The Customer-Responsiveness of Web-to-Print

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Abstract

In a transitioning printing environment, where most of a company's traditional operations are becoming obsolete, it is expected for all printers to look into adopting digital solutions to service customers more efficiently to keep up with their fast-paced demands. One solution that can provide rapid efficiency is Web-to-Print software, which serves as an online ordering platform for customers. Web-to-Print software not only keeps track of online order specifications for customers but also keeps records of all the transactional information including the most popular products purchased by clients, which can be used as a marketing advantage in tracking the most profitable customers.

The purpose of this study was to see how responsive customers are to Web-to-Print providers and in turn, how customer responsive Web-to-Print providers are to customers. This study took into consideration the entire ordering cycle from the time Web-to-Print providers first market to their target customers to the time the customer places an order on the printer's website through the time the printer executes the order inside his or her printing facility. The only obstacles that stand in the printers ways are processing and production constraints that must be overcome to deliver the customer's product on time. This study analyzed those constraints in relation to the product's total production time to see how operationally efficient a Web-to-Print provider can be with those production constraints involved. The more under control they have these production constraints, the shorter their execution time, (or cycle time) will be in producing the customer's ordered product.

Results from five Web-to-Print company responses demonstrated the degree of operational efficiency in the Web-to-Print industry.

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Chapter I: Introduction and Purpose of Study

Digital printing has become very versatile in its operations. Two operations of digital print media are variable data printing (VDP) personalized direct mail and Web-to-Print. This study analyzed one of the two as a marketing tool for selling print to consumers. VDP personalized direct mail and Web-to-Print can require a digital printer, yet each applies different marketing principles. An online publisher would desire to use a digital printer to reap all the benefits that a digital printer can offer. Such benefits include the exclusion of printing plates, (serving as the image carrier), make-ready (the process of getting the image up to an acceptable standard), customized printing (varying the order for a specific customer) and printing on-demand (printing a job immediately after it is received). Web-to-Print uses a "pull marketing" strategy, where the printer is drawing the customer to them, while VDP personalized direct mail printers uses a "push marketing" strategy where they reach out to the customer of a specific target market. Both strategies attempt to appeal to the customer on a personal customized level, yet the customers' response time to the printer's offer is varied. VDP personalized direct mail printers wait for customer's order after the offer is sent, while online publishers produce the customer's product instantly upon their request at the present time.

VDP is the ultimate marketing tool for printers, merging database mining with printing and mailing capabilities. Database mining is the process of sorting masses of information to discover trends in customer buying behavior. A business can now rely on their database for relevant information about a consumer's buying history. Once a customer submits an order online or through mail with their personal information for delivery purposes, the information is recorded and archived in a database. This enables the digital press operator to instantly retrieve relevant information pertaining to an addressee of a specific market. Printers can extract only the

interested prospective customers out of the pool of addressees and sort them by markets to match customer needs. As a result, personalized direct mail printers can interest previous customers by sending out catalog mail-ins based on similar orders placed in the past to an addressee. Online publishers can interest previous customers by posting similar products that might interest them on their membership account homepage. However, Web-to-Print customers are more prone to order products impulsively than personalized direct mail customers.

A common Web-to-Print company that uses VDP is Lulu.com, where customers can customize their books and print them in small quantities. When a customer visits Lulu's website, they are expected to register before placing an order with their name and address as part of a seven step publishing process. In each step, customers are given a set of options to choose from that serve as specifications for the printer to abide by. For example, in publishing a book, a customer starts their project by choosing between paperback or hardcover. Then they include their personal information (name, business, privacy authorization). Then they choose among various "project options," indicating the size, binding method, color options, number of pages and quantity of books. With this information Lulu can calculate the price with their online estimator. Then they can "choose and arrange files inside their book…in an acceptable file format" (PDF, PS, JPEG for photos). Every page will eventually be turned into a PDF either by the customer or the printer as a production-ready file. Then they can check the status of their printing job on the website for confirmation of precise specifications. The behind the scenes process of execution (printing, delivery, and fulfillment) is what I plan to research further and compare the response times among both personalized direct mail and online publish to determine which is more customer responsive.

VDP personalized direct mail and Web-to-Print companies use a proactive approach to anticipate customers needs before they ask, but Web-to-Print takes it one step further by offering instant accessibility of printing on-demand. Personalized direct mail printers will also print a job on demand, but only when the printer receives the order back from the addressee. From a production standpoint, print on demand eliminates the concern of overproducing products that might not be sold so it is not necessary to keep products in inventory. The products are shipped out "Just-In Time" after they are manufactured. From a marketing standpoint, Web-to-Print builds brand awareness faster and prints a job according to the customer's immediate specifications. With Web-to-Print, advertisements can be presented across the vast World Wide Web, which covers more territory than personalized direct mail. This enables spreading brand recognition through search engines. Because of this advantage, customers are resorting to the Internet to print their order for its instant accessibility and convenience. Customers are no longer waiting for printers to advertise their products, that in turn, could influence their responsiveness to buying the printer's products. From the printer's perspective, they are eliminating the cost of printing advertisement materials, which could drive down the price of the product for the customer and gives the customer further incentive to purchase the product.

The leading cause for how responsive a customer is to either type of business is timing, that is, how fast a printer can attract a market of consumers and lead them to purchase their product in a given period of time. Timing can be measured by the quantity of responsive customers a printer attracts in a set period of time. Quantity of responsive customers could be quantified by calculating the difference in turnover rates between customers of either business. This study will identify the features, benefits and advantages that both types of printers offers and see if that correlates to the degree of how responsive customers are in making their purchase.

The purpose of this study is to determine whether Web-to-Print business marketing strategies are more customer responsive than VDP personalized direct mail marketing strategies in selling print. This study will analyze both media's process designs, that is, how efficient and effective printer process is in manufacturing and delivering their printed products on request. The most common marketing strategy both printers use is mass customization, which designs products specifically to a particular customer's preference. This marketing strategy will demonstrate how flexible a printer is to drastic preference changes in customer demand. To what degree are Web-to-Print businesses more customer-responsive?

Chapter II - Literature Review

Variable data printing is offering new ways for printers to increase their profitability. The process of variability is "simply the merging of text and graphics from a database (usually either ACT or FileMaker Pro)," states American Printer author, Elias Crim. For example, co-founders, Hoefle and Moore, of the Direct Marketing Association Division of Moore Interactive Marketing Solutions in Grand Island, New Jersey, devised a networking method to dramatically improve the response rate of direct marketing through telephone browsers. Hoefle calls this project the Toets International Project, where "telephone browsers will soon be able to select (through voice response) items from 40 product categories, (amounting to 3500 individual pages of home furnishings, computers, financial service) to automatically compile their own custom catalog for delivery within 48 hours … Direct Marketing Assn.'s own number is 23.6 percent average response to personalized direct marketing, a substantially higher number figure than those typically cited for conventional personalized direct mail campaigns." By partnering Dutch postal telephone services known as KPN and using a Xeikon printer to produce "high quality full custom catalogs," they are able to receive feedback from "45 percent of the Toets 9220 test customers purchased within 60 days of placing their request for the product information (Crim, 2)."

In addition, another New Jersey-based printer, LP Thebault Digital Group, similarly has tremendously succeeded in terms of profitability for incorporating massive personalization into their printing methods. In doing so, they have grown into one of the "largest privately held commercial printer in the US," maintaining a net worth of $1 million in sales. Their secret to success lies in their meticulous organized database operations by profiling subcategorizing customers' "preferences, demographic and psychographic info...all of which will drive the final

choice of text, images, and even page layouts. This kind of work is above Toets –type of selectable catalog and represents a different kind of resource commitment from all players," John Kent, Quebecor graphics director, commented on Thebault's profitability by saying that,

"Company size doesn't matter, so long as you've got about $1 million capital budget – exclusive of finishing equipment, available for equipment (Crim, 3)." Despite Theobault's company being classified as mid-sized, their reliable reputation has made them become recognized by such national car-dealerships as General Motors (GM), who hired customized them for promotional projects.

One such project involved GM's and Oldsmobile dealerships and multimedia partners: Xerox, Apple Computer and Splash technology, to produce a customized web site and product booklet for GM's customers. These partners were hired to help in advertising Oldsmobile's mid-size sedan, the 1998 Intrigue. In an attempt to appeal to old and new generations, these three companies helped develop a spy-themed program, titled "Olds Mystery Tour," which merges VDP, multimedia, and the Internet, to involve the customer to get a feel of what the car is like before making the purchase. This was done through an interactive web site, where buyers tour the features inside the car. Then according to customers' personal preferences selected on the interactive tour, such as color, Olds will have Apple save their preference on the customer's web page and have Xerox print out every customer's selected preferences in a mailed out, bound, product booklet so they can refer back to it prior to making the purchase (Crim, 4).

VDP personalized direct mail printed discounts is another way printers are targeting customers for high profit. For example, "Shoe Carnival is a multi-state discount shoe retail chain with more than 250 stores in the South and Midwest." In order to target members of the chain's savings club, a personalized direct mail campaign was implemented and mailed to those customers with

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personalized messages on colored postcards. These advertised postcards reminded customers, who have not shopped with Shoe Carnival within 60 days or more of the benefits of using their savings card. The variable data information programmed into the database were the "member's name, saving's club ID number, mailing information, point balance, date of last visit, and number of points needed to earn the next reward," noted an anonymous Printing Impressions author. Consolidated Graphics printed and sent out over 10,000, 4"x 6" postcards with their Kodak NexPress Printer and database software of FoxPro and Datalogics DR Formatter, costing 33 cents to 36 cents per card. The outcome was extremely successful. The store-owner released the results as follows: "Ten days after the November mail date, 1,220 recipients shopped in the stores," spending on average $55.88. By January, the total number of responsive recipients rose to 2,679, showing a response rate of over 26 percent (Anonymous, 1-2).

Another way variability is making printers profitable is through Web-to-Print solutions marketing. Web-to-Print is a online ordering software that commercial printers adopt to produce printed products for the customer right when they order them on the company's website. Customers can choose from online templates to publish their product or upload their own templates. Printing Impressions, author Erik Cagle, defines Web-to-Print as an "Internet based application that allows customers to more quickly and efficiently place orders for their printed collateral, eliminating time-consuming steps and enabling automated job processing. Web-to-Print can be used for something as simple as business cards or as complex as a variable data digital printing job." Cagle explained that Web-to-Print solutions are only profitable if they are sold in high volumes of orders, charged at a nominal monthly fee, and allowing complete access to a vast range of customers, not just a "remote user or franchisee." These criteria will help customers get "fully invested in web-print life," so that they get use to adopting it for all production jobs. For example, in 2004, Custom Print Now established their own Web-to-Print

solutions web site that currently produced over 50 Web-to-Print web sites for "national brands with dealers and multiple sales offices; charitable organization, associations and member organizations." Custom Print Now is structured with ordering categories such as "static inventory, customized collateral, customized personalized direct mail and customized electronic delivery." Another Web-to-Print solutions company, R and R Images is in the beta testing stage and they have already acquired 300-500 total users, one of which has been HP, to use their SmartStream Director Web-to-Print system. (Cagle, 1-3).

Lulu.com is a prime example of a mass-publicized, profitable, variable data publishing web site, which has maintained "over 1.8 million users [since 2002] with more than 12,000 new members a week from more than 80 countries…Lulu's revenue doubled from 2005 to 2006 and [experienced] 86 percent growth from 2006-2007," states public relations director of Lulu.com, Gail Jordan. Lulu.com is essentially a print broker that connects sellers of published works, which comprise 43 percent of the users, with buyers, which comprise 57 percent of the users. Lulu.com allows a prospective author to print their own books from Lulu's website. Then Lulu.com gives the author the opportunity to let Lulu.com host their products at a 20 percent production fee deducted from the client's total revenue. Partnering with Xerox, Lulu.com can offer to print out brochures, magazines, manuals and soft and hard cover books using Xerox iGen3 Digital Production press and Xerox DocuTech 6180 book factory (Jordan, 1-3, 5).

Lulu makes a profit whenever the creator makes a profit, so Lulu.com ensures their client's books are well-publicized and distributed to increase profit on Lulu's end. Using a viral marketing strategy, Lulu.com identifies three means for the seller to distribute his or her published works. First, the client can display it on "Lulu's Marketplace," where over 500,000 "site visitors" or potential buyers check every week. Second, the client can ask Lulu.com to

optimize Google's search engines so that the seller's work can easily be recognized in keyword searches. Third, the seller can run their publicized work through Lulu's sales channels by buying their "Published By You" service. With this purchase, creators are given an "ISBN (universally accepted book identifier)" that enables the creator through the international mainstream through "all major bibliographic feeds." As part of Lulu's "Published By You service their book will automatically be added to Google Book Search database. When a viewer "searches for key words, up pops an excerpt from the book – and a direct link to buy it at Lulu's Marketplace." Major retailers, such as Barnes & Noble, Amazon.com and Borders.com, will also have access to the author's work (Jordan, 4).

However, from a collective print industry standpoint, one study found that printers have not been so adoptive of Web-to-Print, doubting its profitability. For example, Printing Impressions author, Heidi Tolliver-Nigro, asserted in the article that, "Web-to-Print: A Service Provider's Perspective," from Industry Measure magazine, "approximately one-quarter of print providers offer some sort of Web-to-Print solution whether as a static online store for creating customized, personalized documents or for creation and dissemination of advertising...This percentage is nearly unchanged from one year ago, and other indicators, such as planned investment, where only six percent plan to purchase one of these systems in the next 12 months, may be surprising to some (Tolliver-Nigro, 1)."

These statistics show that a majority of printers are hesitating to invest in Web-to-Print systems because their lack of confidence in managing current and future customer demands in order to cover the costs of regular operation. Tolliver-Nigro explains, "A simple e-store front is the easiest Web-to-Print application to get into but also carries the lowest margins." To make up for these low profit margins, printers must sell their Web-to-Print products in high quantities. For

this reason, printers are concerned about meeting a quota of selling high volume orders on a consistent basis just to stay in business. Tolliver-Nigro stresses consistency in both reliable Web-to-Print production equipment and customer demand in order to survive in the marketplace. For example, Tolliver-Nigro explains how there are more "expected costs" to Web-to-Print than what is shown upfront such as investments in "additional servers, more industrial technology (IT), programmers and new sales capabilities (Tolliver-Nigro, 2)." One such Web-to-Print cost is IT maintenance of workflow automation software, which requires an investment in hiring reliable IT specialists to set up their software correctly the first time.

Traditional printers especially, cannot afford to have their workflow automation software malfunction on them because of the time it takes them to identify the problem and call an IT specialist to rectify it they are losing money with opportunity costs. These printers lack the knowledge of anticipating technical problems occurring so they struggle to prevent it.

Since these printers tend to stay within their limited budget, their investment in Web-to-Print equipment is not always the highest quality, which "often locks them into a system without sufficient functionality for long-term growth... .The cost of purchasing, implementing and maintaining complex IT systems is beyond reach of the vast majority of printing," noted Tolliver-Nigro. Printers are left with two options: "purchase the font end web component from a vendor [which] still requires some customization" or select "the in-shop workflow automation piece [which] will likely be completely customized," identified Tolliver Nigro. To avoid dealing with these technical and financial struggles, many printers, "use Web-to-Print venders on the front end rather than investing in an in-house system, according to president of Odyssey Digital Printing, John Roberds. Trend Watch Graphic Arts magazine conducted another study a survey to quantify this trend, stating that 58 percent of digital printers are doing it in-house, while

another 15 percent outsource it," stated Noel Jeffery, author of Graphic Arts Monthly (Jeffery, 1).

Many printers believe they are not as specialized as Web-to-Print vendors and lack the motivation to learn and grow. The disadvantage of printers not programming their own software is that vendors tend to preset assumed standard specifications into the software, limiting the printer to those specifications. Roberds, president of Odyssey Digital Printing, experienced this problem with his vendor, where the vendor assumed that "printers only operate in multiples of 8-1/2" x 11"format. With the exception of my black and white laser printer all of my machines have something other than that. It took me a while, but I got our two Web-to-Print service providers to send me a one-up file with no cut marks and we laid out the file to suit the machine to print it" (Tolliver-Nigro, 3).

Besides tending to preset the dimensions of the paper, Web-to-Print software vendors also limit the level of variability and customization. Roberds recalls, "My business is point-of-purchase [POP]...[Software vendors] set up web sites for their customers to order POP, but soon they start selling ad hoc orders. This means custom POP pieces that are going to be used once, so they don't fit the webbased ordering scheme (Tolliver-Nigro, 3)." This kind of inflexible programming that Web-to-Print vendors use in creating the printer's web site can cause serious inefficiencies in the Web-to-Print workflow production rate, which could ultimately lead in dramatic losses in profit.

In addition, Tolliver-Nigro suggests effective branding is essential to "successfully sell Web-to-Print as anything other than an online store." Customers have to believe they can trust the printer "as a source for brand management and marketing support." Customers need be convinced that they are receiving enough exposure on the printer's web site. Tolliver-Nigro points out,

"Currently, very few customers see printer's this way [as marketing partners]. Printers must adapt to all of these necessary technological transitions for Web-to-Print selling sustain profitability in the long-term to satisfy the needs of their long-term customers (Tolliver-Nigro, 4)." If a printer immensely desires to penetrate through new markets and rise above their competition and customer demands, then they ought to become a marketing service provider (MSP), which Tom Quinn, Printing Impressions author, defines as "when [a MSP] provides additional services to a marketing department and procures that business from someone in the marketing organization other than the print buyer." Quinn really integrates marketing strategies from both personalized direct mail and web to print in cohesive five-step process to become a MSP: "1) Add mailing services 2) Add variable data printing equipment 3) Add fulfillment services 4) Add related marketing services 5) Add creative services (Quinn, 1)."

The first step is adding mailing services, which is often considered the easiest step for printers because printers see it as "an extension of bindery functions" and mailing equipment should be placed near the bindery so that printers can easily access the mailing equipment for sorting and preparing the mail. Despite the fact that printers are sometimes hesitant to provide add mailing services for customers because frequently their extra revenue is less than $1000, printers can systematically organize data into "records," which comes in handy for VDP jobs. The second step is to add VDP equipment and Web-to-Print services, both of which are meant to "elevate the printer's usefulness to marketing departments and allows the printer to provide support in one of the basic fulfillment applications: lead inquiry fulfillment." The third step is to add fulfillment services, which Quinn, noted is more than just assembling kits and shipping to multiple locations...The real goal...is to establish fulfillment programs with clients. These programs require the management of inventory for one or more years and a purchase of a fulfillment operating system." By implementing this system, printers are able to review their service

business model and see in what ways they can gain competitive advantage from it. Quinn explains, "Mastering this function will provide the organization with necessary sales and marketing services to move forward with additional services." The fourth step is adding related marketing services by "offering e-mail blasts, PURLs [Personalized Uniform Resource Locator], and associated landing pages" for "providing valuable feedback metrics" and improving their prospecting skills. The fifth step is adding creative services through approaching "a market from a direct marketing creative standpoint, which is done by "partnering with existing clients" (Quinn, 1-3).

In summary, through creative marketing methods, digital printers, personalized direct mail, and Web-to-Print, have radically increased their customer response rates of their printed products. In doing so, these printers have radically improved their overall profit. Such examples include: how Interactive Marketing Solutions used automated telephone browsers to select and add high resolution pages of household products to build up a printed catalog that is mailed to the addressee. This process is enabled through a voice recognition program in a test known as the "Toets 9220" test. Within 60 days, 45 percent of the customers ordered a printed catalog. Second, LP Thebault Digital Group refined their digital print databases so much that customers were able to select among the most complex variable options compiled into a detailed product booklet. This database capability landed LP Thebault Digital Group a contract with companies like Oldsmobile in a project called the "Olds Mystery Tour." In this marketing campaign, LP Thebault Digital Group were assigned to market every feature seen in Oldsmobile's mid-size sedan, the 1998 Intrigue. LP Thebault Digital group succeeded and their business grew into a million dollar business. Thirdly, Shoe Carnival, a multi-state discount shoe retail chain, hired Consolidated Graphics to print coupon postcards for their marketing campaign for the purpose of regaining their regular shoppers. Each postcard contained a personalized message, addressing a

specific shopper. The outcome was that within "ten days after the November mail date, 1,220 recipients shopped in the stores," spending on average $55.88. By January, the total number of responsive recipients rose to 2,679, showing a response rate of over 26 percent. Fourth, on the Web-to-Print side, Lulu.com, an on-demand self-publishing website, grew in popularity tremendously by serving customer needs in two ways: as a publisher of the client's books, periodicals, brochures, etc and also as a marketer for the clients, who wish to get discovered globally, by mass-distributing their customer's name across the Internet through Lulu's sales channels. As a result, Lulu.com has attracted over 1.8 million users including 12,000 new members a day out of the 500,000 people who visit the site a day, which translates into doubled revenue for Lulu.com from 2006- 2007. Unfortunately though, one source pointed out that a majority of digital printers have been resistant to accept Web-to-Print in their printing plants due to the extensive direct labor and start-up costs involved to operate such a system.

Once printers overcome the technical complexities, more printers will become adoptive of Web-to-Print and incorporate it into their daily business operations. Printers should only adopt it though if they are in good financial standing in order to cover all the costs. All these sources show that digital printers have taken on the role of a marketer or more formally known as a Marketing Service Provider to raise their degree of customer awareness, response customer rates and ultimately their profits.

Chapter III: Research Methods and Procedures

This study determined how customer-responsive Web-to-Print marketing and production strategies are. The marketing and production of Web-to-Print uses a "pull" strategy. A printer's well-designed marketing and production strategy ensures a continuous supply and demand cycle between the same printer and same customer.

All response rates among all Web-to-Print companies were considered; the customer's response rate to printers' advertisements, the marketing process time and both printers' response rate to the customer's order, the production process time. The production rate was measured in lead times for both media, that is, processing time taken between when the customer responds, by placing the order, to when the production of the order is complete and shipped to the customer. The marketing process time was measured by the quantity of responses the printer receives back from the customer. This time period of turnover between each order, where slight overlaps in production scheduling occurs, determines the efficiency online printers' lead time. With a printer having multiple customized orders in progress, their degree of flexibility to complete the customer's order on time is crucial to maintaining long-term customer relationships. Hence, higher future response rates and return on investment will be experienced for the printer. The more efficient a printer's lead-time becomes, the higher degree of competitive advantage a printer will possess over their competitors. This study will compare the lead of times of some Web-to-Print printers.

The research methods used were elite and specialized interviewing, descriptive research, and content analysis. Using the information gathered from surveys, the information was quantified by frequency of responses. Through elite and specialized interviewing, the results showed a relationship between customer responsiveness and the product and service differentiation that

drives customer responsiveness. Such differentiation considerations included cycle time, processing time, delay time, lead-time, and customer accessibility.

Elite and specialized interviewing deals with applied research, where information is collected from industry experts who have specialized in their field for years. During the interviewing process, the interviewee is treated as a very important person, VIP, where the interviewer acknowledges that the interview would not be made possible without the specific interviewee. Unlike standard interviewing, where the questions are already preset in a list, specialized and elite interviewing offers more open-ended questions that can branch off from original questions as the interview proceeds. It allows the interviewee to take her or his position on the issue at hand and offer suggestions in solving it. In elite and specialized interviewing, the interviewer should take little or no notes during the interview so that the interviewer's full attention is focused on the interviewee without the restrictions of reading solely off of the list of preset questions (Levenson, 22). Answers to the following questions were sought of GotPrint.com, Poor Richards, V3 Corporation, Eagle Press (A Consolidated Company) and Allan Hancock Campus Graphics, during the elite and specialized interview of Web-to-Print companies:

Background questions pertaining to clientele

1) How many hits do you receive on your web site in an average day?

2) Of all the hits you receive on a web site, which represent customers that actually made a purchase?

3) What kinds of marketing strategies (such as search optimization) does your company use to drive customers to your web site for the first time and then gain repeat business?

4) Describe your target market. Who are your most frequent customers?

5) What types of orders would you regard as impossible for your company to produce in-house?

Process timing questions

6) How long does the job submission process take for the customer? What variables impact the submission time?

7) How efficient is the production process? What constraints would your firm identify as slowing down the production process?

8) How long is the average processing time before the product is delivered to the consumer? Lead time? Cycle time?

9) What unique services do you have that differentiates you from your competitors that have improved the response rate of customers?

"Descriptive research is designed to determine the nature of a situation as it exists at the time of study. This aim is to describe, "what exists" with respect to variables or conditions of in a situation," explained Dr. Harvey Levenson. (Levenson, 24) The way in which descriptive research will be used is through surveys. "Surveys gather relatively limited data from a relatively large number of cases," noted Dr. Harvey Levenson. Surveys can be targeted toward two sizes of groups - census or sample. When surveys reach out to a specific population of people, it is known as a census as opposed to examining a segment of a population, which is called a sample. There are four categories of tangibles and intangibles, but the most relevant one to this research is a sample size of intangibles, which involves drawing conclusions about a population based on the results from an accurate sample survey (Levenson, 25). Using descriptive research, the steps needed to market and produce a customer's postcards and business card products from these Web-to-Print firms were followed. Prepress, press and postpress

processing and production times were recorded, and constraints were identified such as how printing equipment capabilities can impact their customer's lead-time.

The following questions were asked in a sample size of in tangibles survey for the audience of 33 Cal Poly University Graphic Communication students.

These questions were distributed electronically through SurveyMonkey. The results were tracked from a report that SurveyMonkey provided after the survey is completed.

1) How often would you respond to personalized direct mail-in orders (catelogs, magazines, periodicals) in a given year?

a) Once a year b) Two to three times a year   c) 4 or more times a year   d) Never

2) How often do you order print from Web-to-Print Companies in a given year?

a) Once a year b) Two to three times a year   c) 4 or more times a year   d) Never

3) If you ordered from an Web-to-Print firm, how long was the response time in weeks before you received your order?

a) Less than one week   b) 1 week   c) 2 weeks   d) 3 or more weeks

4) If you ordered from a personalized direct mail company, how long was the response time before you received your order?

a) Less than one week   b) 1 week   c) 2 weeks   d) 3 or more weeks

5) What types of unique services did the Web-to-Print company provide that made your purchase convenient? (Open-ended)

6) What types of unique services did the VDP personalized direct mail company provide that made your purchase convenient? (Open-ended)

7) What online company or personalized direct mail company would you most likely recommend from your post-purchasing experiences? (open-ended)

Content analysis involves using the results collected from elite and specialized interviewing, descriptive research and then quantifying the data. This is done by converting the content into basic coding units, where content is split up into segments and assigned a score. Then after tallying up each coding unit for each segment of content, the coding units are represented on a correlation matrix (Levenson, 27)

First, the focus was on the marketing process of VDP Web-to-Print and personalized direct mail, through surveying. A survey was sent inquiring the response rate for personalized direct mail and Web-to-Print printers. Since Web-to-Print employs a "pull-marketing" strategy, the customer must be fully aware of the printer's high value associated within their brand to feel compelled to purchase their product off their web site. This calls for heavy web advertisements achieved through search engine optimization.

Search engine optimization is the process of improving the ranking of where the company is placed in the search results to achieve more clicks from relevant customers. This ranking is determined by common key words that the average person would know to type into the search engine. Search engine optimization is one-way online publishers spread brand awareness of benefits they have to offer on their web site. Once an online publisher develop a trusting relationship with the online user, then it is easy for the online printer to lure them in for subsequent purchases. It is a matter of the printer creating a strong first impression within the delivery and then ensuring consistent quality shown in every order thereafter. To ensure an excellent first impression upon delivery, a printer must inspect two things his or her pull production process so that every step flows smoothly and efficiently across the production line

with minimum waste. Any reworks could impact the customer's lead-time in receiving the product. Production workflows were explored from the online processing done by software to the physical production of the printed product.

This data was collected by surveying five Web-to-Print companies across the United States for the following information: output time of most frequently purchased products and the cycle times (that encompass every step within the production process), that also can impact a customer's lead time. This was accomplished through extensive surveying and elite and specialized interviewing of project managers, first-line production managers, and upper management of both types of companies. Web-to-Print project managers were also interviewed to see how they maintain a smooth flow of jobs in progress when transitioning from job to job. The first line digital production managers of both companies that handle the versatility of switching from job-to-job were also interviewed.

With the answers derived from the surveys and interviews, response rate of content values were placed into a matrix for five Web-to-Print companies. The matrix was constructed with a row of Web-to-Print companies. The columns consisted of the following content values: Best selling Web-to-Print product (direct mail postcards and/or business cards), number of advertisements sent out a year on external websites, the number of visitors on their website per week, the number of customer purchases in a week, most popular quantity of product, average production time in hours, ,the average processing time after order is sent, average total production time, total number of production constraints, the cycle time, and the lead time.

Of these content values, number of distributed advertisements on web sites, number of customer purchases per week and lead time, are the most important. The number of distributed advertisements in comparison to number of customer purchases per week showed the degree of

marketing effectiveness a printing company's marketing campaigns is, when it is first exposed to the prospective customers through Internet, to how it impacts the customer enough to make a purchase it. This provided a response rate for both sets of customers from both print companies. The in-progress orders in relation to the printers lead time showed how responsive the printer is to fulfill the order at the customer expected completion date. A histogram was constructed individually for these top three content values to illustrate which companies excel in their marketing and production strategies most successfully. Conclusions were drawn to determine how customer responsive is customer –responsive is Web-to-Print based on the criteria identified in the surveys and interviews.

Chapter IV: Results

Field research was conducted and collected through two methods: surveys and elite and

specialized interviewing. The five printing companies that were interviewed, regarding their

Web-to-Print ordering systems were: GotPrint.com, Poor Richards, Eagle Press (A Consolidated

Company), V3 Corporation, and Allan Hancock Campus Graphics. These companies were asked

to choose between which product type is a better selling product for executing a Web-to-Print

orders for their company: business cards or VDP printed postcards. These same companies were

also asked share their results pertaining to their lower selling product if they have that

information. Both business card and postcards products were compared in terms of marketing

effectiveness, processing efficiency and production efficiency. By tracking these three stages of

the customer's order, it has revealed the ordering cycle of how responsive a customer is to

purchasing the product and in turn, how responsive a company is to fulfilling the customer's

order. By identifying the processing and production constraints among both types of products,

the degree of a company's operational efficiency can be measured. As a net result, cycle times

were evaluated to see if production times were affected by the numbers of constrains among all

Web-to-Print companies. In addition, a survey was sent out to all Cal Poly Graphic

Communication students and of that sample, 33 students responded to the survey to see how

attracted they are to Web-to-Print ordering.

Marketing Effectiveness Among Web-to-Print Companies

Marketing effectiveness is vital to how a Web-to-Print company acquires and maintains their

profitable relationships with a sustainable, purchasing client-base. When interviewing a

relatively new Web-To-Print, GotPrint.com, over-the-phone, results have shown that customers

are well-aware of GotPrint.com's services, despite its new entrance into the Web-to-Print

market. After speaking with Yajaira Gomez, Customer Service Rep at GotPrint.com, out of a million visitors that are drawn to GotPrint.com's website within a week, a half a million of those customers have made purchases to all their print-related products. This would imply that their customer response rate is extremely high and their marketing strategies are deemed very effective. GotPrint.com's largest customers are corporations who demand extremely large volumes of customized business postcards for advertising their business across the US. In fact, GotPrint.com's average quantity is a 25,000 customized postcards. Their main source of publicity is through posting a little over 25 advertisements across Google search engines. They also market through social networking sites such as Facebook, Twitter, MySpace and YouTube.

On a smaller scale, all four other printing companies interviewed did not display any ads on external websites. Rather, all the other four companies used printed advertisements and word of mouth as primary marketing vehicles. For example, Poor Richards advertises through chamber of commerce directories, newsletters, football game programs, and other type of donation type materials. Their advertised audience spans out to a radius of San Luis Obispo, but through word of mouth their target audience can mostly reach out to SLO County customers. Secondly, Allan Hancock Campus Graphics Manager, Gordon Rivera, mentioned that their target audience extends across campus to all the students and staff, advertising with posting posters, fliers, and handbills across campus. As a result, Rivera explained they "gain 3-5 more customers a week by seeing the posters around campus." Like GotPrint.com, Rivera also explained that customers are given the option to upload their own document, or use premade templates where dimensions are already established for the customer. As for the other two printing companies, Eagle Press and V3 corporation, they mostly advertise through word of mouth and their website. Although, these two printing companies modestly claim they do not optimize their website within search engines,

both companies appear within the first few search results on the first page. As one types in the key words, "Eagle Press A Consolidated Company" and "V3 Corporation," individually up pops links to their website.

In addition, since only three of the five companies own an online ordering system, only those three companies were able to share both the total number of visitors and the number of purchasing visitors a week. The two companies that do not own a Web-to-Print ordering system are Eagle Press and V3 Corporation. As an alternative, those three companies allow customers, who wish to submit their order online, to submit through email or a basic online ordering platform (not as sophisticated as modernized Web-to-Print software). As a result, of all five companies, Allan Hancock has the highest purchase customer response rate of 48-95 orders a week out of the 50 to 100 orders placed online, which translates into a 95 percent online order response rate. While, Allan Hancock has the highest response rate percentage, GotPrint.com has by far the highest number of purchasing customers of a half a million of a million customers that visit their website per week, which translates into a 50 percent online order response rate. However, GotPrint.com should be classified in a league of high-end volume-like websites such as VistaPrint.com and Lulu.com. Unfortunately, both of those similar companies were out of reach of communication to compare for this study. Thirdly, Doug Speer stated that their number of unique visitors to Poor Richards website is around 420 a week. Of those 420 visitors, 80-100 were purchasing visitors in total for a week and 10 of those 80-100 visitors purchased business cards. This total purchasing customer ratio amounts to19-25 percent responsive online ordering Poor Richards customers a week. When one compares those business cards online orders to Poor Richard's VDP postcard orders, it is evident that Poor Richards ordering system cannot handle VDP related jobs. For example, almost none of those visitors are allowed to place VDP direct

mail orders, since Speer claims that direct mail web-to print orders bring too many variables into the processing part of the order. As for V3 Corporation and Eagle Press, since they lack a sufficient Web-to-Print ordering system, both managers claim that they have no way to track the total number of purchasing customers from the total number of customers that visited their website. One can imagine though the number of purchasing customers they have obtained by focusing on their visited number of customers. Eagle Press receives 40 visited customers in one day, which is the same amount V3 Corporation receives in a week. So customers are probably more inclined to make purchases online purchases with Eagle Press than with V3 Corporation.

Processing Efficiency Among Web-To-Print Companies

By ensuring that customer orders are production ready prior to submission through an online order system, a Web-to-Print printer can automate the processing process with little intervention and process the order faster for the customer. For example, Got Print's processing efficiency seems very high considering their detailed instructions given to the consumer prior to ordering. GotPrint.com has a standardize Web-to-Print Software program that specifically states and identifies all necessary specifications the customers have to abide by for their order to be accepted and processed as a single digital proof successfully. According to GotPrint.com's website, such specifications include correct file formats (for various creation content platforms), correct resolution ("stating all file formats must have a minimum of 300 dpi, dots per inch"), color mode (CMYK for color artwork and grayscale for black and white artwork) and bleeds of .1'' dimension for business and postcards items. If no errors are found, a proof of the creator's works will be made within 1 business day. However, if any errors are found, the creator will be contacted as soon as the order is received. Fortunately, of a half million purchasing visitors, only 3000 of them submitted corrupt files that cannot be printed, which amounts to less than one

percent of total defective files. A creator can always track the status of their order for such defective files when they sign into their account.

Online ordering accounts are a valuable tracking resource to both the Web-to-Print printer and customer to further ensure correct specifications are consistently met in a standardized fashion. Both Poor Richards and Allan Hancock have accounts available for their customers. Allan Hancock's online system, "PrintShop Pro Web Desk" is a little more advanced in that a customer is able to track the status of their order as well as their order history. Much like a professional Web-to-Print system, Allan Hancock customers can select from a variety of premade templates integrated into their ordering system. Rivera, stated that template-based ordering is a way "Clients types in their information they want on their business cards and our ASP outputs a PDF, which then impose on Fiery RIP [and as a result,]saves time in laying out business cards." However, Rivera explained that despite their more sophisticated ordering system, 50% of their customers still type in the wrong specifications that don't match the design template specifications. Such formatting issues as phone numbers separated by commas instead of dashes leads to manual retouching by their designers. As discussed later, this waste will contribute to 4 percent of total wasted production time to complete every order or 8 minutes for business cards.

In comparison, Poor Richards, also noted that defective files are a large processing constraint within their ordering system, specifically files with low resolution. This processing constraint might be in part to there are only two only requires two fields for the type into before moving on. However, as soon as Poor Richards receives a low-resolution file such a business card file, an automatic preflight report that identifies errors in the file will be emailed back to the consumer for correction. "Otherwise missing fonts, graphics and links are not a concern since Poor

Richards will create a PDF of the customer file," explains Speer. "[However], our systems require about 20-25 minutes of time for order entry, processing and invoicing." V3 Corporation and Eagle Press are the two companies that do not possess an online ordering system, so orders are submitted through account executives' email addresses. This kind of freedom to submit orders without structured instructions or fields, gives the customer complete freedom to submit defective files. V3 Corporation, stated that fixing these defective files in both business card orders and direct mail order partially contributes to 50 percent of the business card's entire order's wasted time.

Overall, after reviewing all the interview results, the processing and production constraints were compiled into Production Constraint Matrix as seen in Figure 2. Referring to Figure 2 for processing constraints, the companies with the least number of processing constraints are GotPrint and Poor Richards. In contrast, the company with the most amount of processing constraints is V3 corporation. This result is most likely due to the fact that both companies, GotPrint and Poor Richards, have an online ordering system capable to detect faulty files within the system and automatically email it back to the customer. One would assume that with the absence of an online ordering system for printing companies more customer mistakes in specifications and longer waiting time for proofing would occur. The rationale behind this connection is that when there is no structure in online ordering is established for the customer, there is little or no directions for the customer to follow in how their files should be submitted, which would increase the chances of having the printing company either fixing the files themselves or sending them back to the customer to fix. However, only one of the two companies, that do not own have an established online ordering system, e.g. V3 Corporation, listed all three constraints as a processing constraints. On the other hand, Allan Hancock still

found themselves fixing half of customer specifications orders (specifically info typed by the customer within customer template cards) and waiting time. Rivera explained this waiting time is spent obtaining authorization from Campus Graphics administration, which has to proof-read each order to approve each submitted order. Although, fixing customer specs for Hancock were more minute than V3 Corporation in that most of Allan Hancock's customers followed major directions for included information in specifications and their concern lies in resolving the small formatting issues. In contrast, considering since V3 Corporation received more detailed specs from the customer than Allan Hancock's customers, proof-reading those specs took a larger amount of time.

Production Efficiency Among Web-To-Print Companies

Unlike processing efficiency where orders from all products can be compared as a lump sum, production efficiency differs tremendously especially if comparing products printed on two different presses- a four color digital press for VDP postcards orders and a four color sheet-fed offset for the business card orders. Therefore, to standardize the production process, orders of like-products from the Web-to-Print companies were compared to one another. The business card products were compared from such companies as Poor Richards, V3 Corporation and Allan Hancock. The VDP direct mail postcard products were compared from such companies as GotPrint.com, V3 Corporation, Poor Richards and Eagle Press.

Within the execution of the postcard order, GotPrint.com has an extremely high customer response rate for their VDP postcards, cranking out 25,000 postcards within five hours of total production time, inclusive of prepress, press and postpress work. Unfortunately, GotPrint.com was not able to disclose their breakdown of individual production times. However, among the

other three companies printing postcards were able to disclose the individual production process breakdowns. Referring to Figure 4, it is evident that the most time in production is allocated to digital press time among all three companies printing postcards. Eagle Press spent the most time (two and a half hours) in producing the 300 postcards in press than any other company whose average postcard quantity was about 2000. Ian Redmond implied that this delay was due mostly to his digital presses' low output capacity of running 1800 postcards per hour with 100% uptime, since their "digital press can handle 3,600 impressions per hour." V3 corporation spent the most time (two hours) in cutting, inspection and packaging the order compared to Eagle Press who takes 1 hour in for 300 postcards and Poor Richards who takes half an hour for 2000 to 3000 postcards. As for prepress, V3 Corporation and Poor Richards tied in the time taken to prepare the files for press with relatively the same quantity of postcards. David Ballentyne implies their prepress stage is lagging because of "bad files and incomplete mailing list" due to human error and Speer implies this production constraint is because of mechanical error due to outdated software and hardware equipment. In addition, both Eagle Press and V3 attribute 50% of their total production time for postcards to waste in all of the three stages of production. So Eagle Press took the longest time to produce 300 postcards but half of that time is wasted upon not running their digital press up to full capacity.

Secondly, referring to Figure 3, for production times for business cards, it is evident that V3 Corporation spent the most time in prepress to print 2000 business cards compared to the same exact quantity printed by V3 Corporation, which is probably due to not having an online ordering system that can catch prepress errors before their submitted to prepress. Allan Hancock on average, has spent the roughly twice as long operating the press work (2 hours), compared to one hour from Poor Richards and V3 Corporation, which is most likely attributed to paper jams

caused from running through an offset press. However, also note that when V3 Corporation receives specialty jobs (request for PMS colors) their production time for press can take as long as five hours The most bottlenecking occurred probably at cutting, inspection and package whose production constraints corresponds to "manual finishing processes" in the Production constraint matrix. The two of the three companies for business cards who claimed they faced the most production delay in manual finishing processes are V3 Corporation and Allan Hancock. Both of which spent a half an hour working in the manual finishing processes compared to Poor Richards who completed postpress operations within 20-25 minutes. Overall, Allan Hancock has the longest running total production time of five hours, but they also the most time spent in production waste of two hours. In contrast, Poor Richards spends three hours to produce the same job with only thirty-five minutes waste.

Cycle Time and Lead Time Results

The lead time is a deadline requirement made by the customer. Keeping that deadline in mind, a printer will either attempt to match that lead time or beat it with their actual time to ensure customer satisfaction. The actual elapsed time for product to get produced is called the cycle time. This cycle time is inclusive of all the production processes (and constraints) subsets needed to be executed for order to be completed. For this study, the production processes include processing and manufacturing (prepress, press and postpress) operations as well as the delays in between each process.

The only company able to complete the product before the customer's required deadline (lead time) was V3 Corporation, where their cycle was three days and lead time was six days for both business card and postcard products. On the contrary, the other four companies match their cycle

with lead time. The cycle time seems to increase with the number of production constraints throughout the process for almost all printing companies printing both postcards and business cards. With one production constraint, Got Print can complete an order in 2-5 days, with 2 constraints Poor Richards can complete the order in 2 days, and Allan Hancock can complete an order with four production constraints within 1 business week. Poor Richards' manager, Speer, stated that their cycle time for both business cards and postcards takes an average of 5 days because online proofing for business cards takes one day. Otherwise, for business cards it would be 4 days if online processing wasn't present.

In order to eliminate their production constraints and thereby increase productivity levels, companies were asked to share their future improvement strategies to increase their response rate to their customers' orders. For example, Since Got Print can complete an order in 2-5 days, but takes three more additional days to deliver the order. GotPrint.com plans to add more facilities across the US to improve their delivery time. This regional marketing strategy demonstrates that GotPrint.com is still expanding business remote to the customer's residence to deliver their products quicker from GotPrint.com's nearest facility. Poor Richards' plan to improve their cycle time by "purchasing three new pieces of equipments: a two color press with separate blanket cylinder to improve registration and trapping, collator stitcher [to improve postpress time] and I-Gen to handle complex VDP jobs." V3 Corporation plans to develop their own Web-to-Print ordering system that can handle VDP orders. Eagle Press President, Ian Redmond, plans to "automate the pack and shipping process so that it is done at the same time as final postpress process."

Graphic Communication Student Survey Results

Survey results have shown that Cal Poly Graphic Communication students are very aware of Web-to-Print companies' services. In fact, in a sample of 33, 28.1 percent of the 32 students who answered, Cal Poly Students order at least once a year from their favorite Web-to-Print company. This is equivalent to saying 9 out of every 32 student will place a Web-to-Print order once a year. On a broader scale, 14 or 43 percent of students will place an order at least once to 4 times or more a year. In addition, 10 of these students identified a unique service provided by their Web-to-Print that they most value when they make a purchase. Referring to Figure 5, these services were categorized and ranked by frequency of unique Web-to-Print services. Note that these all these tally marks do not equal ten students since some students listed more than one unique service. As a result, "Customization" and "Fast Turn around Time" were ranked the highest among 10 Cal Poly students, each of which was cited four times. Lastly, pertaining to turnaround time, 31.3 percent of 16 sampled Cal Poly students stated that Web-to-Print Company were able to produce their product within less than one week from the time it was ordered. On a larger scale, 68.8 percent of 16 sampled Cal Poly students stated that they were able to receive their order in a week or less.

Chapter V: Conclusion

This study was designed to find out if customer responses to a Web-to-Print company are within the scope of a customer's entire ordering cycle (from the time the order is sent to the time the order is completed). The Web-to-Print companies' customer responsiveness was measured in terms of marketing effectiveness and operational efficiency, that is, how efficient a printer's operations are through all processing and production constraints involved in completing the customer's order. This study has shown that the lesser amount of constraints these Web-to-Print companies have to deal with, the more efficient they can be and ultimately, the faster their cycle times can become.

There are three levels of sophistication identified for online ordering systems among these five printing companies: Web-to-Print, e.g. GotPrint.com, basic online ordering platform (e.g. Allan Hancock and Poor Richards) and emailing ordering (V3 Corporation and Eagle Press). The trend is seen as the higher the level sophisticated online ordering system, the less time spent in processing the order.

With this online ordering structure in mind, the processing efficiency of these company's websites are also highly dependent on two factors: printer's online ordering system capabilities and the number of customer specification errors found by company's ordering system. As a solution, the more technical the company's online ordering system's interface is with the customer, less errors are permitted to occur. Poor Richard's only has two required fields for the customer to fill out on their website while GotPrint.com anticipates every specification field the customer needs to fill out before it is ready to be submitted for processing. This technical

guidance eliminates a majority of errors that would normally be made by the customer if they were to freely type in specification themselves. V3 Corporation who lacks an ordering system like this, admitted that 50 percent of their order's total wasted time is attributed to fixing files in prepress as well as in press and postpress. As a result, V3 Corporation identified their main three constraints as lacking of online ordering, fixing customer specifications and wait time spent proofing. These three constraints are interconnected in that without an online ordering system to correct specifications for the company, they will manually have to correct these errors, which decelerate the order fulfillment time. Template cards provided by the Web-to-Print companies have a tremendous impact on decreasing the time spent on fixing major specification errors.

Word of mouth and printed marketing can be deemed just as effective as search engine optimization marketing for printers to advertise Web-to-Print services. For instance, Allan Hancock Campus Graphics was able to obtain the highest percentage of purchasing visitors out of all the visitors than any other Web-to-Print company. This result shows these customers were convinced they found the product they needed right away on Allan Hancock's website since this company has given a user manual posted on their website. This company listed very explicit instructions of how to navigate through the ordering system with a online user guide to familiar visitors with their Web-to-Print system. Customers are also more responsive to companies that give them more options to select from once the customer arrives at the website. Both GotPrint.com and Allan Hancock College uses a variety-based positioning strategy that enables buyers to select from options of uploading their own documents or premade templates.

From a customer's perspective, the most desired attributes for Web-to-Print orders are fast turnaround time and/or customization characteristics from Web-to-Print companies, which the

Cal Poly Survey has demonstrated. These characteristics are usually trade-offs considering

customization options require more time to produce. V3 Corporation, stated that if such

additional features as a PMS color, die-cutting,and foil embossing is added to the business card

order, usually it will take two hours longer compared to a three hour job.

The production efficiency for the companies printed postcards are highly impacted by the total

press time than the time spent in the other two operations (prepress and postpress).   As a whole

though, between three out of the five companies printing both business cards and direct mail

postcards products, the finishing process seemed to be the biggest production constraints in time

for the customer's entire order. This exemplifies that most bottlenecking in production was

located downstream of the company's value chain within finishing processes since each finishing

process for every company was done separately and not at the same time.

In reviewing the production time waste amongst the online ordering companies, the data shows

that the most waste was contributed by the companies who had the most constraints, which turns

out to be V3 Corporation. Most of their constraints though occur during processing so they must

make up for their processing. This would explain the reason V3 corporation's cycle time is only

three days for both product orders. A customer requests a business or postcard order to be done

in six days and they can complete it within three days. This result proves to be a huge

competitive advantage for V3 Corporation. The efficiency of their equipment also contributes to

the company's cycle time. For example, Allan Hancock has the longest cycle time and GotPrint

has relatively the shortest cycle time. Their companies probably have more space for more

equipment and more trained people to run the company. The company's target audience also has

an impact of when the customer would request their order to be due (lead time). Corporate

customers of GotPrint.com are more likely expect their order to be due faster than local business customers of Poor Richards than local college students (of Allan Hancock) so companies allow more time based on their audience.

Indeed, every company interviewed mentioned significant production constraints that have slowed down their production rate. Between all these companies, it is evident that there is a wide spectrum of operational efficiency. In order to decrease that gap of operational efficiency, all Web-to-Print printers interviewed stated that are willing to adopt the Web-to-Print software technology if they haven't already, which is an essential marketing strategy to rise above competitors. Web-to-Print services offer both marketing tools for tracking the number of purchasing visitors for a specific product and at the same time automating the processing for printers to speed up their cycle time for the customer.

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Appendix A

Web-to-Print Company: GotPrint.com, Customer Services Rep, Yajaira Gomez

1) How many ads are posted on external websites?
   Answer: 25 + through Google search engines

2) How many hits does GotPrint.com receive on their website in an average week?
   Answer: A Million

3) Of all the hits Got Print receives on a website for a week, how many represent customers that actually made a purchase for all printed direct mail orders?
   Answer: Half a million

4) What is the most popular direct mail printed product and quantity?
   Answer: A million customized business postcards

5) What is your company's average total production time for that printed job?
   Answer: 5 hours

6) What is your company's average lead time for that printed job?
   Answer: 2-5 days (5 days if it is coated on 14 point cover stock and spot colors are used). Not include shipping.

7) What is your company's average Cycle time for that printed job?
   Answer: 2-5 days (2-5 days in house + 3 days shipping)

8) Please identify any production constraints that would slow down production?
   Answer: Corrupted uploaded files. We get about 3000 of these kinds files per week.

9) In what ways can you see you company improving to increase your response rate to the customers orders?
   Answer: Add more facilities across the US.

Appendix B

Web-to-Print Company Poor Richards, Assistant Manager, Doug Speer

1) How many ads are posted on external websites?
Answer: 0

How do customers hear about Poor Richards?
Answer: We advertise through chamber of commerce directories, newsletters, football game programs and other donation type materials. Most customers know us through word of mouth and our website.

2) How many hits do you receive on your web site in an average week?

420 unique visitors per week.

3) In total, what is your average production time in hours (including prepress, platemaking, cutting, inspection and packaging and excluding delivery) for:

   a) 2000-3000 VDP postcards – 4 hours

   b) 2000 business cards - 3 hours

4) What is the breakdown for production time spent for postcards? So for VDP postcards:

   a) Prepress   1.5 hours (setting up variable fields, proofing, etc)
   b) Press   2
   c) Cutting, inspection and packaging.   0.5   Total utilized time = 4 hours

5) What are biggest forms of waste you identify that have a significant impact in slowing down production time and why?

   a) For VDP postcards- Software and hardware. We need to upgrade our existing equipment to better serve this market

   b) Business cards- Order processing. Our systems require about 20-25 minutes of time for order entry, processing, and invoicing.

6) What is the average lead and cycle time for 2000-3000 VDP postcards?

   5 days in the shop

7) Of all the hits Poor Richards receives on a website for a day, how many represent customers that actually made a purchase for all business card orders? For all direct mail orders?
Of all 80-100 biz card orders received a week, 10 are online orders
Of all 5-10 direct mail orders received a week, 0 are online orders. It is rare too fulfill online direct mail orders since there are too many variables involved.

8) What's the most popular direct mail printed product and quantity? How about for business cards?
 Answer: For direct mail: 2000-3000 postcards
          For business cards: 2000 business cards

9) What is your company's average total production time for those business cards?

        Press time is 5 minutes (for 2000 business cards on 150 sheets through a 4-process color press).

        Platemaking is 8 minutes (for 4 plates)

        Cutting, inspection, packaging is together 20-25 minutes

        Total production time is 33 to 38 minutes through all departments.

10) What is your company's average lead time for those business cards?

Answer: The lead is the same as their cycle time.

11) What is your company's average Cycle time for those business cards?

4 days cycle time which otherwise would take 5 days to be produced since their online ordering system asks for proof approval before it is printed.

Otherwise, the customer submits the order in person to prepress, then prepress calls the customer to for proof approval and then it is sent back to prepress for production. Online ordering eliminates one day off the production time.

For direct mail pieces, 15-20 minutes is added on top

12) Please identify any production constraints that would slow down production for ordering online?

Low resolution files. Once a customer submits a file that contains a low resolution picture, Poor Richard's website immediately identifies it in their computer system and will send a preflight report of the errors in the file back to the customer automatically. Waiting for the customer to respond back to print it takes time. Otherwise, missing fonts, graphics and links are not a concern since Poor Richards will create a PDF of the customer's file.

13) In what ways can you see you company improving to increase your response rate to the customers orders?

    Answer: Purchasing three new pieces of equipment to handle customer's specialized jobs.

        1) 2-color press with a separate blanket cylinder to improve registration and trapping

        2) Collator stitcher

        3) I-Gen to handle complex VDP jobs.

Eagle Press, (A consolidated company), President Ian Redmond,

1) How many hits or visitors does Eagle Press receive on their website in an average week? Eagle-press.com receives around 40 unique visits a day.

2) Of all the hits Eagle Press receives on a website for a day, how many represent customers that actually made a purchase for all printed direct mail orders in an average week? Eagle Press does not have its own Web-to-Print website. We sell personalized branded websites to our clients that allow them to login to their own website that we have built for them. These sites allow them to order everything from fulfillment items to variable direct mail pieces. I have never tracked the traffic on these sites.

3) What is the most popular direct mail printed product and quantity for that printed product? Our most popular direct mail printed product is postcards. Our average postcard order is around 300 cards.

4) How many impressions per hour can your digital press handle for that printed direct mail product? Our digital press can handle 3,600 impressions per hour. The postcards print 4-up on the sheet and are double sided. That means that for every 2 impressions we get 4 cards. Our maximum output ability would be 1,800 cards per hour running with 100% uptime.

5) How much time is allocated throughout every department of the printing facility for a direct mail printed job (From prepress to press to postpress to packaging/shipping/fulfillment?)
Prepress: .25 hours, digital press (see above for print rates),
cutting: varies depending on qty (assumes 115 cuts/hr & 4" lifts),
packaging/shipping/fulfillment: roughly 1.5 minutes a carton.

6) What is the average cycle and lead time (from the time the order is submitted online to the time the order is delivered back to the customer) for that printed job? 72 hours

7) What are some production constraints that would slow down production in any department for direct mail? Heavy increases in order volume that creates a longer than usual backlog on the press, down press time due to technical or quality issues.

8) How could you improve the production rate for that direct mail product? Automate the packing & shipping process so that it is done at the same time as the final postpress process.

Appendex D

Web-to-Print Company: Allan Hancock College, General Manager, Gordon Rivera

Part I Questions

1) How many ads do you post on external websites?
Answer: 0

2) How many hits do you receive on your web site in an average day?
Answer: 50-100

3) Of all the hits you receive on a web site, how many represent customers that actually made a purchase for customized business cards?
Answer: 95%

4) How many customers purchases do you obtain in a week for business cards ordered online?
Answer: 5 customers per week average

5) **What are your company's average processing time for 2000 business cards after the customer's order is sent?**
Answer: One week.

7) **How many production constraints does your company encounter on an offset press on a daily basis? Please identify the main constraints if applicable.**
Answer: We print our mission statement via offset on a 110# Uncoated Cover stock then run those through for variable info for each BC order. The stock is at the top threshold of acceptable stock, if we did not have the machine we have which has a relatively straight throughput we could not offer our clients the thickness of their BC's that they desire.

8) **What are your company's average cycle time for 2000 business cards on a offset press?**
     Answer: 2 weeks

9) What unique services do you have that differentiates you from your competitors and in turn, have improved your response rate of customers?
Answer: We offer template based ordering system, the client types in their information they want on the BC and our ASP outputs a PDF which we then impose on our Fiery RIP, saves design time in laying out BC's.

Part II: Question

1) Would you say you have gained a significant amount of customers by advertising through printed materials? (e.g. could be on-campus fliers, newsletters, class schedules or even outside materials)
     a) If so, what types of printed advertising? Posters, fliers, handbills

     b) If so, how many more customers per week would you say you gain through this kind of advertising? Around 3-5 customers per week respond by seeing the posters around campus

2) In total, what is your average production time in hours (including prepress, platemaking, cutting, inspection and packaging and excluding delivery) 2000 business cards? You said 5 hours. Are you still standing by that answer? Yes if not less.

3) What is the breakdown for production time spent for 2000 business cards?

a) Prepress   15 minutes
b) Platemaking   25 minutes
c) Press   2 hours
d) Cutting, inspection and packaging 0.5 hours

4) What are biggest forms of waste you identify that have a significant impact in slowing down production time for ordering 2000 business cards online and why? Consider the following:

NOTE:
a) This could be proximity issues (e.g. distance from prepress office to press to cutter = motion waste) If so, how much time in motion waste? None here

b) Physical waste- (e.g. makeready needed to get the press sheets quality up to standard/ Defects in pres sheets) If so, how much time spent in reprinting sheets? Yes some because we have to print masters on press with our mission statement.

c) Wait time between each process (For example, ripping issues can make production time take extremely longer than usual and frequency of these issues) If so, how much waste time on average? The biggest waste of time we have is having to get authorization from the administration who proof reads each card submitted to our operation. Also in pre-prepress time because half of our template cards have erroneous information typed in by the customer.

d) Inventory (The time it takes to turn over a quantity inventory held in inks, paper, etc before it's turned over for productions) none

e) Processing the order (Do you have a standardized e-biz platform that eliminates wasted time taken to type each individual piece of info manually for each order? How much wasted time goes into processing? This is supposed to, but as mentioned in #3 around 50% of customers type in wrong info- or don't match the required template design specs- i.e. for phone number the numbers need to be separated by a comma not a dash, so we have to fix a lot of those.

1) Physical waste less than 1% of substrate in makeready on press
2) Wait time 95% because of the proofing process that admin requires
3) Processing 4% because of half of all orders need to be touched by our designers.

So out of the 5 hours of total production time you noted, 3 hours were allocated as actual productive hours amongst all the departments (or so it seems). So where did the other 2 hours go? Are those hours wasted or utilized? Those two other hours are wasted.

Appendix E

Web-to-Print: V3 Corporation, Account Executive, David Ballentyne

1) How many advertisement mail-in orders does your company send out to customers?
Answer: Zero, Most of our customers contacts us by phone to place an order.

How do customers hear about V3 Corporation?
Answer: Word of mouth, our website.

2) How many customer orders do you receive in an average week?
Answer: 40 per week

3) What is the most popular direct mail printed product and quantity for that printed product? Answer:
10,000 postcards; 2000 business cards.

4) What are some production constraints that would slow down production in?
Answer: Detailed specifications. We have to follow up to make sure we get all the correct specs to the customer,
which takes time.

5) What current services does V3 Corporation offer that differentiates them from competitors?
Answer: The data side in making printed pages, mailing them and analyzing the data.

6) In what areas can you see V3 Corporation improving and striving to do in the future with online ordering?
Developing an actual web-to-print ordering system since customers currently send their orders through email. Also,
uniform multisource VDP campaigns, including personalized websites (PURLs), and printed marketing collateral.

<u>Business Card Questions</u>
7) What is average on-press production time for that printed job?
   5 hours if the job is complicated and requires PMS colors, foil embossing, die-cutting.

8) What is the average lead time for that printed job?
   6 working days

9) What is the average cycle time for that printed job?
   3 working days

**7) As an order sent through email, what forms of waste you identify that would slow down production time
for ordering 2000 business cards (e.g. physical waste – makeready/defects, motion waste, waiting time).** Bad
files, working with the customer on bad files, poor job instructions and communication

8) By how much time would be wasted by these forms of waste during the entire execution of the order? 50%

9) What is the breakdown for production time spent for 2000 business cards? (NON-AUTOMATED)

    a) Prepress   1.0

    b) Platemaking   .5

    c) Press   1.0

    d) Cutting, inspection and packaging.   .5   Total utilized time= 3 hours out of 5 hours

Direct Mail Postcard Questions

10) What is average on-press production time for that printed job?
Less than an hour if we run it 4-up on 2500 sheets of postcards on a 4 color Indigo press. For the business cards, 1 to 5 hours, 5 hours if the job is complicated and requires PMS colors, foil embossing, die-cutting.

11) What is the average lead time for that printed job?
6 working days for 2000 business cards printed on their more efficient offset press
(Lead time usually take twice as long as cycle time) – comp adv

12) What is the average cycle time for that printed job?
3 working days for 2000 business cards printed on their most

13) As an order sent through email, what forms of waste you identify that would slow down production time for ordering 2000-3000 postcards (e.g. physical waste – makeready/defects, motion waste, waiting time, processing time, etc) GENERALLY BAD FILES, IMCOMPLETE MAILING LIST

14) By how much time would be wasted by these forms of waste during the entire execution of the order? 50%

15) What is the breakdown for production time spent for 2000-3000 direct mail postcards:

    a) Prepress   1.5hours

    d) Press   1.0

    d) Cutting, inspection and packaging. 2.0   Total utilized time= 3.5 hours

Cal Poly Graphic Communication Student Survey   *Total Responses: 33*

1) How often do you order print from Web-to-Print companies in a given year?

	% Response	Response Count	
a) Once a year	28.1%	9	
b) Two to three times a year	12.5%	4	
c) 4 or more times a year	3.1%	1	
d) Never	56.3%	18	**Answered Question: 32**

2) If you ordered from a Web-to-Print firm, how long was your response time in two weeks before you received your order?

	% Response	Response Count	
a) Less than a week	31.3%	5	
b) One week	37.5%	6	
c) Two weeks	23.5%	4	
d) 3 or more weeks	0.0%	0	**Answered Question: 16**

3) What types of unique services did the Web-to-Print company provide that made your purchase convenient (e.g.fast delivery times, customer warranty, customization options). Please briefly describe your experience.

1. I don't respond to advertisements
2. Customization, plastic business cards, high quality
3. Lower cost
4. Really fast turn around time, free UV and spot coating
5. Fast customized prints
6. None, I did not purchase Web-to-Print. What is Web-to-Print anyway?
7. Personalized business cards
8. Quick delivery and custom orders. I was able to get what I wanted quickly and easily.
9. Fast delivery times
10. Prices and the convenience of not having to leave my home   **Answered Question: 10**

5) What Web-to-Print company or personalized direct mail company would you most likely recommend from your post-purchasing experiences and why?

1) PrintPlace and Plastic Business Cards
2) Moo.com- cool site and fun, inexpensive, high quality products. Low variety of items to choose from though.
3) I used Overnightprints.com and they do a really good job every time. I don't know how they company to other similar companies
4) Ehh…Vista Print is good. It's the only one I know off the top of my head.
5) Lulu.com
6) I have only used VistaPrint, but I would probably not recommend it to non-print savvy people because they try to oversell. If you don't read their menus carefully it is easy to buy things you

Table 1: Content Value Matrix

	Best Selling Web-to-Print Product	# of ads sent out a yr. on external websites	# of visitors on website per week	# of purchasing visitors per week	Most popular quantity of product	Avg production Time in hours	Total # of production constraints for online orders	Lead Time	Cycle Time
Got Print.com	Direct Mail Postcards (Digital)	25 (+)	1,000,000 (total)	500,000 total online orders	25,000	5 hours (w/waste N/A)	1	2-5 days	2-5 days
Poor Richards	Business cards (offset)	0	420 per week (total)	10 b-card out of 80 to 100 total online orders	2000	3 hours	2	5 days	5 days
	Direct mail	0	420 per week (total)	0 out of 5-10	2000-3000	4 hours	4	5 days	5 days
Eagle Press	Direct Mail Postcards (Digital)	0	40 per day (total)	N/A	300	4.5 hours	4	72 hrs	72 hrs
V3 Inc,	Direct Mail Postcards (Digital)	0	40 per week (total)	N/A	10,000	3.5 hours (w/50% waste)	5	6 days	3 days
	Business Cards (Offset)	0	40 per week (total)	N/A	2,000	3 hours (50% waste)	5	6 days	3days
Allen Hancock	Business cards (offset)	0	50-100 per week (total)	5 b-cards out of 48-95 total online orders	2000	5 hours (w/40% hours waste)	4	1 week	1week

Table 2: Production Constraint Matrix

	Processing Constraints					Production Constraints				
	Low res files	Corrupt files (e.g. missing links)	Online Ordering systems not est.	Fixing customer specs	Wait Time spent Proofing	Under-capacity	Down Press time	Registration/ Trapping Issues	Paper Jams	Manual Finishing Processes
GotPrint		•								
Poor Richards	•							•		
Eagle Press			•			•	•			•
V3 Inc.		•	•	•	•					•
Allan Hancock				•	•				•	•

Table 3: Production Times for Business Cards

	Poor Richards	V3 Inc.	Allan Hancock
Prepress	0.5 hrs	1.0 hrs	15 min.
Platemaking	0.5 hrs.	0.5 hrs	25 min.
Press	1 hr.	1 hrs	2 hrs
Cutting, inspection, & packaging	20-25 min.	0.5 hrs	0.5 hrs
Wasted time	35 min	50%	2 hrs. (40%)
Total Time	3 hrs.	3 hrs.	5 hrs.

Table 4: Production Times for VDP Postcards

	GotPrint.com	V3 Inc.	Poor Richards	Eagle Press
Prepress	N/A	1.5 hrs	1.5 hrs.	0.25 hours
Press	N/A	1.0 hrs.	2 hrs.	2.5 hours
Cutting, inspection, & packaging	N/A	2.0 hrs.	.5 hrs.	1
Wasted Time	N/A	50%	N/A	50%
Total Time	5 hrs	3.5 hrs.	4 hrs.	4.5 hrs.

Table 5: Cal Poly Students Most Valued Web-to-Print Services

No response to Web-to-Print	Added Value Services	Customization	High Quality	Price	Fast Turnaround Time
11	11	1111	1	1	1111