SUCCESS STORIES - SUMMARY

Project Name	Client	Brief Description	Key Analyses
THROUGHPUT OPTIMIZATION	RESTAURANT CHAIN	**Assessed the mix of table-tops** to ensure maximum throughput, and minimum dropouts and wait times based on historical party sizes, inter-arrival times and service time	Queueing Simulation

THROUGHPUT OPTIMIZATION MODEL FOR A RESTAURANT CHAIN

ABOUT THE CLIENT

Client is a family-friendly chain serving American made-from-scratch food

SITUATION

- Company wanted to **optimize table mix for operational efficiency**
- Company **proposed a table-mix but did not have a model to validate** if the proposed table-mix would deliver a higher throughput and lower wait time and dropouts
- Merilytics partnered with the Company to build a **model to estimate operational metrics and optimize table** mix across all its restaurants

VALUE ADDITION

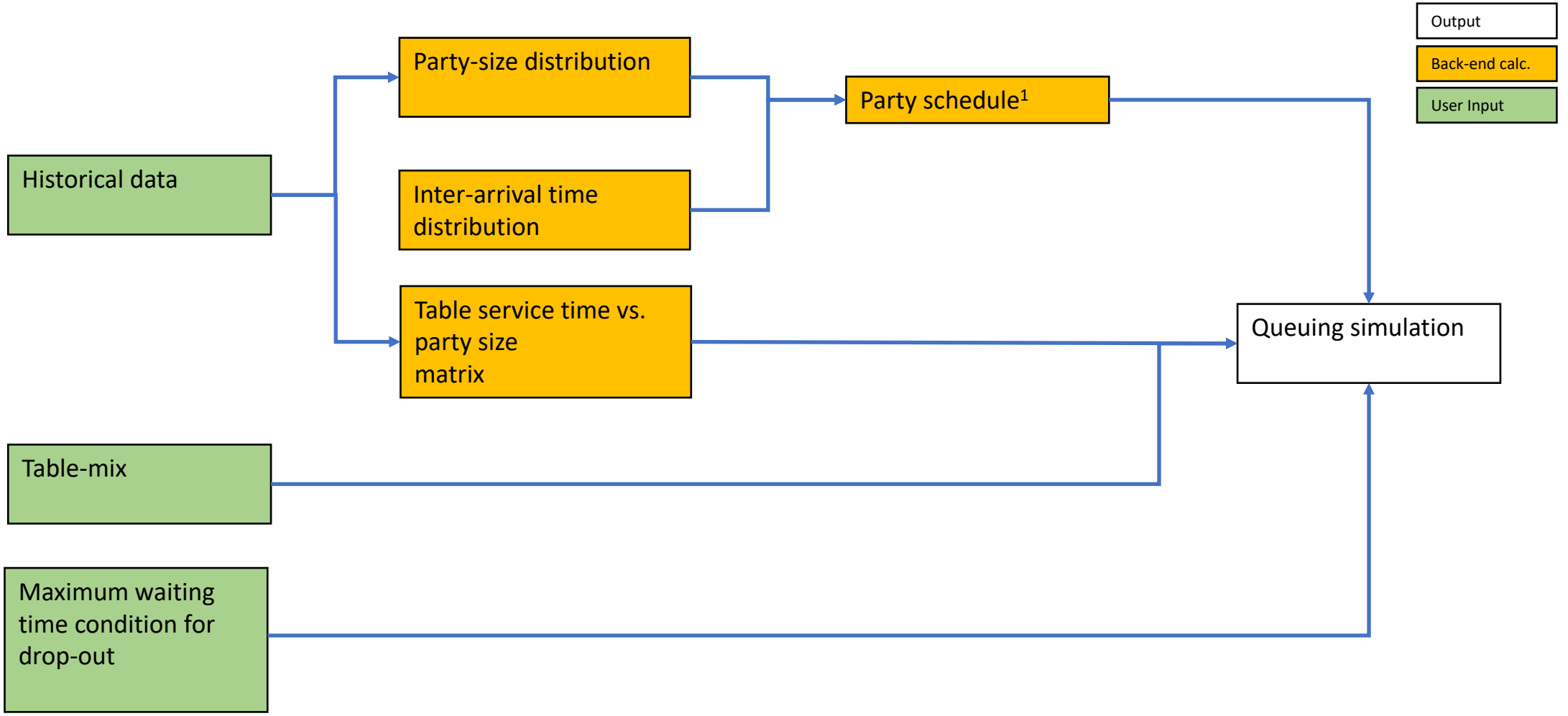
- **Built a model to estimate throughput, wait time and dropouts** for a given table mix & historical visits data
- **Estimated party size distribution, inter-arrival times' distribution & table-time matrices** using historical visits data
- **Estimated time spent by a party** for a combination of party size & occupancy level in the restaurant
- **Provided flexibility to update model for any restaurant** automatically on the click of a button
- **Provided flexibility to combine 2-tops** to accommodate parties of larger size was incorporated
- **Simulated an entire operational day to study peak-time trends**

IMPACT

- The model enabled the client conclude that the proposed table mix is better than existing only if party sizes 1-2 are restricted to 2-tops
- Combining 2-tops led to higher dropouts & lower throughput as ~50% of the incoming parties were of size 1-2
- The model **validated that table-mix** should be aligned to the party size distribution

PARTY SIZE DISTRIBUTION, INTER-ARRIVAL TIME DISTRIBUTION, TABLE-TIME MATRIX, TABLE-MIX & MAX. WAITING TIME ARE THE INPUTS TO THE QUEUING SIMULATION

Model Flow Diagram



1 Random schedule of parties & arrival times are simulated while matching the party size & inter-arrival times distributions

A SIMULATION CAPTURES THE VISITS THAT HAPPEN IN THE RESTAURANT ON A WEEKEND DAY FROM 11 AM IN THE MORNING TO 12 AM IN THE NIGHT

merilytics AN ACCORDION COMPANY

Simulation of an operational day at restaurant

ILLUSTRATIVE

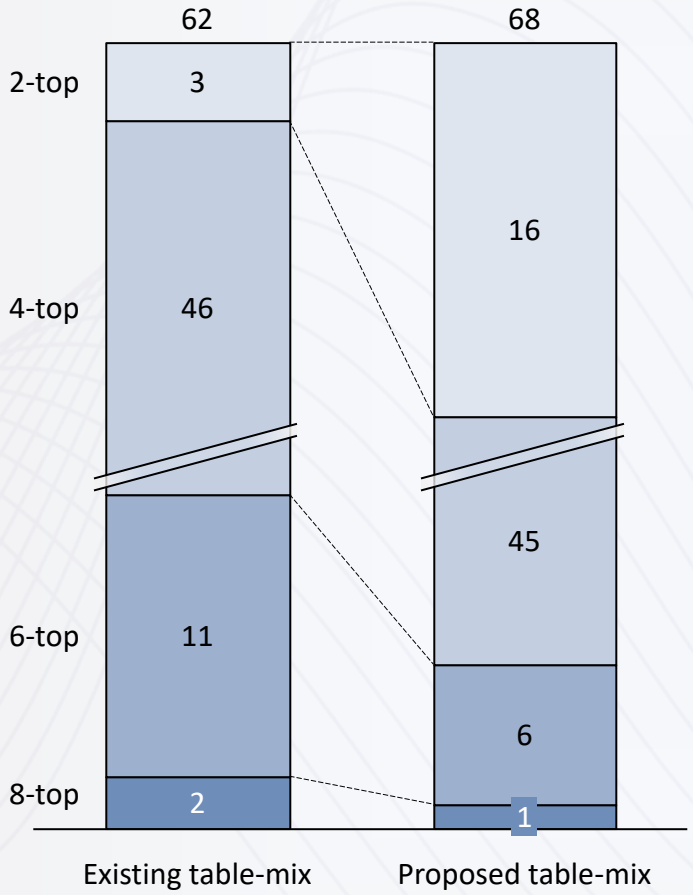
Arrival time	Party size	Min. capacity of table required	Table # Alloted	Alloted Table's capacity	Seat/Remove time	% Occupancy at the time of availability of appropriate table	Waiting time (in mins)	Table time (in mins)	Exit time
11:01 AM	2	2	1	2	11:01 AM	0%	0	55	11:56 AM
11:01 AM	3	4	4	4	11:01 AM	0%	0	74	12:15 PM
11:01 AM	2	2	2	2	11:01 AM	0%	0	55	11:56 AM
11:05 AM	3	4	5	4	11:05 AM	3%	0	74	12:19 PM
11:10 AM	2	2	3	2	11:10 AM	4%	0	55	12:05 PM
11:15 AM	2	2			11:45 AM	18%	30	56	11:45 AM
11:15 AM	5	6	50	6	11:15 AM	4%	0	85	12:40 PM
11:15 AM	2	2			11:45 AM	18%	30	56	11:45 AM
11:17 AM	2	2			11:47 AM	20%	30	56	11:47 AM
11:19 AM	3	4	6	4	11:19 AM	6%	0	74	12:33 PM
11:19 AM	4	4	7	4	11:19 AM	6%	0	74	12:33 PM
11:19 AM	2	2			11:49 AM	20%	30	56	11:49 AM
11:23 AM	2	2			11:53 AM	21%	30	56	11:53 AM
11:24 AM	2	2			11:54 AM	21%	30	56	11:54 AM
11:25 AM	6	6	51	6	11:25 AM	9%	0	85	12:50 PM
11:25 AM	4	4	8	4	11:25 AM	9%	0	74	12:39 PM
11:27 AM	2	2	1	2	11:56 AM	20%	29	56	12:52 PM
11:28 AM	2	2	2	2	11:56 AM	20%	28	56	12:52 PM
11:28 AM	2	2			11:58 AM	24%	30	56	11:58 AM
11:30 AM	3	4	9	4	11:30 AM	13%	0	68	12:38 PM
…	…	…	…	…	…	…	…	…	…
…	…	…	…	…	…	…	…	…	…

Seated w/o waittime
Seated with waittime
Walkout

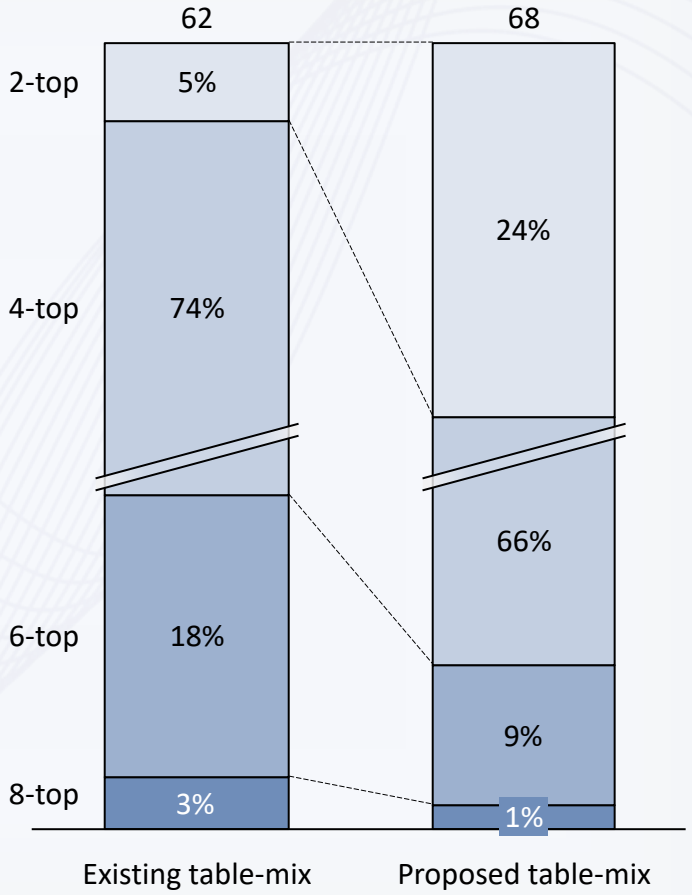
Allocations were done based on the 10 scenarios considered

THE PROPOSED TABLE-MIX HAS MORE NUMBER OF 2-TOPS THAN EXISTING FORMAT

# of tables by capacity, #



Share of tables by capacity, %



1. Hundred iterations were carried out for each scenario
2. The data used for the analysis is as of September 2015