OPTIMAL CONTROL OF A MARKETING CAMPAIGN ACTIVITIES [1]

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Optimization marketing campaign problem is considered in this report. In this work "Activity"means any event which has fixed date and paid participation. For example: concert, conference, flight on a plane.

Organiser's goal is to get the biggest profit from holding the conference. Number of potential buyers is not known priori. Moreover, demand for tickets depends on their cost and on potential buyers awareness. Thus, organiser can manages marketing campaign on the whole interval of time from start to event day in two ways:

1. To change the ticket cost.
2. To invest in promotion campaign.

Promotion campaign is considered like collection of different promotion tools. Number of people is attracted by promotion tool is considered like random variable. However, the dependence of the average number of attracted clients from a number of investments in advertising tool is known.

Also the model considers that the time at which a sale is made affects the probability of purchase. The closer the event, the greater the probability of purchase (ceteris paribus) the potential customer.

In the model, we consider the discrete time selling tickets, so for each time organizer sets the ticket price and allocates funds to various promotional tools. Time of sale of the ticket and the ticket price are the main factors affecting the probability of buying a ticket.

Because objective function (profit) depends on the random variables, it can not be optimized explicitly. To solve the problem, a quantile criterion is used. Quantile characterizes the maximum profit that is obtained organizer, with a given probability [1].

The considered problem solved with the following natural constraints:

1. Maximum number of tickets sold shall not exceed the number of seats at the event. Restriction is probabilistic, because the number of buyers is random.

2. Money spent on an advertising campaign and general expenses must not exceed the campaign budget. Budget restriction is deterministic.

In the report an algorithm for solving the problem in the class of program strategies is offered, i.e. prices and costs are determined for the entire planning period.

REFERENCES

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