

“DESIGN OF EXPERIMENTS ARMS TELEMARKETERS WITH PROFITABLE QUESTIONS.”

By

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“It’s so powerful and useful that I was upset I had not heard of it earlier in my statistical career.”

-- Senior Business Results Statistician for a major telecommunications company

It’s no surprise that telemarketers must ask the right questions at the right time, but how can management measure when the best question’s time has come? Revitalized interest in a decades-old statistical technique is the answer.

At a major telecommunications company that wishes to remain unnamed, telemarketers needed to increase sales effectiveness both when making outgoing proactive calls to customers and when receiving incoming calls. “Our sales force wanted to know what we could do to improve the probability of making a sale,” says the telecommunication company’s Internal Business Results Consultant in a recent interview. Sales management started asking questions such as: Can we do more customized selling, offering the customer exactly the product that fits their needs?

Adds the internal consultant, “We needed to know what to say and what not to say, with the goal of optimizing the customer’s time, our time and to make sales.”

HURDLING FROM MANUFACTURING TO TELEMARKETING

In conjunction with Bob Gahagan (Greene Gahagan and Associates, Blythewood, S.C.), the internal consultant used design of experiments (DOE), a tool commonly utilized in manufacturing. DOE is a systematic approach to experimentation that considers all factors simultaneously, not just one factor at a time. By revealing how interconnected factors respond over wide ranges (without the need to directly test each possible variable), DOE increases productivity and quality while decreasing costs. It minimizes the number of tests needed to reach conclusions about a process or formulation.

DOE has been used at the telecommunications company in over forty carefully designed experiments, producing remarkable results:

- Small-business revenue (50-65% increase)
- Consumer-service revenue (30-100% increase)
- Consumer-service customer satisfaction (10-15% increase)

- Billing (55% decrease in cycle time and defects).

A STRANGER TO THE SERVICES ARENA

Some product-oriented organizations have relied for years on DOE, a concept developed in the 1920s for improving performance by studying factors and their interactions. The internal consultant, like many business managers today, admits she did not hear about DOE until 1995 – years after earning master’s degrees in math and statistics in the 70s. She’s not alone, in part because of her Deming-influenced, business-career grooming.

But perhaps more alarming, only a small minority of today’s technical and research engineers use DOE because its excruciatingly complex calculations discouraged usage prior to the PC. Now that calculations are no longer a valid excuse, Gahagan suggested that the company use a DOE software package called Design-Expert® (Stat-Ease, Inc., Minneapolis, Minn). His recommendation reflects how DOE has been liberated from being viewed primarily as a tool for engineers.

“DOE is a great tool for zeroing in on what works, and we need that in the service environment,” says the internal consultant. “Many statisticians figure that DOE can’t be used in services, but that just isn’t true. It’s so powerful and useful that I was upset I had not heard of it earlier in my statistical career.”

One reason DOE has been a stranger to the service sector in any form is the belief that human behavior produces too much variability in results. “In a manufacturing environment, everything is very precise,” says consultant Gahagan. “You can set up the design and run it any way you want. But when you’re measuring the performance of people in this call center, you have to monitor those people very closely throughout the entire experiment to make sure they stick to the design model.”

RUNNING THE DESIGN

Gahagan helped the company develop parameters to keep the DOE project on track by:

- *Brainstorming for ideas from the front lines concerning what to say to business customers.*
- *Finding new ways to improve sales of specific strategic business products.*
- *Exploring customer satisfaction measurements.*
- *Measuring revenues per person per day.*

Brainstorming produced over one hundred ideas, which were reduced to fifteen for customer testing. The internal consultant explains that an experimental design method known as fractional factorial was used because a full factorial would have resulted in over 32,000 tests among the forty testers.

(Fractional factorials mercifully find the significant few factors among the trivial many.) Each of the forty telemarketers was considered an experimental unit and given a unique combination of factors (distinctive questions) different from everyone else's. The objective was to place each factor in enough testing combinations (a matrix, if you will) among the reps to statistically determine effectiveness. Telemarketers underwent up to five days of training before the experiment began so that they could receive feedback on how compliant they were to their individual dialog testing.

The fifteen ideas were divided into "things to do" and "things to say" when telephoning business customers. Examples of "things to do" typically occurred before the call was placed to the customer. These included preparing for the call by sending a newsletter to the customer regarding issues relating to their specific industry, or creating a customer information document using the telecommunication company's proprietary software containing the customer's name, address, and past purchasing history.

Examples of "things to say" included reps asking about the customer's Internet use and their interoffice communications system.

Sellers were to complete a proprietary number of calls per day, be 80% compliant to their combination of DOE questions, and use computer software to track sales. The experiment lasted one month and gathered weekly data about each seller. Reflecting individual learning curves, sellers achieved 80% compliance after one to two weeks.

DISCOVERING WHAT WORKS AND WHAT DOESN'T

DOE revealed how differing sales rep interaction with their customers significantly increased revenue. Design-Expert software set up the designed experiment, analyzed the results, and generated mathematical models to discover the optimum sales questions, in addition to predicted customer response rates.

For example, the software showed how a question about interoffice communication was hurting sales. That inquiry caused the customer to shy away. Says the internal consultant, "This particular question made the customers feel awkward, and they didn't buy from the seller who had made them feel that way."

Overall results from this DOE included a revenue increase of 50% from small-sized customers and 63% from medium-sized customers.

DOE also pointed out shortfalls in sales training, says Gahagan. The reps were asked to integrate the information they gathered during the sales call into their normal sales conversations. "Once they got the information, some reps still didn't know how to integrate it," says the internal consultant. "They were not

able to weave the information they had into the conversation with the customer.”

“What they learned about its sales force was an important product of the experiment,” says Gahagan. “As a result, they’ve been able to make significant changes to the process.”

Today DOE, also known in various arenas as experimental design, DOX, multi-variable testing, and designed experiments, is proving to be the company’s weapon in the fight against competition. Says the internal consultant: “We needed this tool desperately. It continues to surprise us with what it can do.”

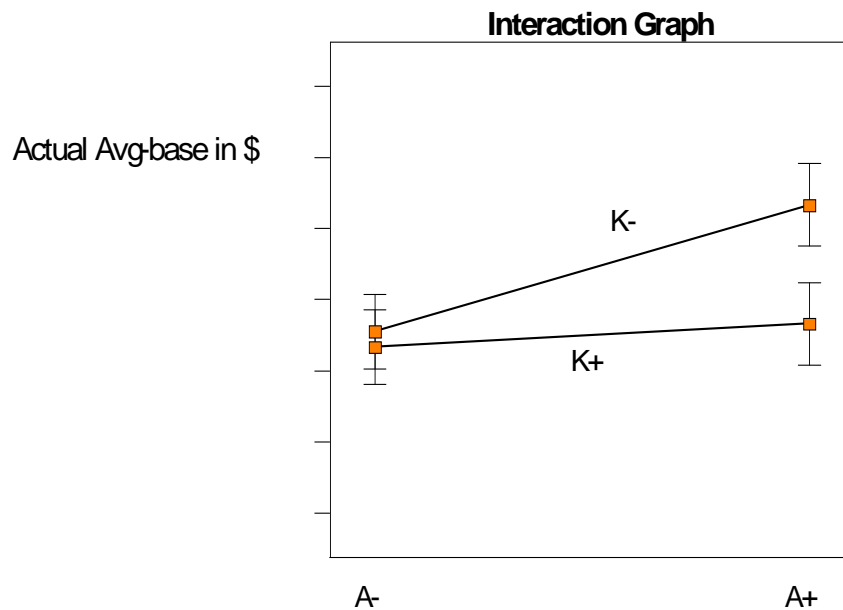


FIGURE: Interaction of A:Plan document and K:Sales statement.

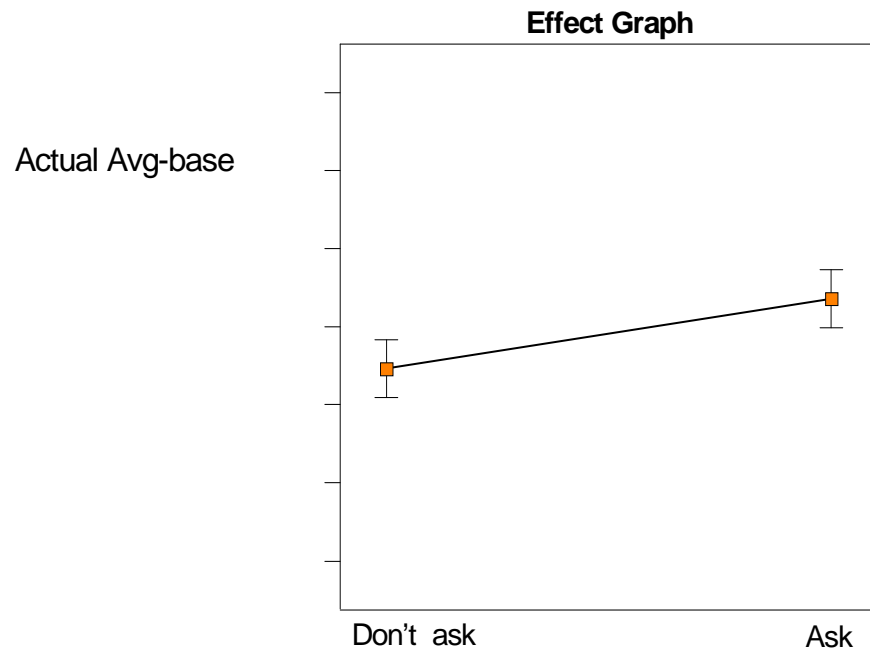


FIGURE: Effect Graph showing “Ask/Don’t-Ask Marketing Questions”

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