

Case Series

Greenerprinter

Achieving long-term sustainability in the printing industry

In 2001, Mario Assadi, the owner of Tulip Graphics, an offset printing and prepress shop, was faced with a decision. His children were growing up in a world that seemed headed for environmental catastrophe. And as the owner of a business that used toxic chemicals in an industry that chopped down thousands of trees each year, he felt like he was part of the problem. He wanted his company to become more environmentally friendly, but wasn't sure if his business could survive the added costs of "going green." Printing is a competitive industry, and Assadi knew that his business couldn't succeed if going green meant dramatically increasing the company's prices. Nonetheless, he decided it was important enough to try.

Fast forward to 2009. Assadi and his team had proven they could in fact run a green printing company and still offer competitive prices. Over eight years, they had switched to eco-friendly raw materials, made their building more energy efficient, earned several green certifications, and implemented lean manufacturing processes to minimize waste. They had secured a solid base of customers, many of whom required certified green printing services. And they had launched Greenerprinter, the first online print provider to offer recycled paper and green printing exclusively. Things had gone well. While the 2008-2009 recession had taken its toll, Greenerprinter was on a solid footing.

Then, in January 2010, Assadi again found himself contemplating a decision about his company's future. Greenerprinter had found success with the green market, which was willing to absorb slightly higher costs for recycled paper, certifications, etc. However, the market share for green printing was still relatively small. It would be difficult to grow significantly larger, especially during a recession that made the

This case was written by graduate student Ashley Kayler and Professor Morten T. Hansen, at the School of Information, University of California, Berkeley. It is based on field interviews with executives at Greenerprinter from October 5, 2009, to April 18, 2010. It is intended to be used as a basis for class discussion rather than to illustrate either the effective or the ineffective handling of an administrative situation.

average consumer less likely to pay a premium for green products. Assadi knew that in order to grow, Greenerprinter would have to go “beyond green”—staying green, but competing first and foremost on price, and lowering costs still further. Since being green carries unavoidable extra costs, going beyond green would require finding ways to lower costs in other areas. The benefit, of course, would be that a price competitive position would attract a larger market and make it easier to compete in a recession, when customers were more price sensitive.

Background

Mario Assadi graduated with a degree in Engineering from San Jose State University in 1985. A few years later, he decided to get involved in the prepress industry during the very early stages of desktop publishing. In 1988, he founded Tulip Graphics, in Berkeley, California, a prepress shop using mostly Macintosh computers with Adobe software. His business grew in the late 80's and early 90's in pace with the growth of the desktop-publishing industry. The mid 90's saw the development of new digital printing technologies and, in an attempt to stay ahead of the industry, Assadi jumped into digital printing. It was 1997, still very early in the digital printing revolution, and his timing was not great. Early digital presses were unable to match the quality that customers had come to expect of offset presses. In addition, digital presses were not efficient for medium or long run print jobs, and Assadi found himself on the bleeding edge of the digital printing revolution.

On September 10, 2001, Assadi decided to add offset printing services to his business. This rapidly became more profitable than his digital printing service, and Tulip Graphics began shifting from a prepress color house into a full-fledged commercial printer.

Within the next few years, he began to think more about the future. "What kind of world are my kids going to live in?" he often asked himself. He considered the environmental impact of printing – the toxic emissions from ink, the cutting down of trees for paper, and the overall waste and inefficiency endemic to the industry. He decided to focus on minimizing the impact of printing within his business. To do this right would require change across every aspect of the business, from the presses, inks, and paper, to customers, marketing strategy, and even the building itself.

Assadi made an oath that in pursuing his green business strategy, he would avoid 'green washing', a term used to describe companies that market themselves as green without actually making any significant changes to their operations. The substantial changes that Greenerprinter was about to make would leave no doubt that the company was truly dedicated to creating a more healthy environment.

The biggest challenge to going green was controlling costs while remaining competitive. Printing is an extremely price-competitive industry, with multiple printers in every city, and sometimes even multiple printers in the same neighborhood. All printers essentially compete on three factors: price, quality, and service (rapid turnaround, delivery, going the extra mile). Low prices require low costs. A few percentage points often decide who wins a job.

However, Assadi supposed that a printer with a reputation for environmental friendliness might be able to command a small premium for its services, at least within the small “green” segment of the market. But how much would this premium be, and would he be able to hit that premium price point with all his new costs?

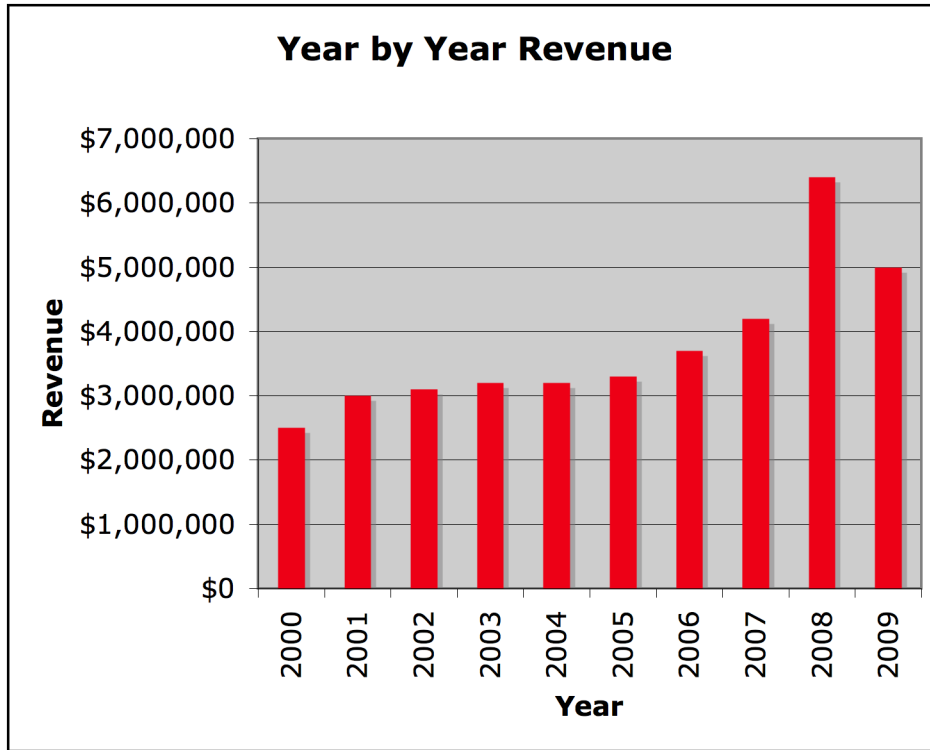
2001-2009: Proving the Business Model

In spite of the dot-com bubble burst and the recessionary economy that followed the 9/11 tragedy, the company grew with its new green strategy, albeit very slowly. Greenerprinter grew from a \$2.5 million dollar business in 2001 to a \$4.2 million business by 2007 (see exhibit 1). Then, in 2008, the company really took off, exceeding \$6.4 million in revenue with growth around 50%. By 2008 there were 30 employees.

The year 2008 proved to be Greenerprinter’s best. Although it was not completely clear to Assadi what caused Greenerprinter to have such a good year, he believed that the long term cost-to-benefit ratio of being green was beginning to pay off. There was a new optimism in the San Francisco Bay Area created by the inevitable end of President Bush’s term in office. Environmental issues commanded attention in the media, and the economy chugged along. Assadi had upped his sponsorship of green events and joined green festivals. The higher profile brought in new customers, and Greenerprinter became a respected business within the green community.

Greenprinter was running at full capacity. Indeed, for much of 2008 the presses were running 24 hours a day, 7 days a week. However, the trajectory of growth changed in 2009, because of a few key factors: First, the bottom dropped out of the economy and many customers either went out of business or cut back on marketing and printing expenses. Second, social media took off and many businesses cut back on traditional marketing to seek customers online. Nevertheless, Greenerprinter’s lean manufacturing, client base, and use of technology helped it to weather the storm, in a period when many printers closed their doors.

Exhibit 1: Year-by-Year Revenue



Market Segmentation: Dark and Light Greens

All printers have a “sweet spot”—a print job that maximizes their profit margin. Greenerprinter is no different. The sweet spot for Greenerprinter is medium print runs of 10,000 - 100,000 on its offset Heidelberg press. The company is often unable to land big jobs, as it is difficult to compete with larger companies on jobs over 500,000.

But there are heavy risks involved with larger print jobs anyway: Large print jobs come from large customers; a company of Greenerprinter’s size becomes very vulnerable if it is over-reliant on a few large customers. Also, bigger companies have more market power, and tend to squeeze their vendor’s pricing and margins down. Plus, big companies often demand longer payment terms (up to 180 days), which could seriously harm Greenerprinter's cash flow.

In a calculated move, Greenerprinter decided to target small- to medium-sized businesses whose own marketing suggested they were going after the green

consumer segment. Assadi and his team were successful in landing many local companies in this segment, like Cliff Bar, Annie's Pasta, SolarCity, Brown and Caldwell, Social Venture Networking, Guayaki Drink, and the Bay Area Discovery Museum. These companies gave them much more favorable payment schedules and were willing to pay the green premium. In many cases this was because the businesses were aligned with the values of Greenerprinter. Many of these customers also discovered that the quality of the printing exceeded their expectations, and soon Greenerprinter had built a loyal customer base.

Also significant was Greenerprinter's ability to tap into the sense of community and even obligation among green companies. A set of beliefs that said "we're all in this together and we should support each other" was fostered and nurtured.

As this community grew, different customer profiles began to emerge. According to Greenerprinter's sustainability and marketing manager, Carolina Miranda, "You can look at green consumers as one of two types; the 'dark greens' and the 'light greens.' The 'dark greens' are very committed to environmental issues and will choose to purchase a green, organic, or recycled product even if it is significantly more expensive than a competing non-green product." The 'light greens,' by contrast, are aware of environmental issues, but will only purchase a green product if it is the same price and quality as a standard product.

Companies that produce green products must address both of these markets, and they must address other related marketing questions:

- How do you reach these "dark green" consumers who are willing to pay a premium?
- How do you reach the "light greens" and produce a product that can compete on quality and value at a competitive price?
- How do you make sure that you're not alienating non-green consumers who still need printing?
- How do you compete as a legitimately green company in an industry when anyone can call themselves green because they offer recycled paper as a special option, regardless of other practices?
- How do you adjust your strategy in the midst of a turbulent economic environment?

Greenerprinter needed to consider all these questions.

Table 1: Estimated Bay Area Print Market by Green Segment

	Estimated market size *	Customers' key purchasing criteria	Key success factors for printer
Dark green consumers	\$50 million	Green	Authentic green, less on costs
Light green consumers	\$1.25 billion	Quality, prices, service, all else equal (green wins)	Cost, quality, service, authentic green
Bay Area overall	\$2.5 billion	Price (assuming good quality and service)	Low cost

- Estimated market size of printing industry in Bay Area was based on overall print market size in U.S., Bay Area population size, and percentage of consumers in the Bay Area who consider themselves 'green' consumers - 50%. The dark green segment is based on a Stanford Business School study that found that premium green products typically represent only 2% of purchases in their respective industries.
 - <http://csi.gsb.stanford.edu/cultivating-green-consumer>
 - <http://www.ibisworld.com/industry/default.aspx?indid=433>

The Nuts and Bolts of Going Green in the Printing Industry

Becoming a green printer is much like going green in any industry. "You start by doing the obvious things first," says Assadi. "You educate your employees to think green. This means they have to limit waste, recycle, be energy efficient, conserve resources, car pool, etc." Then you have to examine every aspect of your business:

Technology. As an engineer, Assadi knew that implementing technological green solutions would also keep costs down. The first area he looked into was his sales system. He automated the sales process by putting it online. This eliminated a significant cost of doing business, while also reducing the number of client visits to the company, thereby sparing the air of the additional vehicle traffic.

Building. In 2001, the Tulip Graphics building was not particularly environmentally friendly. Assadi sought a new, bigger building that had more natural light, natural

ventilation, and enough room for a new printing press. He also renovated the building and ensured that energy-saving measures were taken, such as using low-flow toilets, energy-efficient lighting, double-paned windows, etc. The cost savings in energy and ventilation, as well as the more efficient use of space, would allow Assadi to save money while increasing his job throughput.

Paper. The most obvious green decision in printing is to use environmentally friendly paper, from suppliers that have Forest Stewardship Council certification. Assadi said, "We did these things [use FSC recycled paper] early on, when there was not much guidance from the printing industry. There were very few *green* printers. We looked around to find out what else we could do. Other steps were more difficult. How do you get ink that's non toxic, if nobody's making it?"

Ink. When Greenerprinter started its greenification in 2004, few suppliers of environmentally friendly inks existed. The non-toxic inks that did exist were clearly inferior and more expensive than the standard inks. Greenerprinter decided to use them anyway. According to Greenerprinter's Production Manager Grant David, "In recent years the 'soy' inks have become much better. The soy inks are still not quite as bright as the regular inks, and they are still slightly more expensive, but it is getting close. It's all about the VOC's - Volatile Organic Compounds. We have tried many low VOC inks, and ended up using a soy ink with .01% VOC." Standard inks can be up to 30% VOC. VOC's are a major component of urban smog and at high enough concentration can be a health hazard.

Green certification. As Mr. Assadi proceeded with implementing green strategies, he realized that businesses like his were eligible for green certification. Each legitimate certification program had its own long checklist of behaviors and processes that it required for compliance. These checklists included carbon footprint offsets, employee health and safety programs, customer education, and rigorous supply chain management. "Certifications are important because the reputable ones provide verification that a company is doing what it says it's doing," says Miranda, the sustainability and marketing manager. "There's a lot of information out there about being a green business, and a lot of consumers are jaded because they're not sure if they can trust the information. We open our doors to auditors so that they can verify our practices, we can be sure that we're meeting specific standards and our consumers can trust our claims."

The toughest certification to attain—one, which Greenerprinter obtained in February 2010—is the printing industry's own green certification: Sustainable Green Printing Partnership (SGP). One of the mandates of the SGP certification is to educate the customer on what can be done to achieve sustainability in printing. Miranda puts it this way: "We have to reframe the question as to what is important when choosing a green printer. A printer can call itself green just by offering a choice of recycled

paper. We want people to understand that being green goes far beyond just recycled paper and should include a consideration of a printer’s overall manufacturing process." Greenerprinter's customers are armed with the right questions to ask other printers when considering future print jobs.

Table 2. Timeline of Greenerprinter Certifications

Certification	Date Certified
Bay Area Certified Green Business	2004
CarbonFund Partner	2006
Forest Stewardship Council	2007
B Corp	2009
Sustainable Green Printing	2010

Employee Health and Safety. Part of the green movement has to do with employee health and safety. Tied into the SGP certification is a two-day Health and Safety Building Audit. Are employees exposed to toxins? Do they have full health benefits? During the audit, in the fall of 2009, Greenerprinter's entire base of operations was examined.

There is a significant cost to go through the certification process, but the value of being certified is difficult to overestimate. According to Miranda, "The certifications are very valuable to us, because they let our potential customers know instantly that we are not just talking green. They can trust that we are the real thing. Another benefit is that green certifications are starting to also provide procurement benefits. SGP, for example, is starting to communicate directly with print buyers to inform them about this standard so that they can use it when making their print buying decisions."

Carbon Footprint. One of the major concerns for any company going green is mitigating its impact on global warming. This means minimizing its carbon emissions. All businesses have a carbon footprint—the amount of CO2 that is released into the atmosphere as a direct result of the energy consumed to run the business. There are various ways to reduce a carbon footprint. Assadi contacted

CarbonFund.org, which argues that trees counterbalance carbon production, sequestering carbon by absorbing carbon dioxide. You can offset your carbon footprint by planting trees. CarbonFund.org calculates a company's carbon footprint based on its energy bill. It then calculates the number of trees that are needed to sequester that same amount of carbon. The organization then buys land and plants trees in clear cut rain forests around the globe. Greenerprinter offsets its shipping emissions through CarbonFund and its operations emissions through another company, Sterling Planet. Offsetting emissions is a good way to reduce a company's carbon footprint, but it pales in comparison to producing your own energy. Assadi is considering solar panels, but must weigh that they are not as green as one would think, since they're often made in China and transported to the U.S. He is looking into local options, and expects to move forward with solar installation when better technology and financing are addressed.

Table 3: Greenerprinter's Sustainability Checklist

Area	Green Processes
Supplies and Supply Chain	<ul style="list-style-type: none"> • Soy Ink (.01 VOC) • Recycled Paper (Mohawk Mills, NewLe) • Less toxic wash-up solutions
Distribution	<ul style="list-style-type: none"> • In house mailing dept • In house bindery dept (No shipping to middle men)
Carbon Emissions	<ul style="list-style-type: none"> • Pay for carbon offsets
Sales and Marketing	<ul style="list-style-type: none"> • Online ordering • Green education for consumers
Building	<ul style="list-style-type: none"> • Energy efficient • Natural light • Natural ventilation

Employees	<ul style="list-style-type: none"> • Full health benefits & wages • Healthy and safe working conditions • Educated about green issues
Customers	<ul style="list-style-type: none"> • Mostly local to reduce shipping
Newer Printing Press	<ul style="list-style-type: none"> • Energy efficiency • Minimizes waste

Cost Implications of Being a Green Printer

All of these extra measures add up to extra costs. These costs are certainly higher for the first couple of years that a printer that goes green, but in the longer term, some costs—such as the extra one-time costs of getting certified—go away or decrease as they are paid for or amortized.

Pondering his costs in 2008, Assadi considered how he could drive them down further. He had a few options in mind. First, he brought bindery in-house. This shaved off a small percentage from his buyout costs. Second, he sought to optimize his operations. This meant having just the right number of jobs and employees to keep the building running at maximum capacity. Third, he factored in a decrease in some of these costs over time. See Table 4. Overall it would be tough to become green and cost-competitive at the same time. Other printers were, of course, also pushing costs down.

The Decision in Jan 2010

Greenerprinter had seemingly reached a revenue limit within its current business model. A decision loomed over whether to expand the business. Expansion would introduce new issues. The majority of Assadi's customers were local Bay Area companies and individuals. Would he be able to find more green customers locally? Or would he have to diverge from Greenerprinter's mission of 'printing for the local market' by shipping jobs to companies on the other side of the country? Should he let this green principal limit the growth of his business? Should he relax any green practices in order to compete on price?

Table 4: Costs and Savings of Being Green

Costs of being green - Savings of being green = Net cost of being green

Costs of Being Green

Expensive soy inks

Expensive recycled paper

Expensive wash-up solutions

Payment for carbon offsets

Top employee benefits

Certification Costs

Cost to buy energy efficient bldg

Cost to buy efficient press

Savings from Being Green

Reduced staffing costs due to automated sales process

Reduced energy costs due to energy efficient building

Reduced shipping costs due to local customer base

Reduced employee turnover costs due to loyal employees

Reduced utilities cost due to energy conscious employees

Reduced employee salaries due to improved working environment

Reduced marketing and sales costs due to loyal customers