Sourcing of Corporate Print: Three Case Studies

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Executive Summary

Three case studies were conducted to understand the factors that impact the demand for outsourced commercial printing by corporations. The cases included one university, one large retailer, and one food packager.

For Rochester Institute of Technology (RIT), the purchase of a new offset press by the in-plant print shop resulted in a substantial increase in 2003 revenues, primarily through internal charge-backs. Many four-color jobs that formerly had been outsourced to external print services providers were able to be printed internally. One of the primary customers of the in-plant print shop is the Admissions Office. Their budget for printed recruitment materials has remained constant over the last 10 years because the growth in outreach to potential students has been through electronic media. Lately, internal printing by students and faculty is straining departmental budgets, and so many departments are considering document management strategies for the future.

For Heluva Good Quality Foods, the change in primary and secondary packaging technologies in the last decade has decreased the need for printed labels applied to packages and increased the use of pre-printed flexible film. The locus of printing has shifted, in many cases, from the commercial printer to the packager/converter.

Walgreens' Printing and Mail Services unit sold its offset equipment in 2000 and purchased a digital color press (first an Indigo, and then a Konica). The unit maintained about 80% of its corporate print jobs but outsourced the printing of letterhead and envelopes to an offset print services provider. The Printing and Mail Services department is considering the purchase of a Duplo press to bring the envelope printing back in-house.

In summary, the adoption of new printing technologies has resulted in an increase in the amount of printing for RIT's in-plant printing operation, and a reduction of in-plant printing for Walgreens. The Heluva Good case study supports the claim that the locus of outsourced printing for some manufacturers may be shifting from commercial printers to packagers/converters.

Introduction

As noted by the top printing trade associations and scholars who study this industry, the demand for print services provided by commercial printers (NAICS code 323) has declined. This has resulted in a consolidation and closing of printing establishments. Whereas in 1998 there were 37,673 printing establishments in the U.S., as of 2004 there were only 30,622 (Paparozzi, 2004). The growth of the electronic distribution of documents is a major factor in this decline. However other business trends may also be influencing the demand for outsourced print services. One of these may be a change in the locus of printing. New digital color presses and high-volume office copiers allow corporations to print their own high-quality documents internally. In a 2003 RIT Printing

Industry Center report, 43% of marketing executives reported that they were increasing the amount of printing in-house for collateral materials. In a follow-up study in 2004, corporations and not-for-profit organizations reported that they were increasing the amount of printing they do in-house.

Another explanation for the decline in demand for commercial print (as measured by NAICS 323 revenues) may be that suppliers to corporations are adding printing to their service offerings, thereby competing directly with the services provided by commercial printers. This would move the revenue from the 323 column of the U.S. Economic Census to another NAICS code. One likely candidate (NAICS code 56191) is the sector that supplies packaging and labeling services to manufacturers.

To understand the factors that impact the demand for outsourced commercial printing by corporations, three case studies were conducted to assess how these organizations meet their printing needs. The cases included one university, one large retailer, and one food packager. The key research questions were:

1. How are firms sourcing their corporate print needs? Has the change in demand for printed documents been met through internal printing equipment (desktop printers) or services (in-plant print shops) rather than through the use of outsourced print services? Does this impact the purchase of printing and copying equipment?

2. If firms are using outsourced print services, are they using vendors other than commercial printers to supply their print needs? Has this changed from past sourcing practices?

Corporate Printing at RIT

This case study examines the print activities of Rochester Institute of Technology (RIT), an upstate New York private comprehensive university. RIT has approximately 15,000 students, 700 faculty and 2000 staff members. Printing capabilities are spread throughout the organization, and include the desktops of faculty and staff members, networked printers in teaching labs, and a centralized in-plant print shop that has been in existence since 1972.

RIT's print capabilities can be classified into two major categories:

- print that serves primarily an internal audience, including administrative units and print to support the educational mission, and

- print that reaches an external audience for the purpose of marketing and recruiting.

The present study does not cover the printing activities of RIT's School of Print Media to deliver its degree programs, the RIT Printing Applications Laboratory to conduct

research and testing on a propriety basis for external clients such as paper and equipment manufacturers, or the RIT Cary Graphic Arts Press.

Printing for RIT's Internal Audiences

Print to support the internal needs of the organization is managed by three types of administrative units on campus.

- The Office of Finance and Administration manages the in-plant print shop, copy center, and mailing facility. This office also manages the procurement department that oversees the purchase of the high-end networked printers throughout the university.

- The staff of the Chief Information Officer manage both RIT's Data Center and a few of the institute's computing labs used for teaching.

- College and administrative departments purchase desktop print devices for faculty and staff, networked printers for the student labs they manage, and large photocopiers to do departmental copying.

RIT Office of Finance and Administration

We interviewed Jim Fisher, the assistant vice president of Finance and Administration, who for the last five years has managed both the in-plant print shops on campus and the procurement process for the entire university. He explained his role as procurement manager. Equipment purchases over $1,500 must involve RIT's Central Purchasing office. According to Fisher, there are 166 networked printers over this price range on campus. The manufacturers of these printers are limited by RIT's preferred vendor program, and include Lanier (n=11), Konica (n=55), Canon (n=43), and Xerox (n=57) printers. RIT acquires approximately 20–25 networked printers per year throughout the campus. Most are replacement copiers but an additional 1–3 per year are purchased. Whether and how involved the procurement office gets with these purchases is usually determined by each department, as long as it is using a preferred vendor or vendors. Some departments work with Central Purchasing from the start while others want help just making the final decision. Still others will select the make and model that meets their needs and engage Central Purchasing only in the last stage of placing the order. Out of these three scenarios, the first is the most widely used.

Does RIT have a document management strategy? For the most part, no. However, in 2004 Xerox became the preferred vendor for printing and document management needs.

RIT's In-Plant Printing

Jim Fisher also supervises the RIT in-plant printing facility, which consists of two major service centers. The older one is the HUB: Central Print & Postal Services (hereafter referred to as the Central HUB), located on the outskirts of the campus. This facility houses a print shop, copy center, and mailing facility. In the print shop are three printing presses: an AB Dick 9850 (purchased in 1988), a Heidelberg single-color Quickmaster (purchased in 1998), and the Heidelberg Speedmaster 74 (purchased in 2002). The copy

center houses a Xerox Docutech and an iGen3, the latter just installed in spring 2005. The Central HUB facility serves the printing needs of the RIT administrative units, including the offices of alumni relations, admissions, and government affairs, and the president's office. The Central HUB print shop staff has grown to six full-time employees over the last five years.

Print volumes over the past 17 years for just the print shop portion of the Central HUB facility are presented in Figures 1 and 2. Print revenues (internal chargebacks) have increased steadily over this period, with a sharp rise in 2003. This was the year the
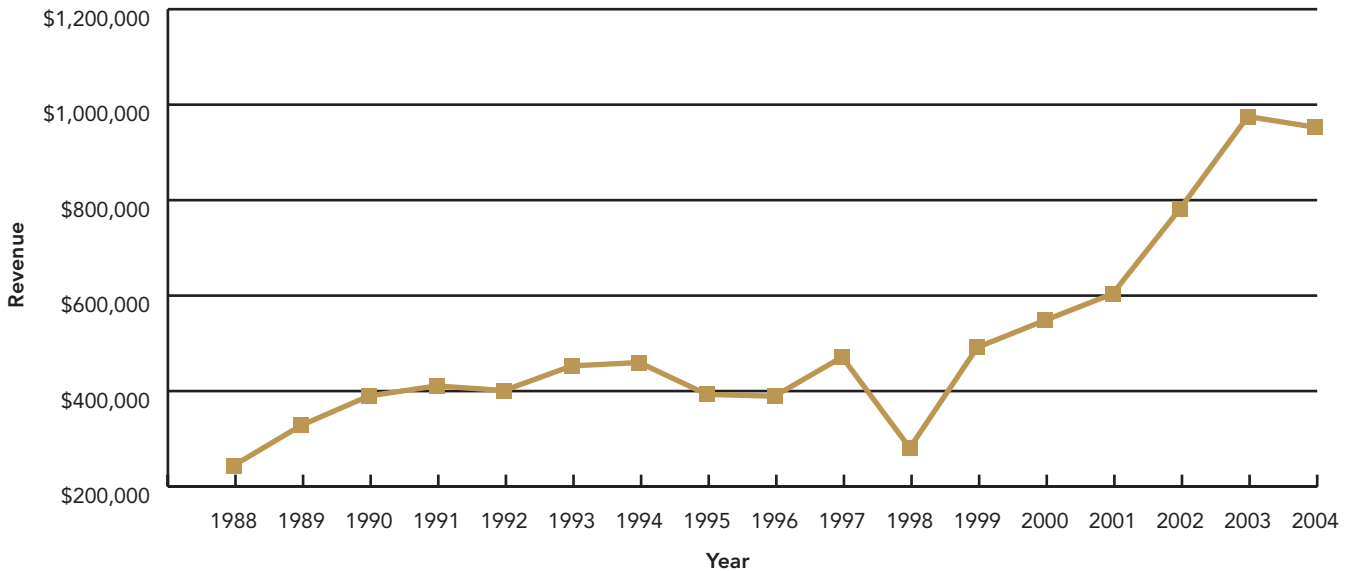
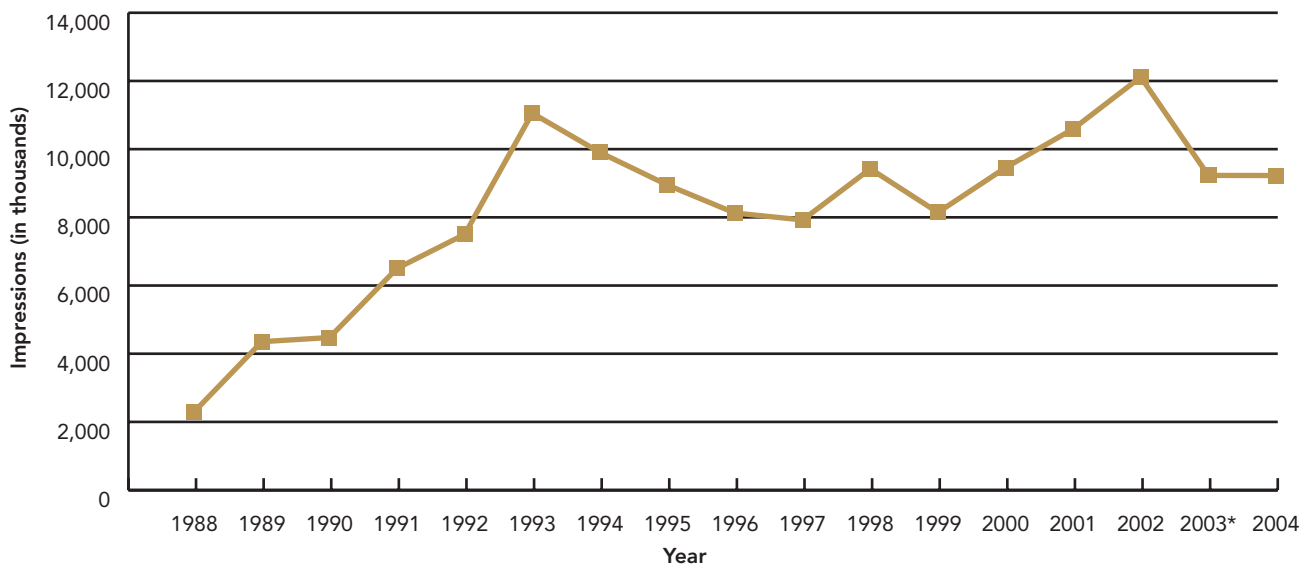Figure 1. Annual revenues for RIT Central HUB print shop

Figure 2. Annual Impressions for RIT Central HUB print shop
* Purchase of Speedmaster 74

Heidelberg Speedmaster was in full operation, which allowed the center to complete four-color print jobs in-house. Because the Speedmaster could handle a wider paper, the number of impressions declined (due to the ability to print two-up and four-up on a page). However, all of the Central HUB's presses remain active, including the AB Dick press which reportedly is running every day.

The Central HUB's new iGen3 replaced one of the two high-volume monochrome copiers that had been there since 2000. The volume for the Docutech has been declining recently due to the spread of desktop and networked printers throughout the campus. RIT has contracted with Xerox for an operator for the iGen3 for the next three years.

The Central HUB print shop also serves paying customers in the community. This revenue accounts for about 5% of the shop's annual total. Outside clients are small businesses and not-for-profits firms in the area.

The second print facility on campus is a retail storefront located in the Crossroads student center and hereafter called the Crossroads HUB. This facility is managed separately and reports to the Director of Printing and Mailing Services. The Crossroads HUB was created in 2000 and houses a Xerox 6060, a Neuvera 120, and a number of PC and Mac workstations for file preparation. A high volume of jobs is submitted by students. The key challenge is how to make money on short-run jobs, the majority of which need a high degree of file correction/preparation. Much staff time is devoted to working with naïve users who do not submit the right file formats to ensure a top-quality output. The Crossroads HUB also has an HP 60-inch-wide format printer, the busiest printing device in the shop.

Print revenues in the Central HUB and Crossroads HUB copy centers are summarized in Figure 3. Internal chargebacks (service to RIT departments) decreased from July 2003
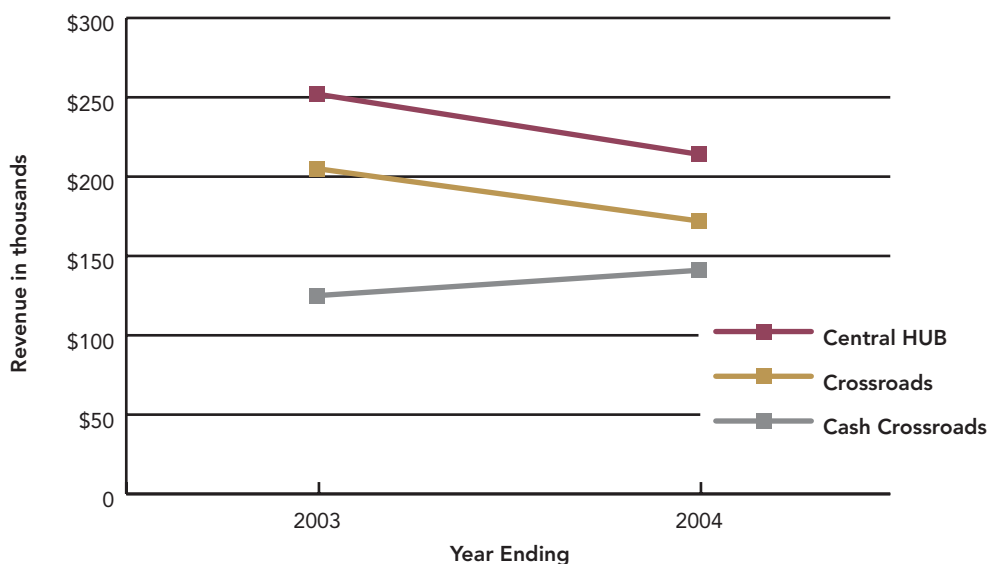
Figure 3. Revenues from RIT copy centers (chargebacks for Central HUB and Crossroads and Cash transactions at Crossroads only)

to July 2004. However, the revenue from cash transactions at the Crossroads copy center (primarily from RIT students) increased.

Data Center

The RIT Data Center is managed by Debbie Fitts, who reports directly to the director of Technical Support Services, an administrative unit that is the responsibility of the Chief Information Officer. The RIT Data Center prints for the admissions, housing, registrar, bursar and payroll departments on campus. All of the print jobs are generated from internal RIT student and administrative databases. The storage and maintenance of the databases themselves is managed by an outsourced service vendor. Currently in the Data Center there are five staff members, including two operators, one for each shift. Staff reductions have occurred in the last 10 years due to the outsourcing of programming and database administration to vendors. In addition, one less operator was needed when the weekend shift was eliminated. Retired workers have not been replaced because of productivity improvements through automation. The Data Center's biggest need is for scheduling software to keep track of cascading jobs.

The amount of Data Center printing has declined substantially in the last decade. At one time, the Data Center printed about 500,000 pages per month. The center is now down to about 200,000 pages per month, and there has been an ongoing debate about whether it "should be in the printing business." For example, at a recent conference that Fitts attended, she found that RIT was one of the few educational data centers that were still printing internally. The volume at RIT has declined, due primarily to the installation of an Oracle database system that manages HR, payroll, and the internal accounting systems which distribute data files electronically throughout the campus to key budget managers. The monthly operations budget statements for each department are now printed on the desktop of the accounting manager in each college and department. Before the Oracle system was in place, reports were printed centrally and then mailed to each department manager. For the HR function, payroll deposit statements are now provided only in electronic form; if the employee wants a paper copy, he or she can print it on the desktop.

Below is a list of the typical documents the Data Center prints for internal RIT departments—with very few exceptions, all are printed self-mailers; the folding is also provided by the Data Center:

- Admissions: reports, letters to applicants

- Financial aid: award letters (annually), amended award letters (quarterly), promissory notes (on pre-printed shells)

- Housing: confirmation letters

- Registrar: "21 day" reports (quarterly), class lists (quarterly for over 400 classes offered), grade reports, schedules of classes

- Bursar: quarterly bills (In 2005, RIT will offer paper billing by request. All others will receive e-billing.)

- Payroll and accounting: student checks (on a desktop Lexmark printer), accounts payable, W2 forms (these will be migrating to the desktop next year)

The current solitary printer in the data center is a Xerox Docuprint 90. It is on a four-year lease that began in 2004. There is also a legacy IBM line printer sitting in a corner that is still used occasionally for printing labels on perforated continuous forms.

Departmental Printing to Support the Core Mission of RIT

The academic departments are organized into eight colleges at RIT. We will use the College of Business as an exemplar to assess the amount and nature of the printing in the college units. Printing within the colleges at RIT can be placed into three categories:

- printing in support of faculty teaching and research,

- printing in the computer labs (by students), and

- printing for the administrative unit.

The College of Business also contracts with external print services providers to produce its glossy sales brochure, called a "Viewbook." This will be covered in the next section.

It is the responsibility of Dave Ballard, systems administrator, to purchase and maintain the computing and printing equipment and manage the print capability of the College of Business. There are a total of 58 printing devices in the college, for a faculty and staff of approximately 60 people. Nearly every faculty member and staff member has an office desktop printer of some vintage. To support the college's administration, there are 10 networked printing devices to serve seven administrative offices. Two are color devices and the rest are black and white. In addition, two black-and-white copiers directly support the copy needs of faculty for their classes (a Xerox Workcenter Pro 90 and a Xerox 460DC). Print volumes on these copiers are averaging approximately 100,000 pages per month during the current school year. Typical documents copied on these copiers are exams, syllabi, course handouts, and presentation materials.

There are two networked printers in the College of Business student labs. These are both Dell 5300 Ns, and were purchased in 2004. The four-year service and warranty that was included in the price was a key purchase criterion. Print jobs are submitted by students who are completing assignments for their classes, and there is also an unmeasured amount of printing for personal reasons. Ballard estimates that 250,000 pages per year are printed in the labs, and this has been increasing annually. However, no one knows exactly how much is printed, because the systems administrator tracks printing volumes primarily by the amount of paper purchased. According to Ballard, the biggest challenge is managing print volumes in these teaching laboratories. Currently there are print policy guidelines for the students, upheld by lab assistants who review and delete inappropriate jobs in the print queue (e.g., no PowerPoint slides are allowed, no pdfs, and no documents over a certain megabyte limit). But there is no limit to the amount of sheets students can print within any one quarter. The lab managers are reviewing Pharos soft-

ware to monitor and control printing costs. This new software would allow for rules to govern the printing and to charge student debit accounts if a certain limit was exceeded.

Printing for External Audiences—Marketing and Recruiting

We interviewed Dan Shelley, the director of undergraduate admissions at RIT since 1990. It is Shelley's job to deliver the entering class of undergraduate students each year. Details regarding the precise printed publications he uses were obtained in a separate interview with Bob French, assistant vice president of enrollment and career services. French manages the University Publications department, responsible for creating and printing RIT's recruitment publications.

The undergraduate recruitment effort consists of an integrated print and web campaign in addition to a number of on-campus, face-to-face meetings with prospective students and their parents. Marketing communications activities have changed over the past 15 years in terms of media used. In 1990, only print and phone were used. In 2005, the media mix includes print, phone, Internet, and email activities. Print budgets have remained steady as students and parents continue to demand tangible promotional materials. The print publications budget has remained roughly the same, but a decline in the cost of print has allowed RIT to print a larger quantity and wider variety of materials. In 1990, the primary printed materials were Viewbooks for each of the eight colleges (glossy, 32-page publications), a course bulletin (400 pages printed on uncoated paper), and personalized letters. RIT outsourced the printing of the Viewbooks and bulletins to external printing vendors. Additional printed items were application forms (monochrome) and maps (color). Individualized letters to prospective students were and still are printed internally. The amount of internal printing has increased, such as personalized letters, application forms, and related responses, all driven by the number of inquiries. The University Publications department's printing devices are an HP 5 SI and an HP 4350 TN. The Admissions Office also has an HP 4500 color laser printer for campus maps, etc., and an HP 4050 for other printed materials, such as packets for visitors at open houses.

In today's admissions activities, printed publications are dwarfed by the Internet and email recruitment. Electronic marketing efforts have been added without hiring more staff members, although some have been retrained. In general, software efficiency has been a key driver in allowing staffing levels to remain the same. While Web maintenance for the undergraduate admissions site was once outsourced to another division on campus, the Admissions Office now has a team of four individuals who do it internally. To augment phone interactions, the Admissions Office also has full-time staff members devoted to Web chat inquiries.

Electronic document management has been in place since 1999 with the use of a DocImage system for transfer student evaluation, where the transcripts of applicants need to be shared among a number of different academic units on campus to award transfer credit. Most paper documents coming into undergraduate admissions, financial aid and some other offices are now scanned, stored, and destroyed.

Printed recruitment materials have typically been outsourced to commercial printers, with a limited volume going to the RIT in-plant print shop. Two local Rochester printers, Tucker Printers and Mercury Print Productions, Inc., are the current print providers for these materials, although a competitive bidding process has engaged a number of other printing firms. For the approximately 25,000 copies of the annual course bulletin, a web press vendor in a nearby state has received the print contract for a number of years. The University Publications department has a half-time print buyer to help in the purchasing process. The future may bring a one-vendor model because of the extra cost charges that appear with overruns and changes in copy, items that are normally associated with serving the customer in print buying.

University News

The other RIT department that has heavy publishing needs is University News. This division is headed by Bob Finnerty, and is responsible for RIT's two publications for external constituents: an internal tabloid-style newsletter titled *News & Events*, and *The University Magazine*.

News & Events is more than 25 years old. Circulation is currently 6,000 and the newsletter is printed by an outside vendor. (Print providers are changed often based on price. The current printer for this job is Rochester's Microera Printers, Inc.) *News & Events* is distributed to all faculty and staff members through the internal RIT mail system, to students and visitors through campus information boxes, and by mail to retirees, friends of RIT, politicians, and the media. The circulation has grown over the last few years by approximately 500 simply because of RIT's growth. The budget has also increased slightly because of the circulation increase, the rising cost of news print, and an expanded use of color. Since the fall of 2004, *News & Events* has been printed in color on all pages and in every issue.

In addition to print, *News & Events* has a strong web presence at www.rit.edu/~930www/NewsEvents. There are approximately 35,000 page views per month on this site alone, and in a typical month, about 500 documents are downloaded from the site.

The University Magazine was created in 1999. Faculty and staff, parents of current students, and friends of RIT receive it three times per year, twice with 48 pages and once with 32 text pages and a 70-page donor report. The magazine is printed by web offset at The Lane Press in Burlington, Vermont, which is also responsible for its mailing. Circulation has grown from 92,000 to 115,000 in its six-year run. RIT budgets about $300,000 per year for the magazine, an amount that has been held constant for the last three years. While RIT has been able to realize a cost savings in postage, there is a dilemma brewing: As the alumni base keeps growing, how will RIT maintain the growth in circulation for the same budget?

The University Magazine has a web version at www.rit.edu/~umagwww/. It gets less Web traffic than *News & Events*—about 6,000 page views per month. Finnerty's staff adds additional content on the magazine's Web site. For example, in Fall 2005 there will be an audio/slide show story.

Is In-Sourcing of Print Increasing at RIT?

The amount of printing at RIT has increased over the last 15 years. This is shown by the increase in printing at both HUB locations, increases in the number of networked printers purchased, and the increase in the quantity and variety of printed publications for admissions. The increase in printing in the Central HUB in-plant print shop rose dramatically after the purchase of the Heidelberg Speedmaster in 2002. Because of the larger paper width, the number of impressions was reduced, but revenues rose. In this case, a change in capability attracted more print business to stay on campus rather than to be outsourced. The key question is: What will the impact of the new iGen3 be on print volumes? Will it be used to print work that was formerly printed on the offset press? Will it add additional print jobs to the HUB revenue stream that had formerly been outsourced?

The only RIT area that reported a decrease in printing was the printed forms area, through the Data Center and through the copy center operations at the Central HUB. In the former case, electronic distribution of content has eliminated the need for printing and distributing statements, bills, letters, and financial information for faculty, staff and students. In the latter case, the increase in the number and capabilities of networked copiers and printers proliferating throughout the campus and the electronic distribution of classroom materials may explain the decrease.

For RIT's external audience, however, electronic distribution of recruiting materials has not replaced print. Print budgets have remained relatively constant even though electronic means of marketing have been used to enhance contact with external audiences and prospective students. How has this printing been sourced? For the most part, much has remained the same. The Admissions Office still uses external print providers to print large-run, perfect-bound materials, and also still prints its own personalized letters to students. It also uses the HUB for some marketing materials. The president's office still uses the HUB to print programs for the multitude of honors and awards ceremonies each spring, including a graduation booklet that lists the names of all graduating students.

While in-sourcing of print is still high at RIT, the locus of that printing for internal audiences has changed from the centralized copy machine (in the department or one of the in-plant copy shops) to the desktop. For example, in the student computer labs, electronic access and distribution of course materials (e.g., Internet access to library databases) has increased the amount of material printed by networked printers in the labs. In addition, a Web-based course management information system has been deployed throughout the campus where faculty members can post material that was previously printed by them and hauled to class to pass out to students (e.g., course syllabi, handouts, notes, etc). In many cases, the faculty member distributes course content simply by posting it on the course Web site. Students then print it out.

Though we do not have an exact measure of how much material is now electronically distributed, replacing the copies that were once made by large photocopiers located

in various RIT departments, the Central HUB reports that the number of requests for "course packs" has declined over recent years. Course packs are bound volumes of reading materials gathered by faculty members from a variety of sources (with copyrights obtained) that have been copied by HUB and are available for purchase in the RIT bookstore. The reduction of these "do-it-yourself" course packs is also being facilitated by major textbook publishers who have created elaborate Web sites to provide supplemental readings and other activities for instructors who adopt their textbooks.

Walgreens

With nearly 5,000 stores in the U.S., the Walgreens national retail pharmacy chain is known as the leader in drugstore retailing. The year 2004 marked the chain's 30th consecutive year of record sales and earnings. Walgreens' growth strategy is to open stores in freestanding locations and emphasize drive-thru service. Founder Charles R. Walgreen, Sr., opened his first pharmacy in Barrett's Hotel on Chicago's South Side in 1901. Corporate offices, located in Deerfield, just north of Chicago, house the company's Printing and Mail Services department. The department's manager, Linda Balsamo, consented to our request for an interview regarding the printing sourcing decisions she makes on behalf of the company. Balsamo has been in this position for the last six years, and with Walgreens for a total of 10 years.

She estimates the number of jobs printed externally at 75% and the number internally at 25%. Both printing methods have increased, primarily due to the growth of the business. Walgreens generates about 4.3 million pieces of mail per year. The mail is sent both to internal employees and store managers, and to pharmacy customers. Printed material that is outsourced consists of store signage and point-of-purchase information. These jobs are sourced through the corporate procurement office which is in another division of the company. Walgreens use a variety of vendors including commercial printers, print brokers, advertising agencies and mail services providers.

Though Walgreens does not now have a document management strategy, an audit of the print shop was done when Balsamo first arrived as an employee. The study concluded that the majority of print jobs did not have to be run on offset presses. As a result, in 2000 Walgreens sold all of its offset equipment and purchased an HP Indigo digital color press. External vendors print letterheads and envelopes that require offset printing, but the company has kept about 80% of the jobs that it formerly printed. Walgreens kept the Indigo for four years, with a print volume of about 30,000 pages per month. Then it was replaced with a Konica 5031 in 2004 because of lower maintenance costs and set-up time.

The Future of Print Sourcing at Walgreens

The Printing and Mail Services department at Walgreens may purchase a Duplo press to bring back the envelope printing in-house. In addition, one of the fastest-growing parts of the business, Walgreens Health Initiatives, was outsourcing its printing for most large client applications, but has changed this policy. Some of these applications are now

being printed by the internal printing department. Walgreens is studying the true cost of print outsourcing, and may continue to reevaluate whether it should expand its internal printing services department with additional printing capacity and intelligent inserting. This would require a substantial capital investment.

Heluva Good Quality Foods

In an input/output analysis of the industry sectors that purchased print services over the last three decades, Kelley and Rockler (2005) found that food companies reduced their purchases of commercial print in the period between 1972 and 1997 by about 15%. There are three hypotheses about why this has happened. Either food companies are doing more printing in-house (less outsourcing), they are using less printed material overall, or the locus of printing has shifted from commercial printers to other suppliers. The likely candidate in the third scenario is the packager/converter.[i]

There is some evidence to suggest that the latter two possibilities are the most likely explanations. The Tenessee Solid Waste Education Project maintains that "modern food packaging itself has decreased. Between 1972 and 1987, the amount of food packaging decreased 5% per person." (Tennessee Solid Waste Education Project). Though the U.S. consumer buys more food products in packages since the 1970s, the amount of material measured by weight or volume has decreased due to technological advancements. Two examples of these advancements are the widespread use of flexible packaging for primary packaging (that packaging which comes in contact with the food product), and a decrease in the amount of corrugated board needed for secondary packaging in the distribution chain. In terms of primary packaging, glass and metal containers for food have been replaced by primary packages made of flexible materials (Berger, 2005). In terms of secondary packaging, corrugated boxes have been replaced by corrugated trays and shrink film.

To shed some light on changes in food packaging, I interviewed Robert Fratangelo, operations manager of Heluva Good Quality Foods, located in Sodus, NY. He stated that he knows of no company in the food processing industry that prints primary packages in-house. Heluva Good uses three main suppliers: one national packager and two label printers. The packager prints additional images directly on pre-printed flow-wrap film (for cheese) and tubs (for dips). The label printers make labels for Heluva Good's glass containers (e.g., for horseradish sauce.) The majority of Heluva Good's sales come from dips and cheeses rather than from products packaged in glass bottles.

Another factor that has had an impact on the reduction of printed labels on food packages is the elimination of retail pricing labels. Instead of putting a price on each individual item at the point of purchase, today retailers only need to put the price on shelf tags, because manufacturers by law must incorporate UPC barcodes and nutrition information labels into food packaging. This changed the packaging of food in a dramatic fashion. Before this law, pre-pricing on all items was accomplished using labels, or in Heluva Good's case, both labels and inkjet coding with small-character inkjet printers on film.

This limited the creativity in package designs because colorful graphics on packages would have been hidden by these required price and weight labels. Now that the law has changed, retailers no longer add pricing labels at the point of purchase, and so food processors have been able to switch to pre-printed films to enhance the appearance and attractiveness of their packaging. This change also provides an additional benefit to the retailer because it allows a change in price immediately on the shelf instead of waiting for items to rotate off.

Packaging innovations have also impacted the way food is distributed. Before the broad adoption of shrink film, Heluva Good purchased corrugated board with its distinctive colors printed on the outside of the boxes. This color printing allowed the branded food products to be easily found in retailers' warehouses. Now, Heluva Good uses shrink film that lets the color on the pre-printed tubs (primary packaging) show through—the colors are not printed on the secondary packaging.

Secondary packaging corrugated board is still used for cheese distribution, however. Cheese packaged in pre-printed film is still shipped in corrugated boxes to protect the air-tight seal of the individual packages. These boxes are then printed with the Heluva Good logo in black ink by the converter.

Primary and secondary packaging technologies often work together to deliver improvements in the packaging system. Quoting Fratangelo, "Corrugated (secondary packaging) has an insulating quality that caused our cultured dip items to take five days to cool. When we went to "Spot-Pak" packaging technology, that time was reduced to less than three days. This was a big savings to us in shelf life and inventory dollars." With the right mix of strengthened poly cups, slip sheets for "Spot Pack" packaging (cups are glued in place on a corrugated tray), and shrink film, Heluva Good gains efficiency by cooling food products in one-third less time.

In conclusion, the Heluva Good Quality Foods Company does not print food packages in-house. If they are representative of the dairy food packing industry, the decrease in demand for print from commercial printers is a result of the change in packaging technologies and changes in labeling regulations. These changes have been a boon for the packager or converter who is now in many cases the source of the print found on the primary packages of our dairy foods.

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[i] Note that the NIACS code for Printing and Related Support Activity is 323 and for Packaging & Labeling services is 561910 (under Administrative and other support services).

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