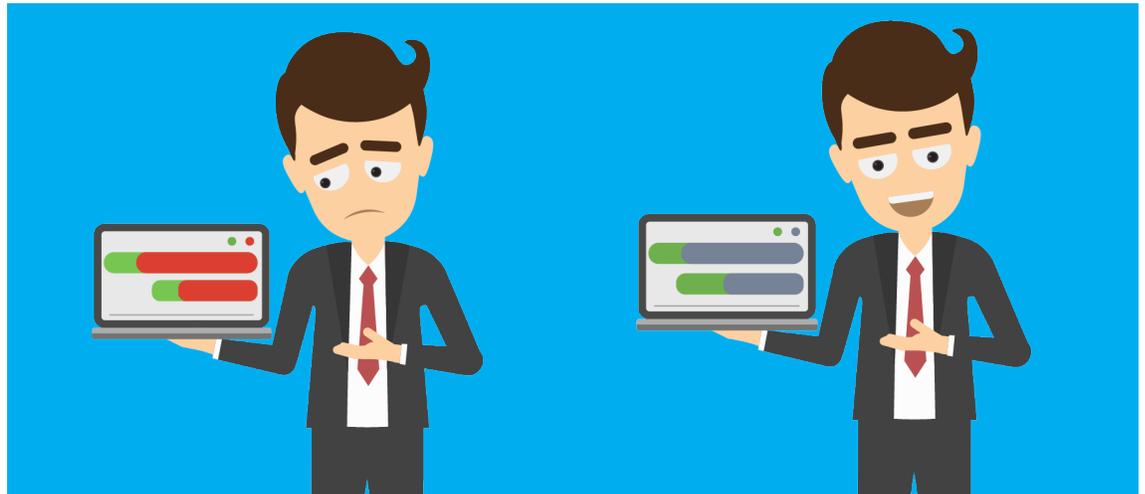


Continuous “respondent balancing” of sample empowers predictiveness



One key to Prosper’s predictive accuracy is automated sample balancing as responses pour in

If you were a complete novice in marketing research and sat down with several experts in the field, before too long you would get around to a discussion of reasonable expectations from any market research project. That’s when you would hear, at the very least, about two particular shortcomings in research projects. One would be the sporadic reliability of online survey results, often attributable to failings in sample representativeness. A second deficiency would be powerlessness to accurately project future results for a client.

However, the times are a-changing. With the assistance of academia, predictive analytics and machine learning, **Prosper Insights and Analytics** (Columbus, OH), formerly known as Big Research, has been able to tame those research faults.

In the 1980s, Impact Resources (Prosper’s original company name) co-founder **Gary Drenik** had a premonition about a future time in media and marketing research when vendors would grace media buyers with more than gross numbers of targeted buyers in preferred age-groups. “I believed that if we could do a continuous consumer survey, we would be able to tell media guys the value of their targets instead of just numbers,” he recalled. The idea stuck deep in his mind.

In 1985, Drenik stumbled upon a research property of the Mormon Church, Bonneville International Corp. (Salt Lake City, UT) and its VP of

Research & Analysis Dr. John Scott Davenport. He revealed to Drenik’s astonishment that Bonneville could and was surveying 8,000 people in less than two weeks for \$2 a complete. “Davenport told me, ‘We’ve created batch sampling (today known as computer statistical methods) to measure markets,’” Drenik related. His hopes for those better research deliverables were in reach.

Drenik decided: buy the technology

Victor Kiam was a businessman who famously liked his Remington electric shaver so much that in 1979 he bought the company. Drenik and his Impact Resources’ partner, Phil Rist, did the same after investigating Bonneville’s technology. This was back in the 1980s, so Bonneville’s “mass data collection” came from self-administered surveys gathered at shopping malls. After the acquisition, Impact Resources added strip centers featuring grocery stores to its data collection locations. “We started doing consumer surveys, and we had one of the fastest-growing research companies in the first few years – and were recognized as one of the top information sources in the nation,” Drenik detailed.

In 2000, as the Internet research age arrived, Drenik and Rist renamed their business Big Research. Each month, for the past 17 years, Big Research (and its new corporate name as of 2010, Prosper Insights

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RBR COVER STORY

Prosper Insights & Analytics



Drenik

and Analytics) has collected between 7,000 and 8,000 completed consumer surveys in the U.S. under the Consumer Intentions and Action survey (CIA) from individuals, 18-year-old and older. (They kicked off the similar China Quarterly, since 2007). Those data empowered Prosper's creation of the country's largest continuing monthly, first-party, consumer behavior, intentions and confidence survey. Over the years, major improvements and refinements were implemented.

One initial concern in the 1980s was maintaining statistical balance in the large sample, especially when cross-tabbing the data. Drenik collaborated with Dr. Helaman Pratt Ferguson, Visiting Fellow at the Princeton Institute of Applied Science, who abetted Big Research's weighting and balancing of its respondents as survey completes flowed in. The goal was to ensure consistent, accurate representation of all segments of the market.

"We developed more than a market overview, more than a large sample – we had one that could be segmented," Drenik said. "The next academic to make a huge contribution was Dr. Jerry Friedman, from the Stanford Institute of Applied Sciences and Chairman of the Statistics Department. "He told us he was doing surveys in the hard science world that were just like our continuous survey. He helped us fine-tune our methods and established error rates. He stressed that our work had to accurately predict what happened in a market that would be confirmed when others showed the same outcomes."

The Internet forces much-needed change

In 1998, Drenik says he had asked Rist: "Wouldn't it be great if we could use the Internet to collect sample? At that time, no one was going on the Internet to take a survey," reminisced Drenik. "However, one day, we felt sure, email could make it possible." In 2004, it had become possible. Prosper launched the Consumer Intentions and Actions (CIA) survey, the first national comprehensive online consumer survey.

At first, Prosper needed collaboration with an email newsletter network to send solicitations to survey respondents; the sample morphed into a Prosper-built panel and, later, the survey started relying on standard sample providers as online panels sprouted for survey use. The Great Recession hit in 2008, but Prosper maintained CIA, with consumer behavior and intention results released the third week of each month as survey collection took place. It further evolved into delivery of consumer sentiment readings before the 15th of the month, ahead of other sentiment measures.

Over decades, the tens of thousands of assembled pieces of

information in each Prosper monthly survey accrued to tens of billions of valuable bytes – and Prosper's unique econometric models transformed CIA data into worthwhile projections for outside clients. That began to take shape in 2003 when the National Retail Federation commissioned Prosper to annually report consumers' spending intentions for Christmas-time holiday spending. A few years in, the CNBC business cable channel looked back and realized that consumers in Prosper's annual NRF estimate was closer to reality than the network's self-created numbers. It turned out that Prosper could derive a "consumer optimism" forward-looking analytic to compute the gap between current and expected growth in GDP.

Linkups with Prosper Data

Prosper continues to this day to boost its deliverables with the assistance of complementary firms. In the summer of 2016, Prevedere, a leader in business performance forecasting, linked up with Prosper. Prevedere CEO Rich Wagner told Forbes, "Consumer behavior is quite predictable when analyzed the right way. We create very accurate predictive models for our customers using factors such as consumer sentiment or wages as powerful leading indicators, with lead times as much as 12 to 18 months."

A game-changer came to pass in May, 2017 when University of New Hampshire Professor of Economics and e-Forecasting founder Evangelos Otto Simos effused in a paper about the unseen worth of Prosper capabilities in its survey. The professor noted that Prosper "used more advanced... predictive analytics modeling," and he went on to conclude "the indices are good predictors of the business cycle, particularly in predicting forthcoming turning points of the economy's business cycle nine months ahead of overall economic activity as measured by monthly real GDP... The innovative advanced methodology and new survey add useful, clearly understood effective instruments to the toolbox of forecasters."



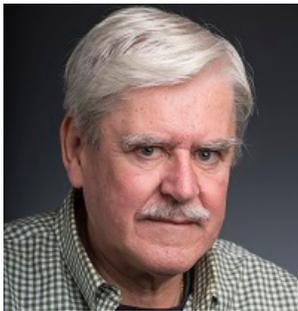
Rist

Simos' belief in Prosper was even stronger in his private conversations with Drenik. The professor shared an even more startling business revelation concerning Prosper's survey tangibles. "He told us after 10 months of study that he had good news and bad news," shared Drenik. "The good news, he shared, was that our consumer data was so accurate and predictive that we had unknowingly predicted the 2008 downturn *nine months before it happened* – and had predicted the upturn from the Great Recession *nine months before it happened*. The 'bad news' was 'you guys didn't know about it. You could have made a

fortune!”

Prevedere's Wagner detailed that “consumer impulsivity” applied to specific demographic groups was especially valuable in understanding consumer behavior for precise forecasting. Wagner revealed that general economic and weather data from Prosper in a predictive model improved forecast accuracy by six to eight percent. Leveraging Prosper's consumer impulsivity resulted in 12 to 15% added improvement in predicting demand. “With our customers,” Wagner explained, “every one percent improvement means millions of bottom-line savings.”

New Consumer Confidence (NCC)



Professor Simos

In collaboration with e-Forecasting.com, the Prosper monthly consumer survey spawned New Consumer Confidence (NCC), a set of six forward-looking economic predictive analytics measures. In a macro sense, NCC offers value through two housing-related, forward-looking consumer predictive analytics. One forecasts consumers' intentions to buy a house in the coming six months; the second takes the cover off of consumers' plans to improve their homes.

However, NCC may make a deeper, more lasting impression in forecasting retailer and brand results. The predictability of the Prosper Insights & Analytics Monthly Consumer Survey, tracking 290 public companies and over 1,200 brands, generated an outpouring of corporate interests. “Our predictive macro economic indices moved us into durable goods forecasting in September, 2017,” disclosed Drenik, encompassing autos, appliances, electronics and home buying.

The financial services industry has also been opened up to Prosper's offerings, notably forecasting – which strongly appeals to Wall Street. The independent equity research boutique, Consumer Edge Research (CER), is marketing Prosper's predictive consumer datasets and analytics to financial service firms, in particular hedge funds. CER CEO Bill Pecoriello sees particular value in Prosper's linking of macro factors and company-specific data, which help investors improve forecasting of GDP, consumer sentiment and

consumer spending. “It allows us to understand,” Pecoriello remarked, “the ‘why’ behind transaction datasets like credit cards and merchant receipts.”

Drenik says that Prosper's optimum business usefulness may prove to be on Wall Street, particularly the buy side. “Wall Street is already the biggest buyer of overall research. They just want the truth, the data without all the usual biases. One good example is retailers, who can't forecast the future because they haven't gone outside their company to track consumers when they are not shopping with them – like what a retailer's consumers are spending with Amazon Prime – and how to reach those people. We have a Wall Street client who has stated that Prosper Insights and Analytics data is their best source of predictive data on apparel footwear,” noted Drenik. “We've been working with those folks for five years; we deliver API directly to their quant people, who highly prize our predictability.”



NCC predictive analytics accurately forecasted both the start of the 2008 financial crisis and the subsequent recovery, nine months ahead of each respective event. (Graphic: e-forecasting and Prosper, via BusinessWire)

New client implementation

Drenik tells **RBR** that Prosper implementation for a new client in a new field “doesn't take very long because machine learning finds the linkages. We help look and find new inputs that fit in. Government and traditional consumer data are backward-looking—60-days to 90-days old. Our human element is new and not found elsewhere. We had a company the other day which told us that their forecast models get better every time they add our data.”

It is also notable that Prosper takes issue with the suggestion that Big Data is an option for predictive work. Drenik states, “It can actually worsen the situation. Big Data may be big in quantity, however, its' data quality may be low grade and could even be hazardous to algorithms. Factors that contribute to its declining value include fraud, inaccuracy, lack of market representativeness, being incomplete to make unverifiable assumptions and one dimensional.” **RBR**

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