Going Green with Data Mining

By Tim Graettinger

Are you and your company "going green"? As the 2010 decade rolls along, more individuals and firms are taking steps to reduce their carbon footprints: switching to compact fluorescents for lighting, turning off idle computers and monitors, reducing paper use, and recycling printer cartridges, to name just a few. I asked myself, "what about data mining – can it contribute to these efforts to have a positive effect on the environment?" My answer is an unequivocal "yes", and in this article, you'll learn the reasons why. We'll explore a sampler platter of data mining applications that can benefit you, your company, your employees, your clients, your prospects – and your planet, too.

If You Build It, Will They Come?

Let's start with a data mining application that is particularly relevant if you are a retailer, or if you have multiple facilities where customers come to shop, work out, receive medical treatment, or otherwise obtain products or services. For several years, I've worked with such businesses, and the questions they all face are similar:

- "Are we in the right locations?"
- "Where should we open a new site?"
- "How big should it be?"
- "Which existing sites should be closed?"
- "Which sites should be relocated to bigger/smaller facilities?"

Data mining (DM) can help answer these questions. Using a combination of geographic, demographic, and behavioral information for existing customers and sites, DM can estimate how many people will come to a new location, how many will switch from an existing one, and the like.

Certainly, many factors influence decisions to open, close, or re-locate facilities. And this is all very important from a business standpoint, but what does it have to do with going green? First, data mining can provide estimates of average driving times and distances to new, existing, or re-located facilities. Other factors being equal, decisions can be made that will reduce drive time and distance - and thereby fuel – resulting in happier customers, happier employees, and a happier planet.

Further, by estimating the number of customers that will come to a newly-proposed or a re-located site, data mining helps to "right-size" the facility. A properly-sized facility makes the most efficient use of heating, cooling, electrical, and water resources – which is most beneficial to the bottom line and to the planet as well.

Who Will Buy this Wonderful …?

Direct marketing via catalogs or other printed media is another area where data mining can have a very positive, "green" impact. For many years, response to direct mail has been declining. The old mantra to "mail more" to increase revenue and profit has become just that – old. The new mantra is to "mail the right offer to the right person at the right time." Clearly, this call to action is contingent on information – about demographics, lifestyle, life stage[1], preferences, and past buying behavior. To take action, though, requires mining that data to estimate all the critical propensities: who will buy, when, and how much.

So, what is the business benefit of data mining in this instance? What is the environmental benefit? For the business, data mining can increase - or at least maintain - revenue while decreasing print costs by selecting the right promotions, the right recipients, and the right times to mail. The results are increased profits and increased return on investment (ROI). The positives for the environment include: less paper, less printing, and less energy input to produce the mail pieces, less fuel required to deliver them, and fewer pieces going to waste. It makes for happier customers and prospects, too, when they are receiving timely, relevant offers from your company.

On the Road … Again?

Lastly, consider the hard-working, traveling sales rep – the one charged with calling on existing customers and prospects. She is trying hard to get that critical "face time" with doctors, or facility managers, or farmers, or human resource directors to market and sell her company's products and services. For years, companies have tried to minimize the distance these reps travel along prescribed routes. In technical jargon, this is the TSP (traveling sales person) problem. Data mining is not the proper technology to solve this problem. But data mining is the right technology to decide which customers and/or prospects should be on the route.

Selecting the right customers and prospects to visit is analogous to selecting the right persons to mail in the direct marketing application discussed above. Some differences exist for B2B versus B2C sales and marketing, but the core concepts and approach are exactly the same from a data mining perspective.

The business and "green" benefits are similar as well. With a sales and marketing force focused on more productive customers and prospects, they can close more business with less time on the road. That means they can grow the business while leveling or even reducing travel expenses. The planet will thank you for keeping a small carbon footprint. And your sales force will thank you for improving their close rates, their morale, and their bonuses - and maybe even for the opportunity to spend a little more time at home with their families.

What a Wonderful World

There are many good reasons to bring data mining into your organization. Now, you can add "going green" to the list. As we've seen from the applications described above, the green benefits are fully intertwined with the benefits to the business. For instance, right-sizing a new facility keeps costs for energy and water resources down, and efficiently using those resources is good for the environment. Likewise, contacting the right customers/prospects at the right time with the right product or

service is good for the business and good for the consumer, whether that contact is made via printed material or done face-to-face. And it's good

for the planet, too, since fewer materials and fuel are required to deliver the message.

I hope you noticed that the opportunities above are open to a very wide variety of businesses. The applications described may not be considered particularly sexy or cutting-edge in a "green" sense. And yet, I am regularly surprised to find organizations, large and small, that are not doing these things – especially when they can have such a potent impact on both the bottom line and the environment. These opportunities illustrate a key point that I'm trying to make: you don't have to be building windmills or electric cars to participate in the green movement. And data mining can help.

Going green is good for the business, good for the consumer, good for the employee, and good for the planet. That's what I call win-win-win-win.

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[1] Life stage, for me, means the combination of age, marital status, and presence of children, parents, and/or grandparents in the household.