



Multi-skill Call Center Staff Planning Tool **- Traffic Forecasting and Agent Level Optimization -**

Summary

Task

- help Bookit to accurately forecast traffic volumes in the service center (inbound/ outbound calls and emails)
- derive optimal long-term agent staffing levels per hour of the day and for the next 2-4 months
- develop an easy to use tool

Solution

- development of an integrated forecasting system considering seasonality, special events and correlations with reservation patterns
- built an Excel based VBA application with visualization of forecasting and optimization results
- user friendly GUI allowing testing of parameter input combinations

Result

- Bookit is able to set optimal base staffing levels for the coming 2-4 month
- possibility to evaluate and compare different settings, e.g. such as opening hours
- results are provided in form of different charts plus data tables

Multi-skill Call Center Staff Planning Tool

developed for

Organization:

Bookit (Business Reservations Centre Holland B.V.) is the market leading on-line intermediary for short stay leisure breaks in the Netherlands and is one of the most successful on-line companies in the leisure industry. Bookit's main website www.Weekendjeweg.nl is the third most visited travel website in the Netherlands and a widely recognized consumer brand.

Challenge:

Bookit operates a service center, i.e. inbound/ outbound calls and email handling, consisting of 30 people and needed a staff planning tool to determine the required agent levels for the upcoming 2-4 months per day and hour of the day. Statistical data analysis showed first strong intra-day patterns for different weekdays, second strong seasonal effects including the 'moving holidays', such as Eastern, and third a very strong correlation with reservation patterns. The tool is needed to produce reliable traffic forecasts for a long period on detailed level. Further, the tool needs to compute minimum agent staffing levels (per hour and day) to satisfy service level targets such as the 80:20 target for inbound calls, i.e. 80% of incoming calls are answered within 20 sec.

"We needed this tool to improve the customer experience while lowering our administration costs. The goal was to optimize our capacity utilization and at the same time to improve the workflow and the support of people and processes."

— Jorrit Knegtering, Manager Operations Service Center at Bookit

Solution:

We started with an extensive analysis of all available data sources, to obtain a deep understanding of the data behavior and the interactions and correlations between different sources. Based on this insight we built an integrated forecasting tool with different levels such as prediction of future reservation levels, seasonality effects including the very important 'moving holidays', also allowing special events handling and finally the consideration of intra-week and intra-day patterns. The resulting call center traffic for calls and emails is then used in the optimization part of the tool. The target was to compute minimum required agent levels per day and hour of the day to satisfy different service levels, respectively for inbound/outbound call and email handling. The tasks are not separated within the call center, so all available agents are able to

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perform the different required work types. Overall, the tool needed to be connected with the different databases, i.e. DB for calls, emails and reservations. Since the tool should be executable on different machines with straightforward result forwarding to Excel and Access and results visualization, we decided to build an Excel based VBA application. Also run time was not a priority issue since such long term forecasts are not made on daily basis.

“We concentrated in the beginning mainly on the statistical data analysis in order to build a well performing forecast to be the foundation of the tool. For the optimization task we applied well known techniques such as the Erlang formula. Finally, since the requirement was to easy integrate the tool with the existing infrastructure and habits of users, we decided to build the tool with Excel and VBA.”

— Alwin Haensel, PhD, Founder Haensel AMS

Result:

Bookit has now a tailor made application to compute long-term traffic forecasts with high accuracy levels for its service center and with this also the optimal agent staffing levels on daily and hourly level. The tool also allows testing and evaluating different settings for the service center, such as changes in opening hours or different service levels.

“The application fulfills all our needs and requirements in terms of performance, managing and reporting. For the future we plan to extend the tool with scheduling features and detailed agent performance reporting.”

— Jorrit Knegtering, Manager Operations Service Center at Bookit

“The backbone of a good planning tool is always a highly accurate demand forecast. The challenge in this project was the focus on long-term forecasts on detailed level. Based on an extensive data analysis, we were able to build an integrated forecasting system which fulfills the requirements.”

— Alwin Haensel, PhD, Founder Haensel AMS