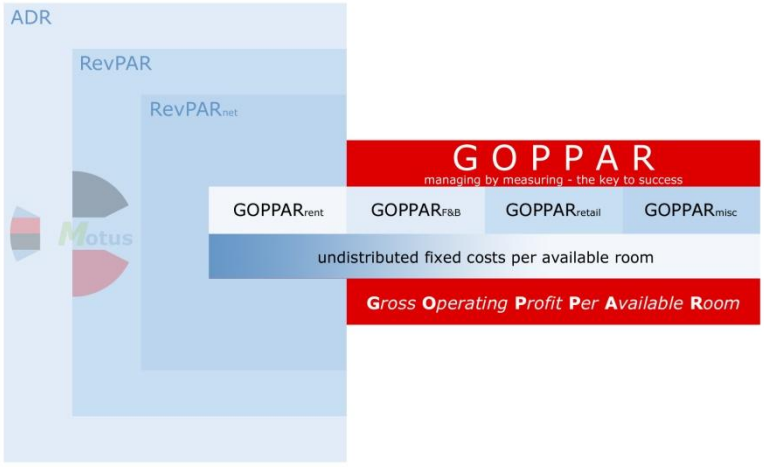
economics & information management
for hospitality and healthcare

The GOPPAR Model - extended version
a generous container of KPIs for hospitality



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Content

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Summary

With an extended version of The GOPPAR Model we have a structured dashboarding tool containing both operational and marketing KPIs, realizing a broad spectrum of information for monitoring and analyzing the hospitality business. The model enriches the basic version with a focus on guests instead of renting customers, and by zooming in on occupancy with the help of the queuing theory.

1 The GOPPAR Model: The need for an extended version

1.1 Profit structure available, but what about the customer ?

Revisiting The GOPPAR Model which I gave life in my former article at *Hospitality Net*, I will introduce some enhancements. Let us look at what was achieved, what we are missing with respect to the goal of the model to be of general use for hospitality, and what we can do about it...

GPPOR

$$GOPPAR = (\sum m_n \cdot ADS_n) \cdot Occ - \sum FCPAR_m$$

GPPAR

In the model as shown above we are seeing a gross operating profit expressed per for rent available room with its variable part (the contribution margin) decomposed per profit center with respect to cost structure and customer spending. Although it already gives a nice overview of different aspects of hospitality business, it does not shed much light on the customer and his behavior. It still is insufficient as a forecasting, pricing and general marketing tool for more complicated earnings models. And there is a general issue, its name which implies a limitation to renting rooms.

1.2 First issue: The 'R' in GOPPAR

Having its origin in the hotel industry the letter 'R' in GOPPAR is for room. Hotels rent out rooms, but in hospitality this of course is not always the case. For example hostels basically have beds as units for rent. And consider the opposite, resorts mostly renting out multi-bedroom apartments or bungalows.
As the word 'room' clearly is not covering the scope of the model, from here on I will consider GOPPAR as an abbreviation for *Gross Operating Profit Per Available* ***Resource*** *(for rent)****.***

1.3 Second issue: ADS, the black box to guest spending behavior

The average daily 'customer' spending (ADS) really is a black box not giving insight into spending behavior. Hospitality is among other reasons a special industry with a renting customer representing a certain amount of guests, who are in fact the units of interest for additional sales. We must start focusing more on the guest for gaining real insight into the business.

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Just imagine the average group size changing, e.g. relatively more single people visiting with an unchanged occupancy and same rent prices. Under otherwise unchanged circumstances we probably get less revenue in restaurants and shops. The model would suggest the hotel having more economically tight customers but the case is simply that there are less guests with a same amount of (renting) customers. In a case like this the model does not have possibilities judging the situation nor providing good forecasting. Concluding, we need guests, the real customers in hospitality, into the model to solve this crucial issue.

1.4 Third issue: Occupancy, the beloved ultimate black box

Occupancy always seems to be the magic KPI that we want to know and want to control. But really as an overall business performance indicator it is of little use and without any real forecasting power. Comparable with the former issue it has nothing to say about guests.
As an example just imagine the average length of stay being much lower than last year but occupancy remaining about the same as the number of bookings is growing. That situation would have a big impact on both operations and marketing, but the model would show nothing in this case.

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2 Building blocks for enhancements in the extended version

2.1 The customer and his group size

This change to the model is easily understood, it is decomposing the average daily spending of the (renting) customer into the product of average daily spending per actual guest and the average group size, the number of guests per rented room, bungalow etc. Below the formula I will use is shown, with variable 'g' for group size, ADS for average daily spending, with superscript 'R' signifying it is in relation to resources for rent, or superscript 'G' signifying it is in relation to guests.

$$ADS_n^R = ADS_n^G \cdot g$$

2.2 Alternative formula for occupancy: Little's Law for hospitality

The last issue I am putting forward is more complex, and probably most people will not know Little's Law from the queuing theory, that originated in 1954 and was mathematically proven by John Little himself in 1961. The theorem can be put as follows:

> *The long-term average number of customers in a stable system L is equal to the long-term average effective arrival rate, λ, multiplied by the average time a customer spends in the system, W; or expressed algebraically: L = λW. (source: Wikipedia)*

The theorem is used frequently in process management and often stated as WIP = TH * CT, work-in-progress being the product of throughput and cycle time. The simple looking but powerful equation can provide one of three variables when it cannot be calculated otherwise.
In healthcare it is sometimes used providing a solution for calculating occupancy in cases, like with operating rooms, where an inventory of resources is not clear. In hospitality the problem does not exist as there is a fixed known inventory of resource nights. Little's Law however is of great benefit enriching the model.

Considering occupancy is utilization relative to maximum capacity we can derive an innovative building block for the model. When we translate the queuing theory formula into the model for hospitality we get our alternative for occupancy (variable Occ), with variable 'ADA' meaning average daily arrivals with subscript 'R' signifying it is related to rooms, 'R' meaning total number of available resources, and 'ALOS' meaning average length of stay with again subscript 'R' signifying it is related to resources for rent.

$$Occ = \frac{\lambda.W}{L^{max}} = \frac{ADA^R \cdot ALOS^R}{R}$$

In the final model ADA^R and R are combined in a fraction as they show a with respect to operations interesting relative arrival rate, the average number of arrivals relative to the number of available resources.

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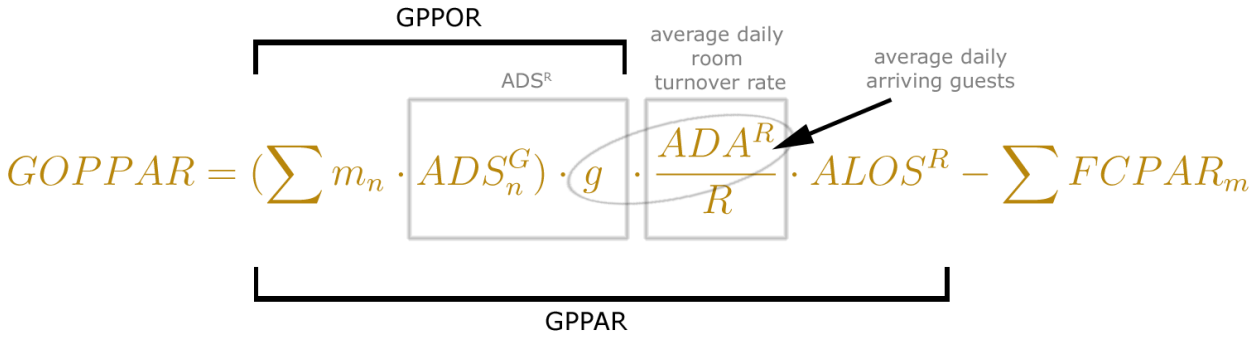
3 The GOPPAR Model in its extended version

As seen below, the extended model is a KPI-enriched formula consisting of both operational and marketing aspects of hospitality business.



Direct variables, available in the model:

GOPPAR	Gross Operating Profit Per Available Resource
m	gross profit margin
ADS^G	Average Daily Spending per guest
g	average group size
ADA^R	Average Daily Arrivals per resource
R	number of available resources for rent
$ALOS^R$	Average Length Of Stay per resource
FCPAR	Fixed Costs Per Available Resource

Indirect variables, derivable from variables in the model:

Occ	Occupancy
GPPOR	Gross Profit Per Occupied Resource
GPPAR	Gross Profit Per Available Resource
TREVPOR	Total Revenue Per Occupied Resource
TREVPAR	Total Revenue Per Available Resource
α	average daily resource turnover rate
G	average number of daily visiting guests
ADA^G	Average Daily Arrivals of guests

Indexes:

n	various profit centers
m	various departmental or undistributed cost categories

Based on the model a powerful management dashboard with many KPIs resulting in GOPPAR can be created. The dashboard needs possibilities to drill-down to the day level, and to filter by interesting dimensions like sales channel, different customer categories etc. A nice subject for a future article about GOPPAR…

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