A Location-Planning Decision-Support Tool for Tradeshows and Conventions

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A Location-Planning Decision-Support Tool for Tradeshows and Conventions

Abstract
This report introduces a strategic decision-support tool for location planning in tradeshows and conventions. This decision support tool is based on a multi-year research project that examined tradeshow participants preferences, including a comparison of attributes sought by attendees and by exhibitors. The study, supported by the Cornell Center for Hospitality Research and ASAE Foundation, included a survey of over 2,500 tradeshow participants who indicated that the show's location is one of the top criteria. In addition to its examination of tradeshow attributes, this report describes the research process, gives an outline of customer choice, and explains how the tool can be used in an effective location and planning decision process for tradeshows considering attendees' and exhibitors’ preferences.

Keywords
Cornell, tools, tradeshows, exhibit planning

Disciplines
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Comments
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A Location-Planning Decision-Support Tool for Tradeshows and Conventions
by HyunJeong “Spring” Han, Ph.D., and Rohit Verma, Ph.D.

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A Location-Planning Decision-Support Tool for Tradeshows and Conventions

by Hyunjeong (Spring) Han and Rohit Verma

EXECUTIVE SUMMARY

This report introduces a strategic decision-support tool for location planning in tradeshows and conventions. This decision support tool is based on a multi-year research project that examined tradeshows' attributes and compared them to preferences. The study, supported by the Cornell Center for Hospitality Research and ASAE Foundation, included a survey of over 2,500 tradeshows' participants who indicated that the show's location is one of the top criteria. In addition to its examination of tradeshows' attributes, this report describes the research process, gives an outline of customer choice, and explains how the tool can be used in an effective location and planning decision process for tradeshows considering attendees' and exhibitors' preferences.
ABOUT THE AUTHORS

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The authors would like to thank the ASAE Foundation (www.asaecenter.org) for providing research support for this project as part of their Senior Partnership with Cornell Center for Hospitality Research. The authors would like to acknowledge the active collaboration from the ASAE Foundation’s advisory board members and several participating associations for facilitating survey data collection for exhibitors and attendees. The authors are especially grateful to Susan Robertson, Sharon Moss, and Chelsea Killam for their comments, feedback, and insights throughout the project, and to Monica Dignam for initiating this research project, performing data analyses, and providing the organizing principle that formed the basis of this research. A summary of selected results from this collaborative research is also available from the ASAE Foundation at https://mystuff.asaecenter.org/ebusiness/publications/publicationproduct?id=107816.
In the age of the internet, trade shows remain a valuable channel for both direct selling and for promoting and sharing information about products and corporations. Part of the vast Meetings, Incentive, Conventions, and Exhibitions (MICE) industry segment, tradeshows constitute a major global economic activity. Successful execution of a tradeshow requires careful planning and coordination between a host of stakeholders, including attendees, exhibitors, meeting planners, and destination executives.
Tradeshows are changing, though, as a result of trends in social media, mobile technology, environmental sustainability, corporate social responsibility, association budgetary constraints, and emerging buyer-supplier engagement models, such as hosted-buyer programs, in which qualified buyers are offered travel and accommodation support to encourage their patronage. Given these changes, we conducted an extensive two-year study of association tradeshows as part of a collaboration between the ASAE Foundation and the Cornell Center for Hospitality Research. This report and the related interactive decision support tool (described on page 12) are based on insights obtained during this research.

In the course of this study, the research team conducted (1) an extensive review of published research; (2) qualitative research in the form of focus groups, personal interviews, and visits to trade-shows and convention centers; (3) a pilot study regarding the relative importance of different attributes of tradeshows, which helped to refine a survey instrument that contains both descriptive questions and a discrete choice experiment for modeling the reasons for tradeshows attendance; and (4) a final study that collected survey data from a diverse group of tradeshow attendees and exhibitors.

The pilot study involved 500 respondents, and the main study had more than 2,500 participants. Overall, the results show that while the core elements of tradeshows continue to play an important role for exhibitors and attendees, technology and emerging trends are becoming increasingly important for both groups. That said, we note several significant differences in the relative preferences of exhibitors and attendees as a whole and in sub-groups within each category based on age, frequency of tradeshows visits, career stage, and technology readiness. We describe discrete choice analysis and the research study itself in the sidebars at the end of this report. After we present the results of the study, we explain the decision support tool that is based on the study findings.

Results and Analysis

To conduct the study, the ASAE Foundation invited several of its partner associations to participate in the study by distributing the survey to their members who had visited tradeshows as exhibitors or attendees. Respondents represented a total of 30 different professional associations in the United States from several different industry categories. The final list of the associations is not included in this report due to confidentiality reasons but that information can be obtained from the researchers if needed. The respondent pool for the full study sample includes 674 individuals classified as exhibitors and 1,853 individuals classified as attendees, giving a final sample size of 2,527. Detailed descriptive results from the survey appear in the earlier report issued by the Cornell Center for Hospitality Research.

Discrete Choice Experiment Results

As explained in the sidebars, the results of a discrete choice experiment show the relative utility of each level of each attribute described within the experiment. We developed multinomial logit choice models to quantify relative utilities for both exhibitors and attendees. For sake of ease in comparison, the utilities for each attribute are presented on a scale ranging from zero to one. The higher the score, the greater the relative preference for a particular attribute. The results are first presented as a comparison between exhibitors and attendees, and then as segments within each group based on age, frequency of tradeshows visits, career level, and technology readiness scores. These segmented results are also embedded in the decision-support tool.

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2 Ibid.
Choice Modeling Results for Core Tradeshow Attributes: Location

The location, cost, duration, number of attendees, and number of exhibitors constitute the core components of a tradeshow, as shown in the exhibits and discussed below. Of the core tradeshow components, location is the attribute that displays the highest differences in utilities for both attendees and exhibitors (see Exhibit 2). The highest utility is for a “large metro within United States” and lowest utility is for an “international location.” No other attribute displays such a wide difference in utilities, with a score of 1.0 for large metro and 0.0 for an international location. The utility values do, however, indicate that a mid-size domestic city would also be acceptable, since there’s only a difference of about 0.1 between large and mid-size cities within the United States. These results suggest that for both exhibitors and attendees large and mid-size domestic cities will be preferred locations, drawing higher demand than the other two location options considered.

Tradeshow Cost

As could be expected, the relative utility for a tradeshow decreases as the relative costs increase (as shown in Exhibit 3). To account for cost differences in different locations, we presented the cost attribute as a percentage of participants’ total typical spending when attending a tradeshow. This attribute includes all costs, including transportation and lodging. The relative measure of cost is appropriate for this analysis because this approach allows us to identify general patterns as the costs increase or decrease, even though respondents from different professions and different associations exhibit different absolute cost structures.

The slope of the utility curve is almost linear, although the absolute value of the slope is more strongly negative for attendees than for exhibitors. The relative utilities drop 0.75 units for attendees compared to a drop of 0.65 when costs go from 10 percent lower than average to 10 percent higher. These results indicate that as a group attendees are more price sensitive than exhibitors.

Tradeshow Length

Tradeshow participants in both groups generally agreed that a show needs to be long enough, but not too long (Exhibit 4). This is indicated by an interesting inverted U-shaped pattern. Both exhibitors and attendees exhibit higher utilities for two- or three-day tradeshows. Short (one day) and long tradeshows (more than 3 days) are sig-
significantly less preferred than two- or three-day-long events, as shown by the a considerable drop in utilities (approximately 0.4 units) for durations other than two or three days. These results are consistent with other studies, which had indicated that attendees and exhibitors want to ensure that there is enough time for interaction but prefer to leave the event as soon as their business purpose is achieved.

Tradeshow Size
Exhibitors and attendees have different views on the ideal number of participants in a tradeshow (see Exhibit 5). Based on utility scores, exhibitors want as many attendees as possible, but attendees don’t see it that way, based on utility scores that plateau at about 2,000 attendees. Once a tradeshow reaches approximately 2,000 participants, the attendees do not perceive any additional utility in adding more attendees to the tradeshow. We see also that attendees exhibit higher sensitivities for the number of attendees than do exhibitors.

On the other hand, both groups like to see a relatively high number of exhibitors, at least up to a point (as shown in Exhibit 6). It is interesting to note that while both exhibitors and attendees generally prefer tradeshows a relatively high number of exhibitors, the trend hits a ceiling at about 400 exhibitors.

Choice Modeling Results for New Tradeshow Attributes
The tradeshow discrete choice experiment contained several attributes that had been identified in our earlier qualitative research and by analyzing other studies. These attributes can be broadly classified in three categories—technology, scheduling, and sustainability.

Technology. The experiment included six attributes that can be characterized as tradeshow technology options (see Exhibit 7). These attributes include information-technology-based applications (e.g., social media, smart phone apps), computer-based technology (touch-screen and multimedia displays, computer simulations), and other attributes such as use of RFID and QR codes. As compared with exhibitors, attendees were relatively enthusiastic about videos or simulations, and they liked multi-media displays. Attendees they also gave higher preferences to touch screens and smartphone apps. The exhibitors and attendees were more in agreement on the other two technologies, which they viewed more or less equally. Furthermore, the differences in technology attributes' utilities are relatively small compared to the core tradeshow attributes that we explored above.
Sustainability. Attendees seemed to be more interested in sustainability than exhibitors, based on utility scores (Exhibit 8). The four environmental sustainability attributes that we included in this discrete choice experiment were identified by the focus groups as features that are increasingly present in tradeshows. As shown, attendees rated all four sustainability options higher than the exhibitors, and those differences are significant for three attributes (namely, electric or hybrid transportation, recycling programs, and environmentally friendly promotional materials).

Scheduling. The importance of time management was demonstrated in attendees’ ratings of four of the five attributes that can potentially help in facilitating better scheduling (see Exhibit 9). These attributes are software-based approaches (e.g., mobile applications, web-based applications, meeting scheduling software), event-staff-assisted appointment scheduling, and the still growing hosted buyer programs. Attendees had higher preferences than exhibitors for all scheduling options except the hosted buyer program, with staff-assisted scheduling rated highest, followed by the three software based approaches. Hosted buyer programs help exhibitors by bringing in committed buyers.

Decision Support Simulation
Since the discrete choice experiment was based on manipulation of several attributes of tradeshows, we have developed an interactive, Excel-based decision support simulation (DSS) application that you can use to weigh tradeshow features. This simulation allows you to change one or more variables for up to four potential tradeshow locations. The DSS calculates a desirability index and relative market shares for each tradeshow location under consideration, based on the discrete choice experiment results that we have just presented. At the end of this report, we provide an appendix that explains the details of the decision support simulation and its usefulness. Furthermore, an earlier report from the Cornell Center for Hospitality describes how desirability index and market share are calculated based on discrete choice results.3

Discussion and Conclusions
As explained in this report, the purpose of this project was to explore the future of tradeshows by benchmarking current practices, by rigorously identifying relative importance of different criteria for tradeshow selection, and by quantifying the relative utilities for different attributes of a tradeshow. In this study we have attempted to address all the above issues for exhibitors and attendees and for several of their sub-segments.

The scope of this study has been extensive, and based on a detailed literature review, we have compiled a wealth of qualitative data followed by quantitative analysis of surveys completed by a diverse group of exhibitors and attendees. It will take considerable time to go through different components of the information that we collected. Here, we share some of the high level conclusions.

First, we notice that there is considerable synergy in the research findings and analysis. Within each stage of our study, it became clear that the basic objective of a tradeshow remains constant—to facilitate interaction between exhibitors and attendees so that they can have a better business outcome. This conclusion was mentioned repeatedly in the papers we reviewed, during the focus groups and interviews, and also in the best–worst analysis and discrete-choice modeling results described in other reports. The value of trade shows is also indicated by the finding that all the attributes that can be considered core components of a tradeshow exhibit higher utilities than other, more tangential attributes.

Second, we notice clear and sometimes substantial differences between the reasons given by exhibitors and by attendees for attendance, as well as show cost preferences, the usage and preferences for technology, scheduling and sustainability options, the relative importance of criteria for tradeshow selection, and relative utilities of various tradeshow attributes. Collectively these results highlight the reality that exhibitors and attendees are fundamentally different groups who are attending tradeshows with a different mind-set and objectives. At the same time both groups are essential for a successful tradeshow—and each group acknowledges the importance of the other. Therefore the organizers of a tradeshow must manage the needs and expectations of both groups.

Finally, we developed the Microsoft Excel-based DSS to allow you to conduct various types of “what-if” scenarios for the many attributes that we studied. The DSS models will allow you to calculate the desirability index, which is expressed as a weighted score between zero and one hundred and measures the relative attractiveness of a tradeshow with a specified combination of attributes. So, for example, you might be considering a tradeshow in a mid-size U.S. metro market that will have 2,000 attendees, 300 exhibitors, and a certain cost structure that includes specific types of technology, sustainability, and scheduling options. The DSS will give you a desirability score for such a tradeshow, and then you can calculate the desirability scores for tradeshows with different attributes and in different locations. The tool also estimates the market share of each proposed tradeshow. Given the substantially large number of potential combinations of attributes and their levels, a DSS approach is managerially more useful than a static one-at-a-time attribute comparison.
Using the Decision Support Tool

By inputting your own data and probabilities, you can use the decision support tool to compare up to four tradeshows or exhibitions, based on the study that we presented here. Start by indicating how many tradeshows you are considering, by putting a “1” in the “consider in analysis” boxes.

Insert 1 to indicate if you wish to consider the tradeshow represented in this particular column in the analysis.

To indicate the type of location, use the codes established in the study. As shown at left, the codes are: 1 for large U.S. metro area, 2 for a medium-size U.S. metro area, 3 for an international location, or 4 for an exotic resort area.

Insert 1, 2, 3, or 4 to indicate a specific type of location for each location. For example “1” means a large metro within USA.

Next, indicate the presence (or absence) of each of the attributes that we outlined in the study, again by typing 1 for each attribute that is offered by the tradeshow in question, or zero if it is absent.

Insert 1 for each of the above variables to indicate their presence.
Using Simulation Models: Input Screen

Insert 1, 2, 3, 4 or 5 to indicate a specific value for each of the above variables.

Based on the information you input, the tool will calculate utilities for each experimental variable. You can then conduct two types of “what-if” simulations: Desirability Index and Relative Market Share, examples of which are shown in Exhibits 10 and 11 on the next page.

**Desirability Index:** This index shows the relative attractiveness of a tradeshow which has specific characteristics. The desirability is presented in the format of a relative index between zero and 1.

A desirability index of zero represents the least desirable tradeshow that could have been presented to the respondents.

A desirability index of 1.0 represents the most desirable tradeshow.

Everything else being equal, the higher the desirability index, the higher the attractiveness of the tradeshow for its audience.

**Relative Market Share:** This calculation shows a relative comparison between different locations for tradeshows each with specific characteristics.

The relative market shares can be compared simultaneously for two, three, or four locations.

The relative market share calculations represent the approximate percentages of audience that would like to attend the tradeshow at a specific location if multiple options with specific characteristics were available (assuming everything else not specified to be equal).
Using Simulation Models: Desirability Index

This screen shows desirability index for all exhibitors, all attendees and sub-groups based on age, frequency of visitation to tradeshows, technology readiness of respondents, and their career levels.

Sample desirability index

As results, the tool will return two screens that show relative utilities based on your input, a desirability index and relative market share. Below is a sample of the desirability index screen, based on the study data.

Using Simulation Models: Relative Market Share

This screen shows relative market share for all exhibitors, all attendees and sub-groups based on age, frequency of visitation to tradeshows, technology readiness of respondents, and their career levels.

Sample relative market share values

Below is a sample relative market share for each tradeshow under consideration.
Discrete Choice Modeling: Background

The vast proliferation of goods and services, increased emphasis on mass customization and customer experience, and the variety of new technologies require that firms carefully evaluate the factors influencing customer choice for their service offerings. For example, in *The Paradox of Choice*, Barry Schwartz suggests that both mundane and involved decisions such as ordering a cup of coffee, choosing a health-care provider, or setting up a retirement plan are becoming increasingly complex because of the abundance of choices available to the consumers in the marketplace. Having too many options seems to paralyze the decision process. This dramatic explosion and complexity in options has ironically become a problem for both customers and firms because of the challenge of determining which features are driving sales. The underlying problem in predicting customer choice resides much more in the fact that purchasing decisions are generally made by considering many different criteria simultaneously, including brand, quality, performance, price, features, and distribution channel. This complexity is further confounded in service applications where customers may consider non-tangible features and characteristics of the market offerings (e.g., service quality, safety, and trust; interactions between service providers and customers). For example, customers might choose fast-food establishments based on their cost, service quality, food quality, food variety, or speed of delivery (or ignore any of those criteria). Similarly, customers might choose a hotel based on its location, brand name, facilities, service quality, price, or loyalty program. But each customer would assign different weights to the utility of each of those attributes.

The discrete choice modeling framework pioneered by Daniel McFadden (winner of the 2000 Nobel Prize in economics) focuses on both the economic reasons for individual choices and the ways in which researchers can measure and predict these choices. McFadden’s work and the corresponding experimental approach developed by Louviere, his co-researchers, and colleagues in marketing, economics, management science, and other disciplines has led to many diverse applications, such as design and development of new products and services, transportation planning, evaluation of alternative pricing strategies, and financial services design.

The discrete choice modeling approach requires that a representative sample of customers make choices in simulated situations derived from...
realistic variations of actual service offerings. The execution of a discrete choice modeling project typically comprises three broad steps. First, using qualitative market assessment, customer interviews, case studies, industry data, focus groups, and other information sources, a list of drivers that are believed to influence customers' buying decisions is compiled. Great care must be taken to ensure that all (or at least as many as possible) of the determinant drivers are identified and expressed in terms understood by customers.

Once the list of choice drivers is finalized, sophisticated experimental design techniques are used to develop many realistic versions of service offerings. Next, choice experiments are constructed which ask respondents to select one out of two or more service packages available to them in a series of choice sets. In the final phase, econometric models based on responses from a representative sample of customers (or potential future customers) are used to identify empirical key patterns in the survey responses, providing a relative weighting for each market driver and for interactions among drivers. Managers can then select the optimal combination of operations and market drivers to develop a profitable and sustainable value proposition that, under normal competitive constraints, will make best use of their available resources.

After developing suitable econometric models, the results can be easily implemented in a decision support program which can be used to perform various managerial “what if” analyses.

Our implementation of discrete choice analysis included developing eight experimental screens for each respondent. Each screen presented two scenarios of tradeshows based on the eight different experimental variables that we tested. Similar to the best-worst exercise, the discrete choice experiment was designed such that each respondent was given her or his own set of scenarios to evaluate. On each experimental screen, respondents were asked to choose the tradeshow scenario they would like to attend based on the attributes listed. If the respondent did not like either of the two options presented on the screen, they could so indicate. A sample screenshot from this study is presented in Exhibit 12.

The next section of the survey included an attitudinal scale known as the abbreviated Technology Readiness Index (TRI). This scale measures attitudes towards new technology based of four constructs—optimism, innovativeness, discomfort, and insecurity. Based on a person’s responses to ten questions, we can calculate a “TRI Index” for each respondent. This index can be helpful in segmenting respondents into two subgroups, one that favors technology and the other that dislikes tech, for analyses to identify causes for any observed similarities or differences. The TRI scale is shown in Exhibit 13.

The final section of the survey asked about respondents’ demographics, that is, age, income, gender, education, family status, ethnicity, and some information about the organizations they work for.
This article describes how the results of a carefully planned choice experiment can be used to develop effective labor schedules. The paper first discusses the components that make up this approach, which includes methods from customer-preferences modeling, service-capacity planning, and the four tasks of labor scheduling. Next, it is shown how the model applies to balancing queue lengths and operating costs for an airport food-court vendor.


This article explains the basics of discrete choice analysis through a study of how customers chose a pizza-delivery company by trading off among several attributes (price, discount, promised delivery time, late-delivery time, variety, temperature, and money-back guarantee). The article further describes how the results of such a discrete-choice analysis can be incorporated into a decision-support system via a computer spreadsheet.


A discrete choice analysis based study compares the food-service preferences of individuals from three different language groups (English, Japanese, and Spanish). All three groups of respondents were relatively price insensitive for the four different types of restaurants studied and often were willing to wait either to order or to be served, depending on the food-service concept (e.g., waiting for pizza made sense to them, but waiting for burgers did not). Many respondents liked the idea of pictures of the food on menus to help identify unfamiliar items, but virtually no one wanted menus translated into their native language. Based on the study, one food-service outlet adopted a new marketing strategy that not only increased its market share but attracted more patrons to the food court.


This article describes in considerable detail how many different managerial decisions can be derived more effectively by using customer choice modeling techniques. The article describes how the results can be used to identify the preferences of customers in different market segments; calculate market share; identify order-winners and qualities; calculate brand equity; calculate switching barrier; and develop implementation guidelines.


This article describes how the results of a carefully planned choice experiment can be used to develop effective labor schedules. The paper first discusses the components that make up this approach, which Appendix

Articles based on Customer Choice Modeling published in Cornell Hospitality Quarterly and Cornell Hospitality Report


This essay attempts to highlight some of the valuable managerial and methodological insights on customer-choice modeling observed over the course of the previous ten years. To make this essay useful to both managers and academic researchers, it discusses thoughts on customer choice modeling in the context of methodological advances and managerial applications in service-driven markets. Choice modeling can yield valuable insights for market-driven strategy development by revealing customer clusters, suggesting the potential effects of changing the levels of value drivers, assessing overall brand equity, and identifying customers’ switching barriers.


This report describes how customer willingness to pay and desirability can be calculated from the results of a customer choice modeling study. The report includes a spreadsheet template that allows readers to manipulate customer choice modeling data and calculate willingness to pay and desirability for a hotel and restaurant context.


An analysis of the mall restaurant preferences of a national sample of 1,737 U.S. residents sheds light on how to configure mall food service and demonstrates how local malls can determine what their particular market desires. Using customer choice analysis, this study asked respondents to choose among six mall food-service configurations, including one that had a large food court and one that had no food court at all. The most popular configuration combined a moderate-size food court with several casual and fast-casual restaurants. Least popular was the choice that had only table-service restaurants and no food court.
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