chasm theory demonstrates that it's the pragmatists, astute managers of mission-critical applications, who are the mechanism for moving technology into the mainstream.

Q&A

For More Information

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