Revenue Management Metrics Study

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1. Executive Summary

The performance of revenue management has been traditionally measured with metrics, such as occupancy (OCC), average daily rate (ADR) and revenue per available room (RevPAR). These revenue management metrics utilized by the hospitality industry have been in existence since almost 30 years ago. Nevertheless, some hospitality businesses today have progressed to extended measures, such as gross profit per available room (GopPAR) and total revenue per available room (TRevPAR). As the world shrinks with globalization and revenue management has evolved, there is an urgent need to revise the metric that the industry employs. In fact, practitioners have urged for new metrics to reflect more accurately the new development in revenue management. One example of such new metrics is the application of Total Revenue Management which includes other departments on top of rooms. Another example resulting from the shift towards Customer-centric Revenue Management is Revenue per available customer (RevPAC). Both metrics are under discussion but yet to conceptualize.

The Hospitality Sales & Marketing Association International (HSMAI) APAC has commissioned Singapore Institute of Technology (SIT), represented by Assoc. Professor Dr. Detlev Remy, and a joint researcher team (Asst. Prof. Tan, SIT, Asst. Prof. Boo, SIT, Ms Shirley Tee, NYP, Mr. Stan Josephi, NHTV) to undertake a research on revenue management. The study aims to identify the different Revenue Management metrics in use, their limitations, and the possible new Revenue Management metrics.

<u>Objective 1</u>

Determine the use of existing Revenue Management metrics and their limitations.

<u>Objective 2</u>

Identify new Revenue Management metrics, the opportunities, limitations, and willingness of practitioners to adopt.

<u>Objective 3</u>

Investigate the willingness of Revenue Management suppliers/vendors to support the adoption of the new Revenue Management metrics.

2. Background

The data collection was executed in three stages: focus group discussion, practitioner survey, and vendor survey. At the first stage, a focus group discussion was conducted with a group of senior management of the major hotel chains and integrated resorts, as well as members of the HSMAI APAC Revenue Advisory Board. The purpose of the focus group discussion was to identify the critical questions to be included in the subsequent survey questionnaire. Fifteen hospitality industry practitioners participated in the roundtable discussion held in Singapore on 24th April 2017. Three major topics emerged from the discussion included (a) the actual Revenue Management metrics used by the practitioners, (b) the criteria of new Revenue Management metrics, and (c) the challenges and impacts of new Revenue Management metrics.

The second step involved a data collection procedure via a Qualtrics online survey questionnaire. The survey was developed based on the findings in the focus group discussion. Twelve questions were constructed and the survey was sent out to the industry practitioners in June 2017 and lasted until March 2018, with in total of nine email blasts and reminders. The response rate is 27.2% (953 out of 3500).

The final stage was a survey aimed at 16 selected leading vendors and suppliers in the area of Revenue Management (i.e. Revenue Management software suppliers, travel data information providers etc.). The data was collected from April – June 2018 to ascertain the support and engagement with vendors and suppliers to revised Revenue Management metrics. The response rate is 43.8% (7 out of 16).

Stage 1 (May-June 2017)	: Focus group with senior management of major hotel chains
Stage 2 (June 2017-March 2018)	: Survey on industry practitioners
Stage 3 (April-June 2018)	: Survey on selected RM vendors and suppliers

3. Results

3.1. Focus Group Discussion

A couple of new Revenue Management metrics emerged during the discussion. The focus group participants strongly believe that the structure of organization departments and the departmental collaboration, such as in sales, should be redefined with the introduction of the new Revenue Management metrics. These metrics include:

(a) TRevPAR - Although RevPAR is pervasively used as a Revenue Management metric, it appears that TRevPAR is not clearly understood by the Hotel Owners or Assets Managers.

(b) Contribution per available space time (ConPAST) - This metric was introduced in association with function space.

(c) Revenue per available seat hour (RevPASH) - This Revenue Management metric is applicable to the restaurant industry which has been lagging in adopting the Revenue Management concept.

(d) RevPAC - this Revenue Management metric has not been discussed substantially since "available room" remains the focus of the industrial practitioners. However, RevPAC could be a potential powerful metric in the future.

(e) Net revenue per available room (NRevPAR) - This Revenue Management metric is the next logical extension of RevPAR by subtracting the marketing costs from revenue. This metric assesses the efficient deployment of marketing resources in revenue generation. Hence, the costs should include website costs, loyalty costs, and other marketing costs. It could also be analyzed according to market segments and channels.

    However, the metric faces a few challenges before it could be widely adopted by the industry. First, many industrial practitioners have yet to provide such data. Second, there has not been a standardized approach to deduct marketing costs. Finally, the metric does not capture the total value of a customer, e.g. repeat business.

(f) Others

    Besides total spend per customer, Revenue Management metrics related to customer segment were prevalently raised in the discussion. These metrics include spend/profit margin per segment, guest capture per segment, and cost per segment.

In summary, the suggested metrics focus greatly on the aspect of "results after costs", especially from the owner's perspective. The types of costs are concentrated on the marketing and distribution costs.

3.2. Questionnaire Survey

3.2.1. Industry Respondents Profile

The study targeted global individuals at the managerial level in the Hospitality Business sector. The top three functions of the respondents are Revenue Management (78.0%), Marketing and Sales (9.0%), and Operations (5.6%).

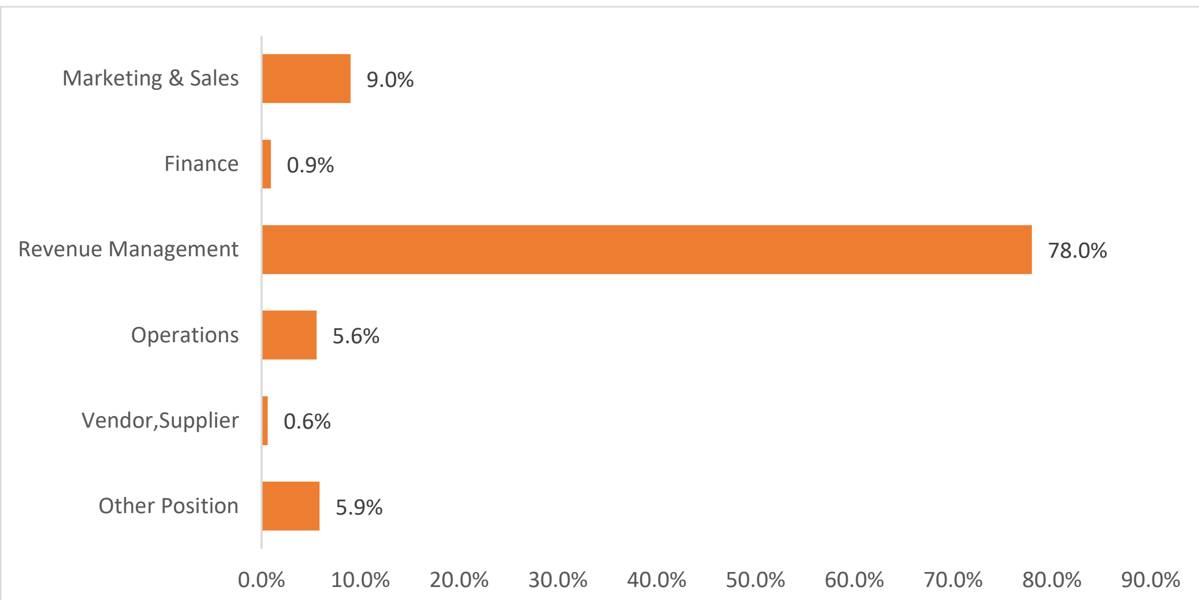

Figure 1. Respondents Profile

3.2.2. Type and Category of Hotel

Furthermore, the study asked the respondents to indicate the type and category of hotel. Specifically, the question helps to understand the different needs and requirements of hotels with respect to Revenue Management metrics.

Majority of the respondents are from hotel chain (81.4%) and independent properties (16.3%) with a breakdown of the property size as follow (see Figure 2).

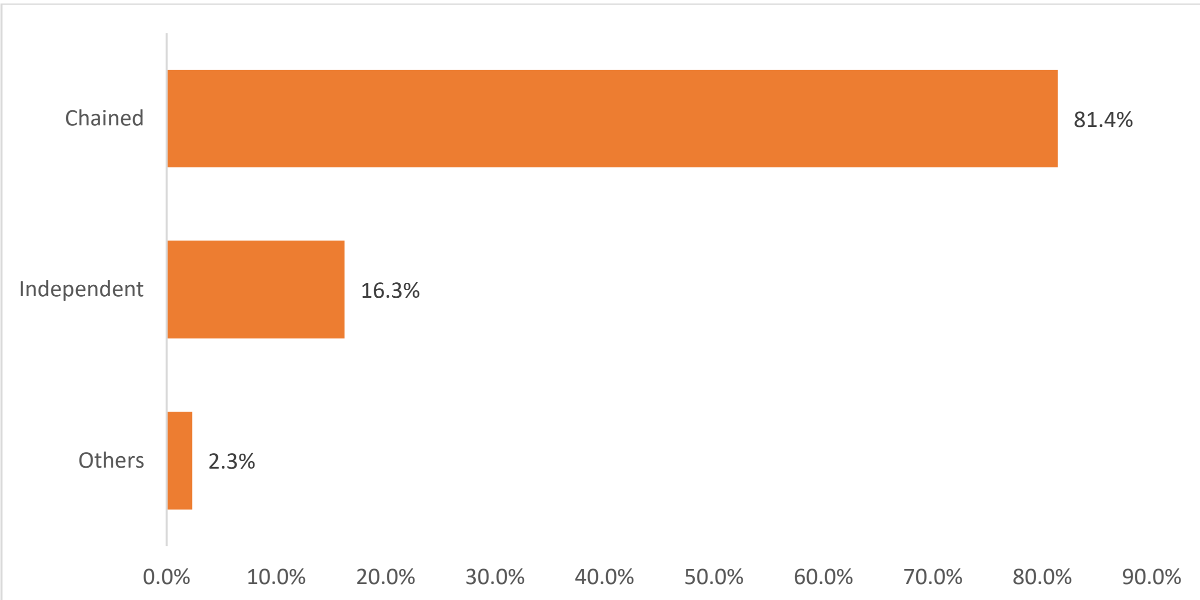

Figure 2. Type and Category of Hotel

3.2.3. Average Size of Hotel

The study also asked the respondents to indicate the average size of the property, with the intention to see whether there are differences in Revenue Management application and use of metrics.

44.8% of respondents reported less than 200 rooms, 37.4% has room size between 201-400 rooms, 10.8% has room size between 401-600 rooms, and 7.1% has more than 600 rooms.

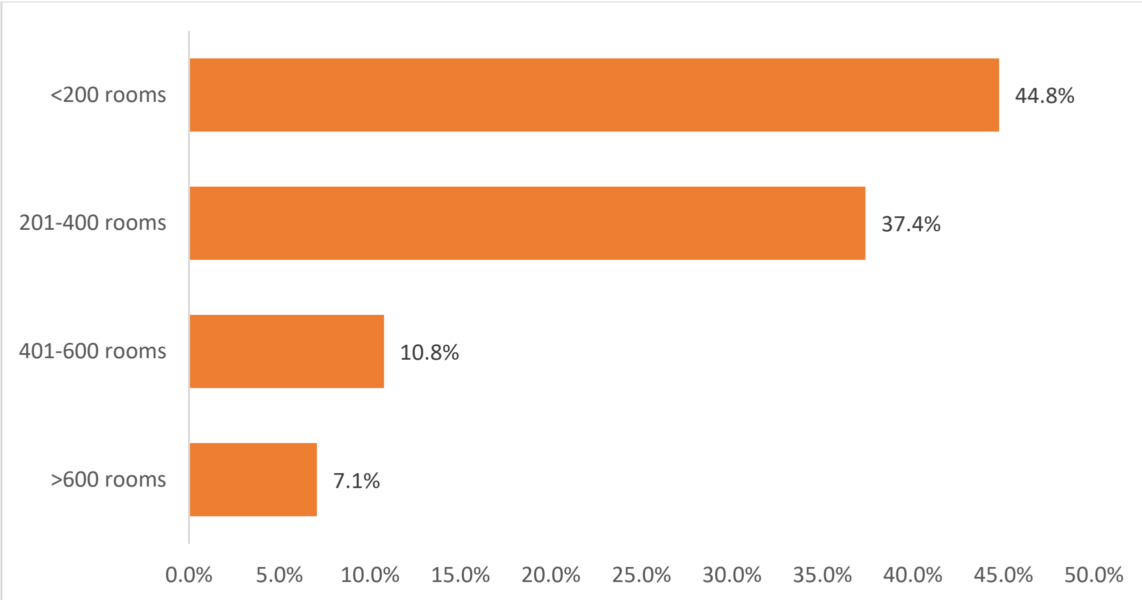

Figure 3. Average Size of Property

3.2.4. Primary Source of Revenue

Hotel revenue is typically generated from room sales, which may be divided into leisure and corporate. Other sources of revenue include function space, food and beverage, gaming, retail and spa. To resonate the urge to extend revenue management beyond room sales, the study asked the respondents to rank the primary sources of revenue for their property in the descending order (rank 1 = high, rank 7 = low).

Results of the descriptive analysis (see Table 1) show that room sales from the leisure and corporate segments constituted the first and second primary source of hotel revenue. Function space and food and beverage sales are the third and fourth important sources, respectively. Revenue generated from spa was ranked fifth, followed by retail. It is not surprising that gaming was rated the least important source.

Table 1. Primary Source of Revenue

Source of Revenue	Ranking						
	1	2	3	4	5	6	7
Rooms - Leisure	**478 (49.3%)**	296 (30.5%)	96 (9.9%)	58 (6.0%)	22 (2.3%)	11 (1.1%)	8 (0.8%)
Rooms - Corporate	397 (41.0%)	**356 (36.7%)**	84 (8.7)	50 (5.2%)	42 (4.3%)	25 (2.6%)	15 (1.5%)
Function Space	28 (2.9%)	142 (14.7%)	**408 (42.1%)**	274 (28.3%)	71 (7.3%)	34 (3.5%)	9 (0.9%)
Food and Beverage	15 (1.5%)	134 (13.8%)	291 (30.0%)	**430 (44.4%)**	70 (7.2%)	21 (2.2%)	4 (0.4%)
Gaming	21 (2.2%)	3 (0.3%)	6 (0.6%)	9 (0.9%)	97 (10.0%)	152 (15.7%)	**666 (68.7%)**
Retail	25 (2.6%)	29 (3.0%)	38 (3.9%)	65 (6.7%)	240 (24.8%)	**486 (50.2%)**	74 (7.6%)
Spa	5 (0.5%)	9 (0.9%)	44 (4.5%)	78 (8.0%)	**417 (43.0%)**	227 (23.4%)	178 (18.4%)

3.2.5. Revenue Management Culture

Respondents were also asked to specify their Revenue Management culture. The rationale for these four options was derived from the different levels of Revenue Management applications in the current hotel operations. From a more traditional room-centered approach to the inclusion of food and beverage, events and spas up to the level where cost of acquisition, such as marketing costs, the final stage of Revenue Management application is clearly a more holistic one. It focuses on the bottom line of the business by incorporating all revenue generated from the various departments and the marketing cots needed for customer acquisition.

Four options have been displayed:

Answer Option: Rooms focussed

Answer Option: Rooms + Catering focussed

Answer Option: Rooms + Catering with integrated marketing

Answer Option: Total Revenue Optimisation with integrated Marketing

The existing culture of revenue management appears to be at the two extremes (see Figure 4): total revenue optimization with integrated marketing (42.4%) and room focused (34.2%).

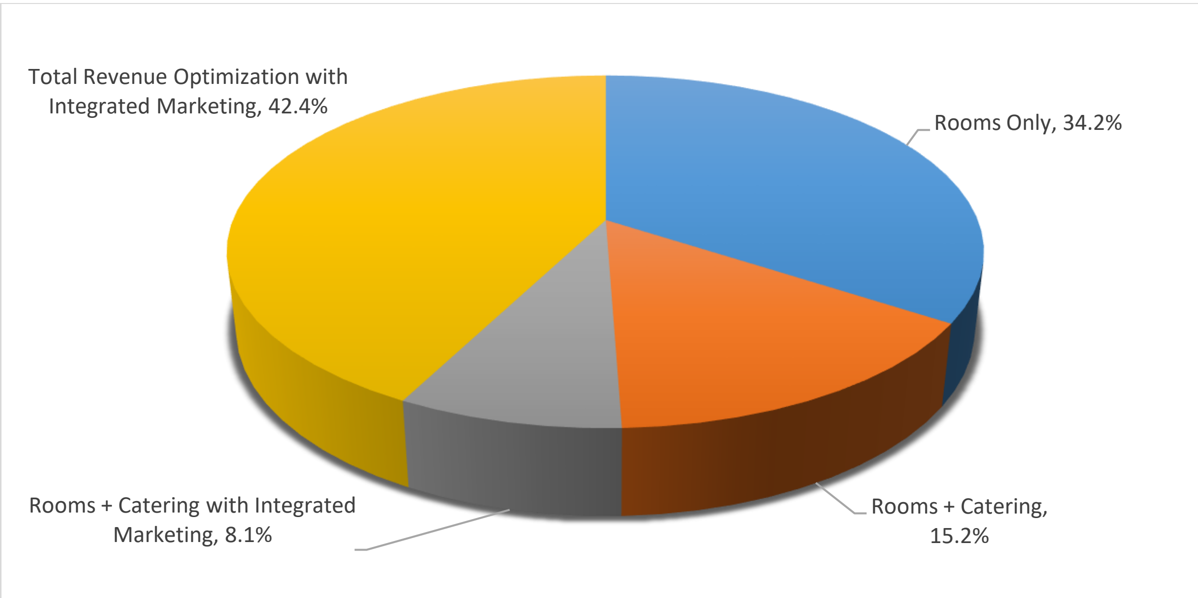

Figure 4. Revenue Management Culture

4. Existing Revenue Management Metrics

Hotel Revenue Management uses various metrics to show the effectiveness and efficiency of hotel to generate revenues (Mauri, 2012). The key hotel Revenue Management metrics are Occupancy (OCC), Average Daily Rate (ADR), and RevPAR (Revenue per available room). OCC essentially measures the utilization of the physical capacity of the hotel. ADR is the average price charged by the hotel for a room night. It is intuitive, straightforward, and easy to calculate and understand. Furthermore, it is the most common performance metric used in the hospitality industry. RevPAR combines both OCC and ADR to measure the room revenues generated by the hotel per room available for sale. It is considered as one of the most important metrics in the hotel industry.

However, the major concern for these commonly used Revenue Management metrics is that they have only considered the room division component. Guest room revenues may well account for nearly all of the revenue for a budget hotel but not for a luxury business/leisure/golf/casino hotel room (Ivanov, 2014). Room revenues for the latter may only be less than half of its total revenues, which points to a need for a more holistic measurement. Furthermore, as hotel companies become better at collecting and collating transaction data from all revenue streams, it is inevitable that the number of performance measures used by revenue managers will also grow (Walters, 2012).

4.1. Use of Revenue Management Metrics

Respondents were asked to indicate how they measure Revenue Management performance by offering them the following options: RevPAR, TRevPAR, GopPAR, Revenue generated index (RGI), and additionally the opportunity to list any other Revenue Management metrics in use.

The survey findings indicate that RevPAR (77.4%) is the most preferred way of measuring hotel revenue management performance, followed by RGI (48.5%), GopPAR (20.4%), and TRevPAR (13.7%).

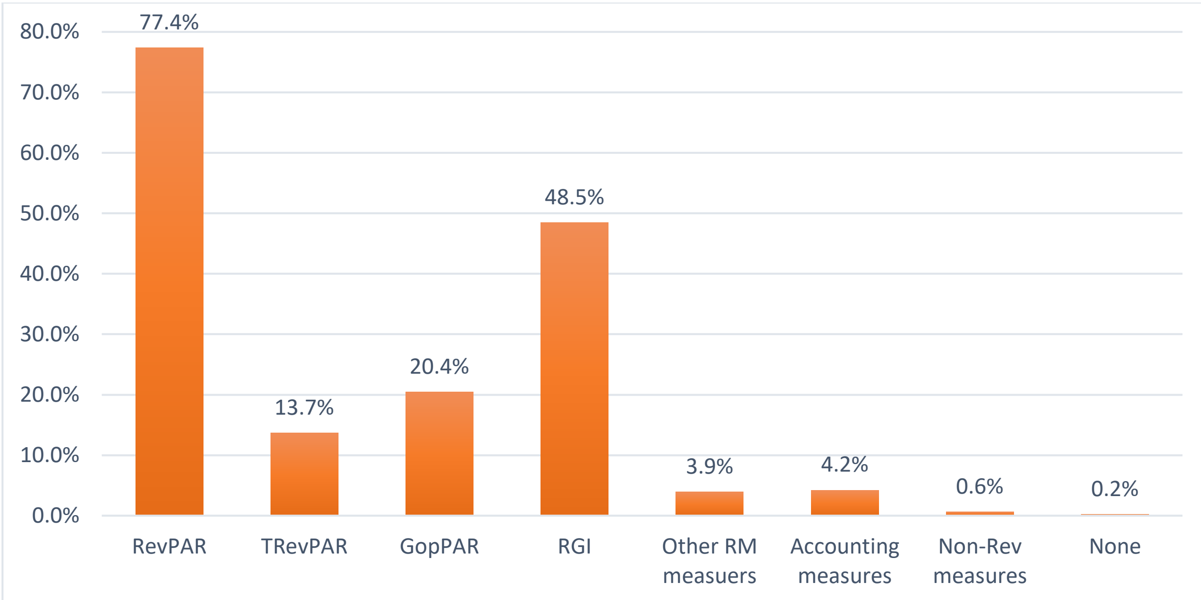

Figure 5. Use of Revenue Management Metrics

Other types of performance measures may be categorized into three groups. The first group consists of Revenue Management measures other than the listed four (3.9%). Some of the measures are traditional OCC, ADR, average rate index (ARI), and market penetration index (MPI). Others are more contemporary measures, include NRevPAR, RevPASH, revenue per available treatment hour (RevPATH), revenue per square meter (RevPSQM), RevPAC, and profit per available room (ProfPAR).

The second group is based on accounting measures (4.3%) which consist of total revenue (Rev), earnings before interest, taxes, depreciation and amortization (EBITDA), gross operating profit (GOP), profit (PROF), and return on investment (ROI). These measures may be compared with the budgeted value.

The third group comprises non-Revenue measures (0.6%) such as customer satisfaction and quality score.

4.2. Limitations of Existing Revenue Management Metrics

In line with the discussion on the inadequacy of the existing Revenue Management metrics, respondents were asked to state the limitations if they perceive any.

With almost 65% of the respondents practicing either rooms and catering, rooms and catering with integrated marketing, or total revenue management optimization with integrated marketing as their revenue management culture, we would expect a greater proportion of the hotel respondents to find the existing revenue management metrics as inadequate. However, it is surprising to note a contradicting finding. The study shows that 66.1% of the respondents felt that the existing measures are sufficient for their need while 33.6% felt otherwise (see Figure 6).

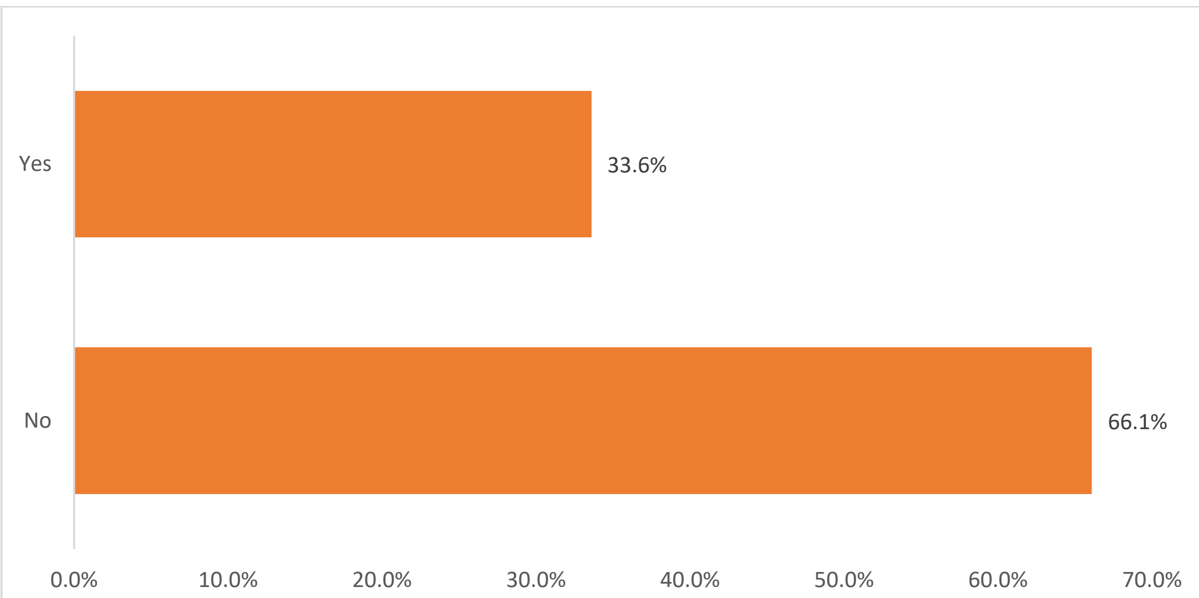

Figure 6. Limitations of Existing Revenue Management Measures

Respondents who indicated the limitations of the existing Revenue Management metrics (33.6%) have expressed their view. Results of the text analysis reveal the limitations of the listed measures in five aspects (see Figure 7):

(a) lack of comprehensiveness,

(b) metrics not comparable,

(c) data accuracy,

(d) organizational constraints, and

(e) others.

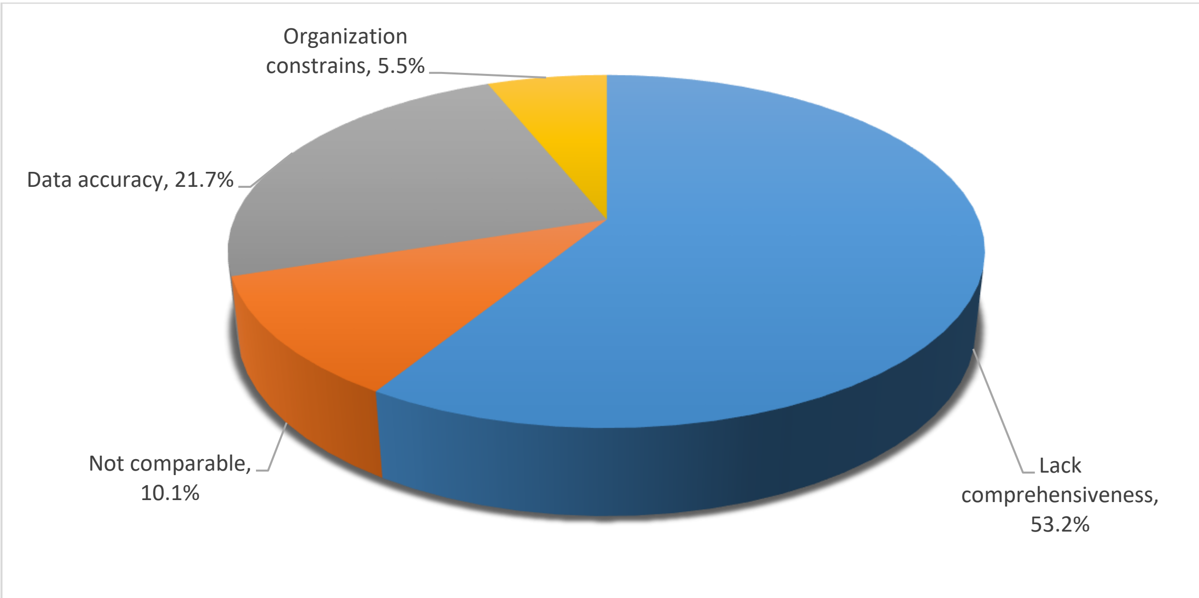

Figure 7. Perceived Limitations of Revenue Management Measures

The primary limitation (53.2%) is related to the comprehensiveness of the Revenue Management measures since they generally do not include costs, profit, and the different sources of revenues.

The second limitation (21.7%) is associated with the accuracy of data. A small number of respondents (1.3%) doubted the authenticity of information provided by the hoteliers. However, there are more respondents concern about the ability of vendors to include all hotels and other types of accommodation property (e.g., Airbnb, vacation club) so that they could use the relevant comp set for benchmarking (2.5%). Other data accuracy problems include different reporting practices, timeliness of information, and inventory variation (3.5%).

The third aspect of limitation (10.1%) is associated with measures (e.g., TRevPAR, GopPAR) not being included in the current reports, for example STR reports. As a result, respondents could not make meaningful comparison against their competitors.

Finally, respondents commented that some of the measures are complex and demand appropriate technology, talented human resource, and knowledgeable decision makers which the organizations may be lacking (5.5%).

5. New Revenue Management Metrics

5.1. Knowledge of New Revenue Management Metrics

Given the limitations and ongoing complaints of the existing Revenue Management measures, it is expected that respondents are aware of alternatives, respectively new forms of measurements. As the study is interested in getting a holistic view on Revenue Management metrics, respondents were asked to indicate (several options possible) their awareness of the following new Revenue Management metrics.

Answer Option: NRevPAR (Net Revenue per available room),

Answer Option: RevPAC (Revenue per available customer),

Answer Option: RevPASH (Revenue per available seat hour), for use in Restaurant Revenue Management,

Answer Option: RevPATH (Revenue per available treatment hour), for use in Spa Revenue Management,

Answer Option: ConPAST (Contribution per available space time), for use in Function Space Revenue Management.

The above new Revenue Management metrics have been under discussion for some time (i.e. Mourier, 2012) although some (specifically NRevPAR and RevPAC) have yet to be conceptualized or applied in practice.

There are 36% of the respondents indicated their awareness of NRevPAR, 20% are aware of RevPAC, 18% are aware of RevPASH, 12% are aware of RevPATH, and 9% are aware of ConPAST (see Figure 8).

Furthermore, the respondents were asked to indicate other new Revenue Management metrics that they have knowledge of.

There are 3.6% respondents indicated their awareness of other measures, such as revenue per meter squared (RevPSQM), total revenue per occupied room (TRevPOR), and profit per available room (ProPAR).

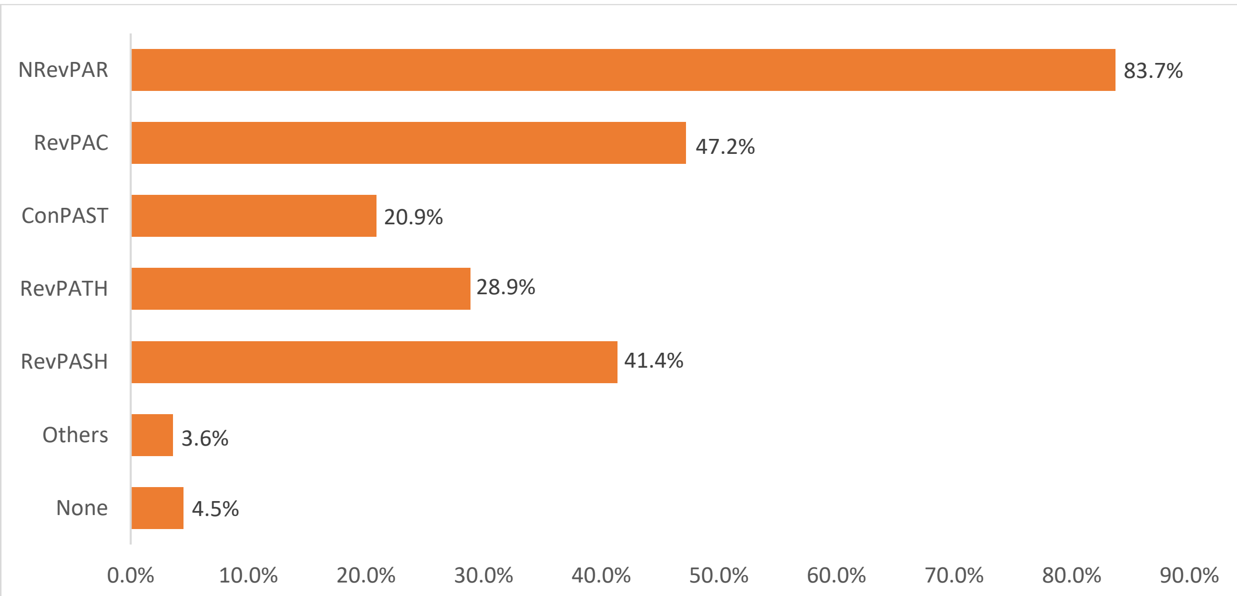

Figure 8. Knowledge of New Revenue Management Metrics

5.2. Willingness to Adopt New Revenue Management Metrics

At the first stage of this study, the authors had called for a focus group discussion. Two new Revenue Management metrics, NRevPAR and RevPAC, have been identified as most promising and needed for the future of metrics.

It is encouraging to note that about half (46.3%) of the respondents at the second stage of this study strongly indicated their willingness to adopt the new Revenue Management measures such as NRevPAR or RevPAC (see Figure 9).

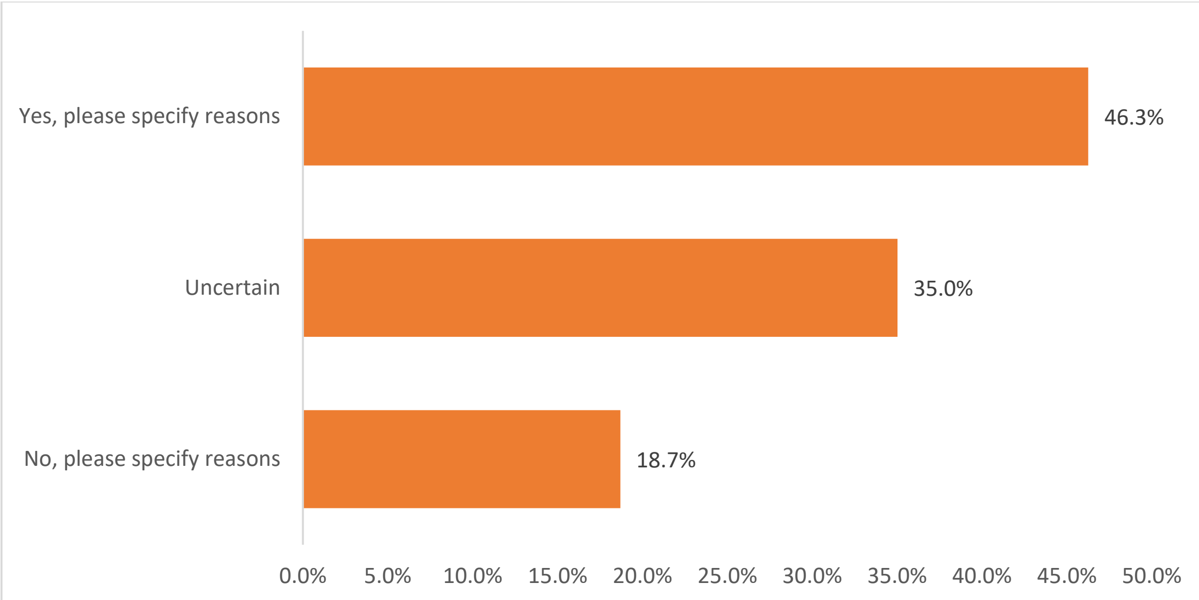

Figure 9. Willingness to Adopt New Revenue Management Metrics

5.2.1. Positive Factors Affecting Adoption Intention

Respondents were given the opportunity to express their positive view towards the new metrics.

Perceived usefulness of the measures is the most significant factor (56.6%) affecting the adoption intention. These new metrics are regarded as valuable to drive channel optimization and total revenue management, increase efficiency and return on marketing efforts, improve planning and budgeting. Essentially, these advantages enable the hoteliers to develop effective strategies. It is also important to note that the usefulness of the measures is greatly associated with the data accuracy.

To some lesser importance, the support from company top management (1.5%) and the need to be in line with the industry practice (1.7%) are two other motivation factors (see Figure 10).

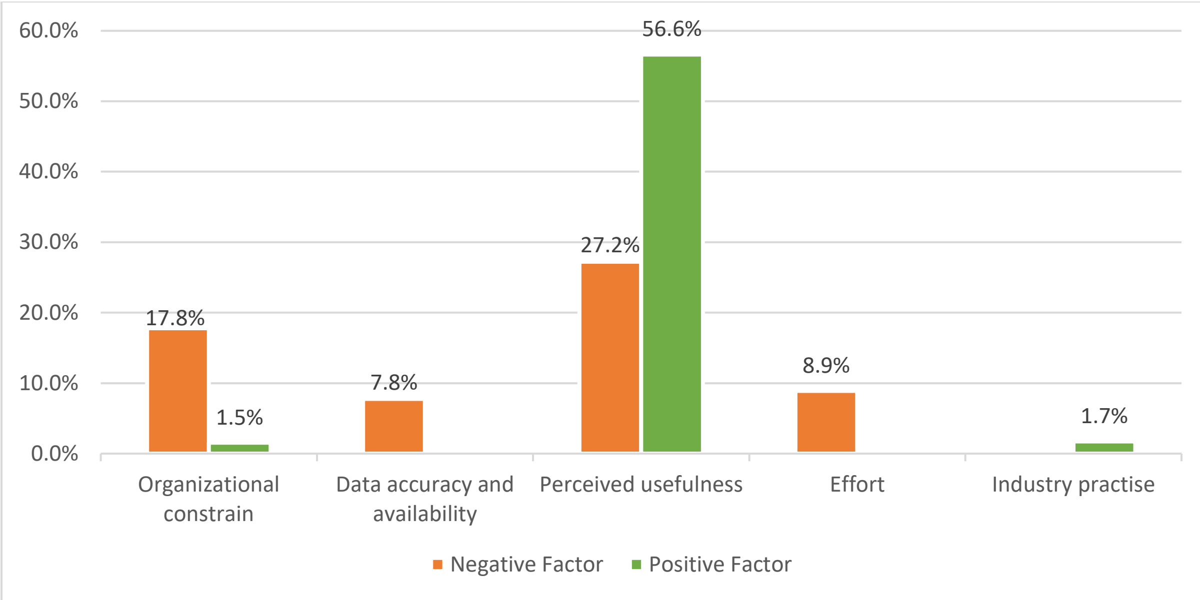

Figure 10. Positive and Negative Factors Affecting Adoption Intention

5.2.2. Negative Factors Affecting Adoption Intention

The respondents also have had the opportunity to elaborate their concerns about adopting the new Revenue Management metrics.

Text analysis on the respondents' comments shows that the negative adoption intention can be attributed to four factors (see Figure 10 above). First, perceived lack of usefulness is the most influential negative factor (27.2%). Some respondents are contented with the current measures and thus do not perceive a need for the new ones at the present time (11.1%). On the other hand, others (16.1%) do not think the new measures provide relevant or additional benefits and insights nor applicable to the properties.

Second, respondents generally commented that they are not the decision maker. The adoption needed the top management to "buy in" the idea. In addition, there should be knowledgeable personnel and appropriate technology in place to implement the performance measures successfully. In short, the organizational constrain is important factor deterring the adoption intention (17.8%)

The third negative factor is related to the effort required to implement various Revenue Management metrics (8.9%). Respondents cited that the time and effort needed to implement the contemporary measures is substantial. This is further encumbered by the overwhelming work with the existing Revenue Management metrics.

Data accuracy and availability is the fourth negative factor (7.8%). Respondents commented that the relevant measures are not included in the supplier's and vendor's reports (i.e. STR etc.) currently. Hence, it is not available for comparison. Furthermore, respondents also distrust the data provided by hoteliers, especially when the reporting practices vary among companies.

5.2.3. Adoption Intention among Different Revenue Management Culture

The study also investigated the willingness to adopt new revenue management metrics among the four revenue management cultures. It is assumed that an organization with focus on Total Revenue Management needs new measures more than a business with room-focused revenue management culture. Hence, the adoption intention is expected to be higher for companies focusing on total revenue management than room-focused only.

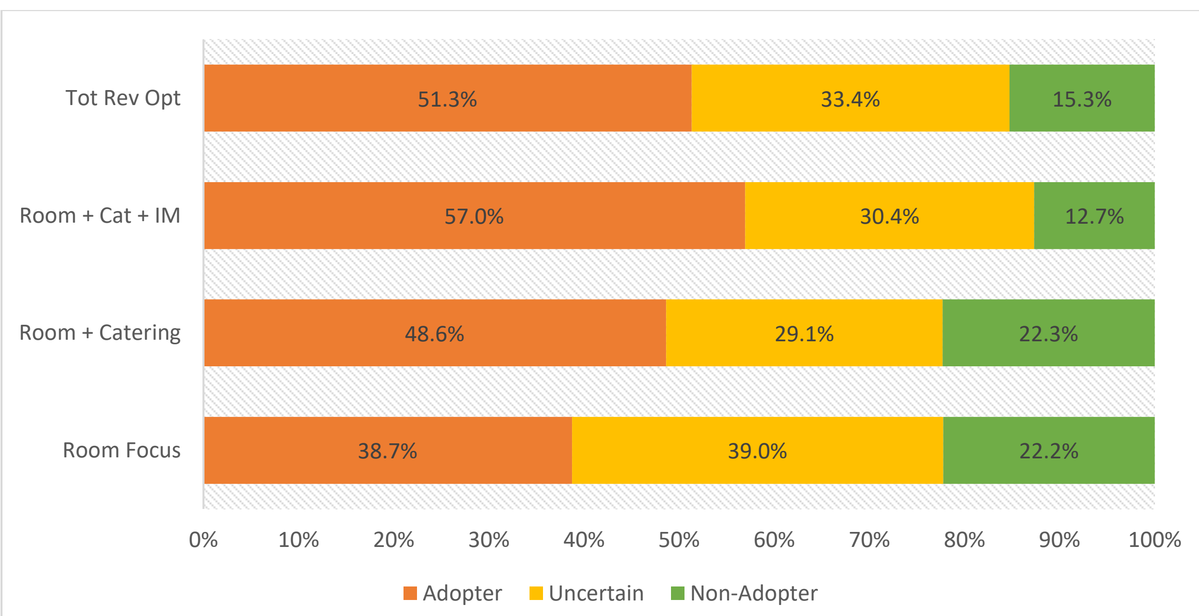

Figure 11. New Metrics Adoption Intention by Revenue Management Culture

Results of the chi-square analysis show a significant association between adoption intention and the revenue management culture ($\chi^2(6) = 19.766$, $p = .003$). Figure 11 above shows that the adoption intention is higher among the more complex revenue management cultures (room + catering + integrated marketing and total revenue optimization + integrated marketing).

Properties focusing on rooms only, on the contrary, are split between adopting and uncertain. Hence, the assertion that higher adoption intention for companies focusing on total revenue management than for room-focused only properties is supported.

5.3. Problems with New Revenue Management Metrics

In the previous question, respondents were requested to state their reasons for adopting or not adopting the new measures. However, to get the full picture and to seek clarity on the problems and challenges faced by the new measures, respondents were specifically asked if they would foresee any problems with the new Revenue Management metrics.

In line with the findings on willingness to adopt new metrics, 51.4% of the respondents do not foresee any problems with the new metrics while only 20.6% said otherwise (see Figure 12).

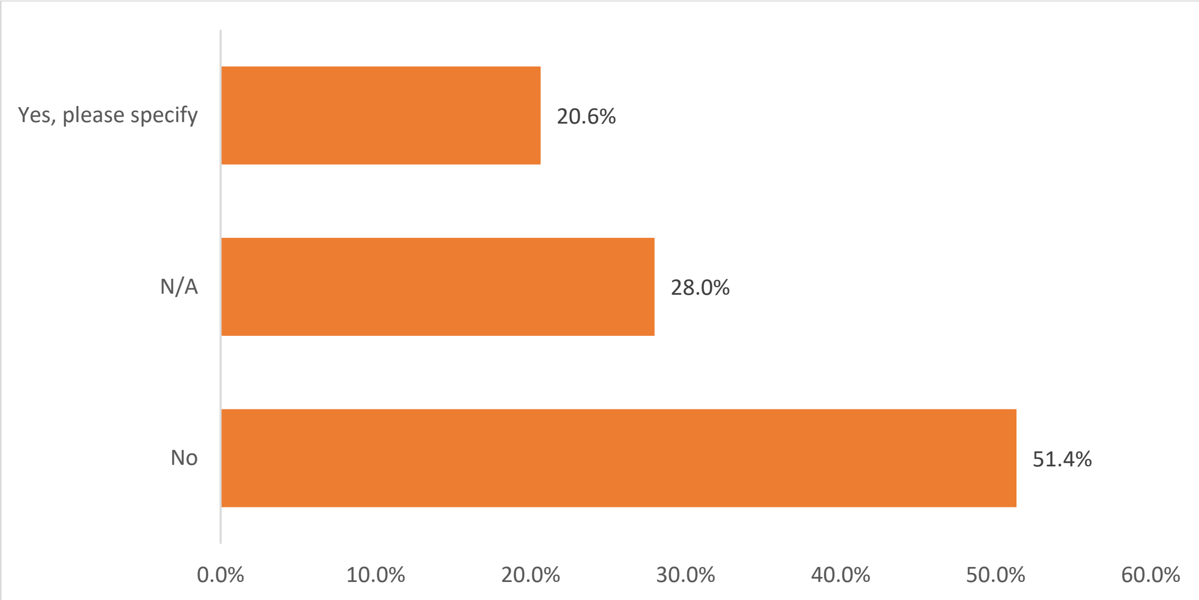

Figure 12. Problems Foreseen Using New Revenue Management Metrics

Results of the text analysis suggest four main areas of problems or challenges associated with the new metrics (Figure 13). Indeed, this question brought up a problem not revealed by the respondents in the previous question.

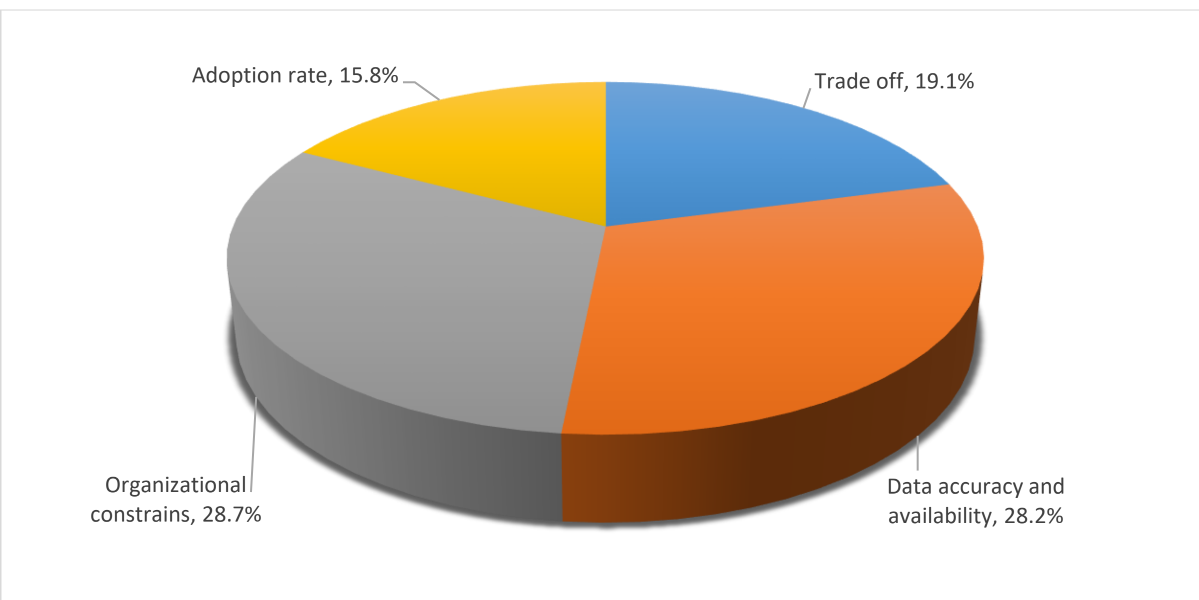

Figure 13. Perceived Problems Associated with New Measures

First, the new metrics pose resource challenges to organizations (28.7%). Many of the current systems are either insufficient to accommodate or incapable to incorporate the data needed for the new metrics. Furthermore, as the knowledge on this respect is generally limited, proper staff training and education on the new measures are needed.

Second, the data accuracy and availability (28.2%) has been consistently a concern for both the current and new measures. The absence of a standard reporting format has been repeatedly cited by the respondents. Data accuracy is further impeded by the difficulty to correctly distribute the cost involved and revenue generated within the hotel operations.

Third, respondents are concerned about the tradeoff between the time and effort invested and the additional benefits gained (19.1%). Not only are the data needed for accurate measurement complex, the substantial amount also curtails the ability of manager to process the information efficiently.

Finally, the respondents doubted the adoption rate by the industry practitioners (15.8%) since hoteliers are generally regarded as slow in adapting changes. The implementation of the new metrics will further be restricted without the initiative from the vendors.

5.4. Advantages of New Revenue Management Metrics

Despite the perceived problems associated with the new metrics, the study also asked about the advantages of new Revenue Management metrics to uncover the relevance and focus of the usage.

Table 2 below exhibits the four primary advantages, namely driving channel optimization, planning and budgeting, efficiency and return on marketing efforts, and driving total revenue management, offered as answer options.

The ability to drive total revenue management is the leading advantage of the emerging measures. The advantages in driving channel optimization and planning and budgeting were ranked second and third, respectively. Efficiency and return on marketing effort trails behind.

Table 2. Advantages of New Revenue Management Metrics

Advantages	Ranking				
	1	2	3	4	5
Driving channel optimization	172 (17.7%)	**315 (32.4%)**	270 (27.8%)	201 (20.7%)	13 (1.3%)
Planning and budgeting	215 (22.1%)	265 (27.3%)	**256 (26.4%)**	226 (23.3%)	9 (0.9%)
Efficiency and return on marketing effort	61 (6.3%)	199 (20.5%)	293 (30.2%)	**402 (41.4%)**	16 (1.6%)
Driving total revenue management	**499 (51.4%)**	188 (19.4%)	142 (14.6%)	133 (13.7%)	9 (0.9%)
Others	25 (2.6%)	5 (0.5%)	9 (0.9%)	8 (0.8%)	**907 (93.4%)**

Reading the table, the first order of ranking has been put in bold.

5.5. Sharing of Data for Competitive Benchmarking

The value of Revenue Management measures is rather limited if used only internally. However, once shared with third parties such as STR and TravelClick, these companies provide processed and anonymized data for benchmarking.

In view of the importance and benefits of the measures, sharing data for competitive benchmarking purpose is paramount. The respondents were given the following three options:

Answer Option: Yes

Answer Option: No

Answer Option: NA

Result of the current study (Figure 14) is encouraging as more than half of the respondents (53.2%) indicated their willingness to share the data while the remaining are split between unwilling (25.2%) and uncertain = NA (21.7%).

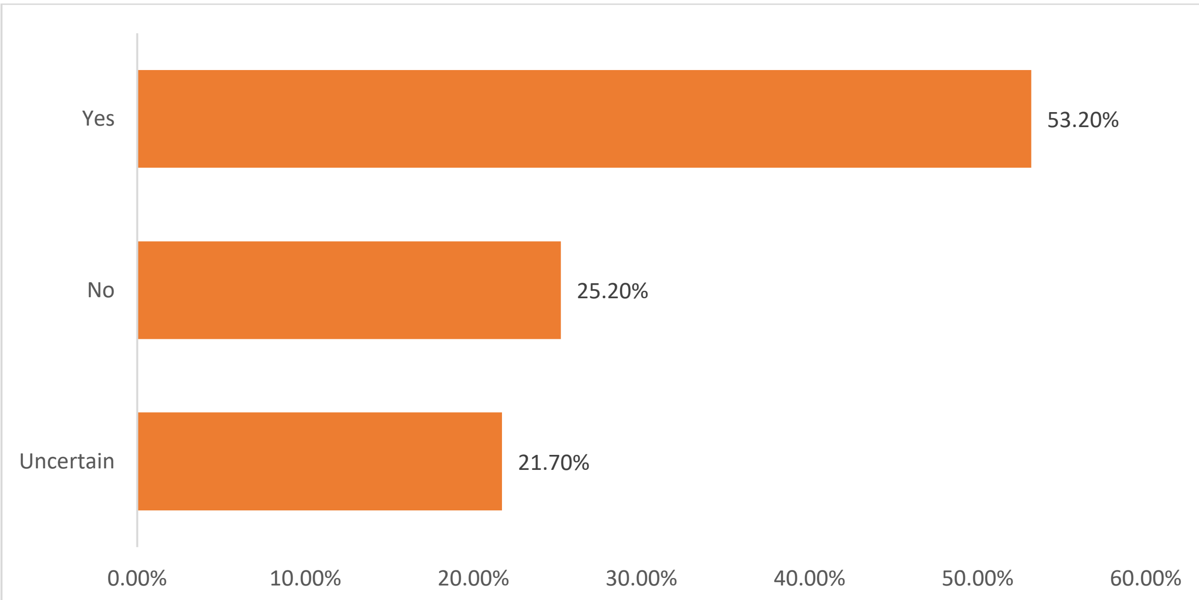

Figure 14. Sharing of Data for Competitive Benchmarking

6. Comparison between Chain Hotels and Independent Properties

6.1 Comparison of Revenue Management Culture

A chi-squared analysis was performed on the revenue management structure for the two types of property. Result of the analysis reveals insignificant association between the two variables ($\chi^2(3) = 3.209$, $p = .360$). Figure 15 below shows that both chain hotels and independent properties ranked total revenue optimization with integrated marketing first as the revenue management culture. This is followed by rooms only. Rooms and catering comes in third meanwhile rooms and catering with integrated marketing was ranked last.

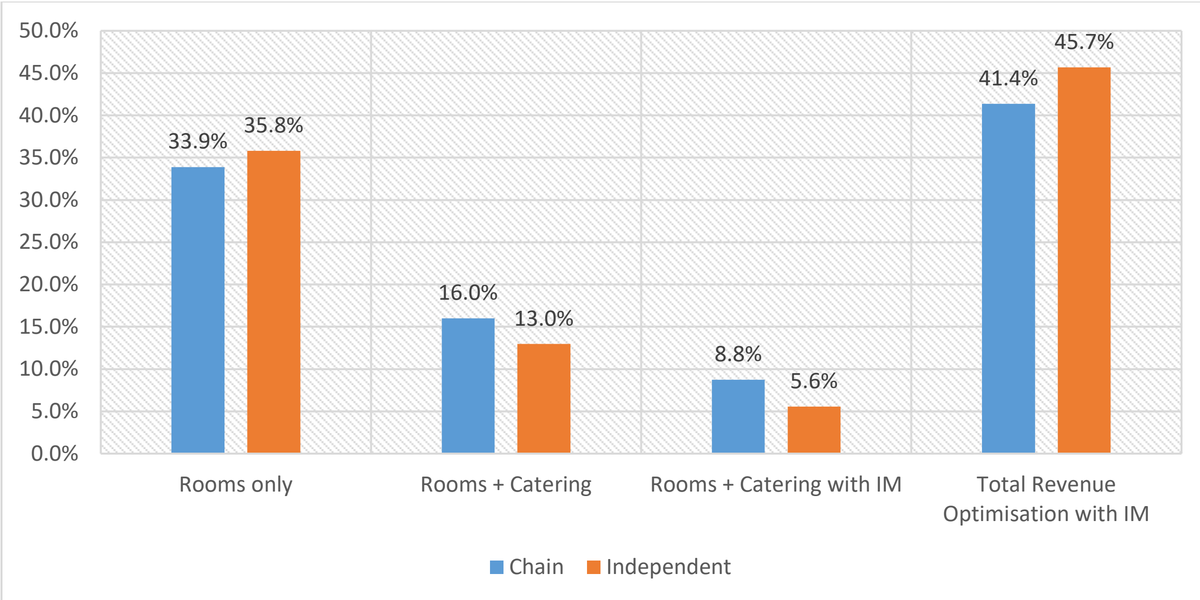

Figure 15. Revenue Management Culture by Property Type

6.2 Comparison of Limitation of Existing Revenue Management Measures

Pertaining to the perceived limitation of the four listed revenue management measures, chi-squared test shows a significant different ($\chi^2(1) = 5.822$, $p = .016$) between chain hotels and independent properties.

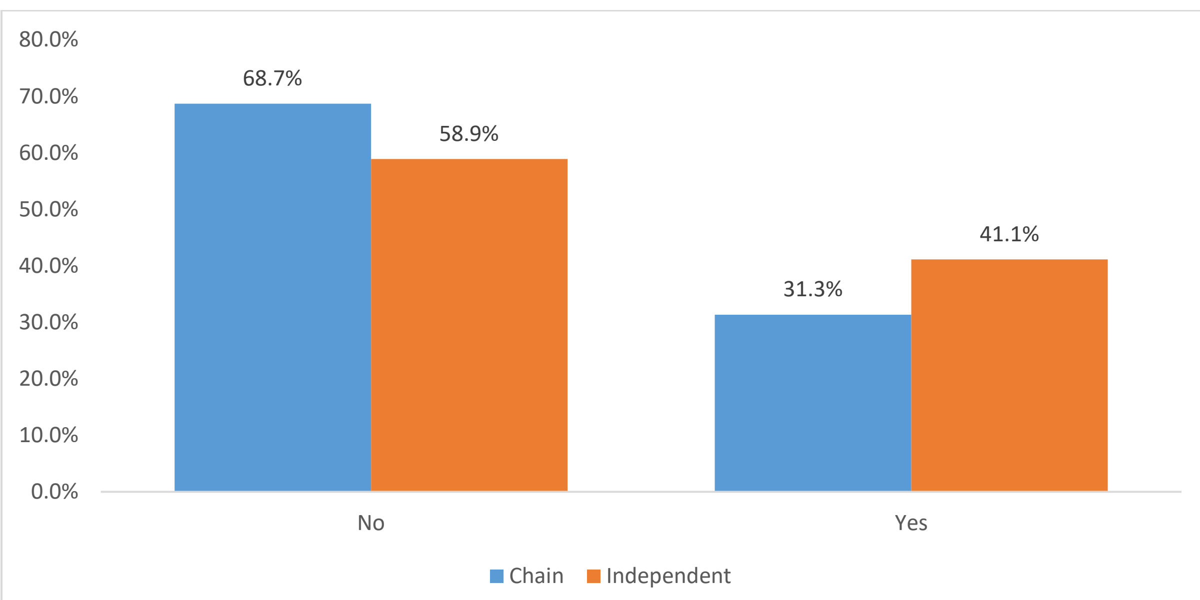

Figure 16. Limitations of Existing Revenue Management Measures by Property Type

Specifically, 68.7% chained and 58.9% independent properties do not perceive any limitations (Figure 16). The proportion of respondents who did not perceive limitations of the existing revenue measures was twice as much as those who did among the chain hotels. On the other hand, there was slightly more respondents among the independent properties who did not perceive limitations of the measures compared to those who did.

6.3 Comparison of Willingness to Adopt New Revenue Management Measures

Figure 17 below shows the intention to adopt the listed new revenue management measures between the two types of property. Result of the chi-squared analysis shows that the adoption intention is significantly associated with the property type ($\chi^2(2) = 11.074$, $p = .004$). In particular, 55.2% independent properties show positive adoption intention while 44.5% among chain hotels.

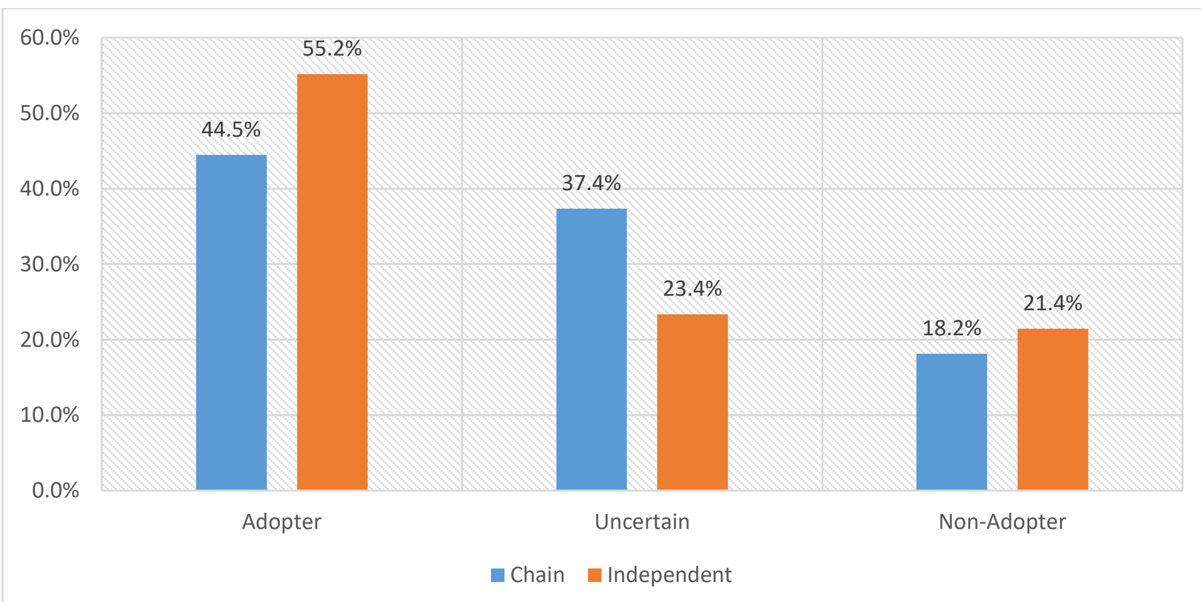

Figure 17. Adoption Intention by Property Type

6.4 Comparison of Problems with New Revenue Management Measures

The chi-squared analysis reveals that the perceived measurement problem is not significant associated with the property type ($\chi^2(2) = .877$, $p = .645$). In general, the proportion of those who do not foresee any problems with the new measures is more than twice the proportion of those who do (Figure 18).

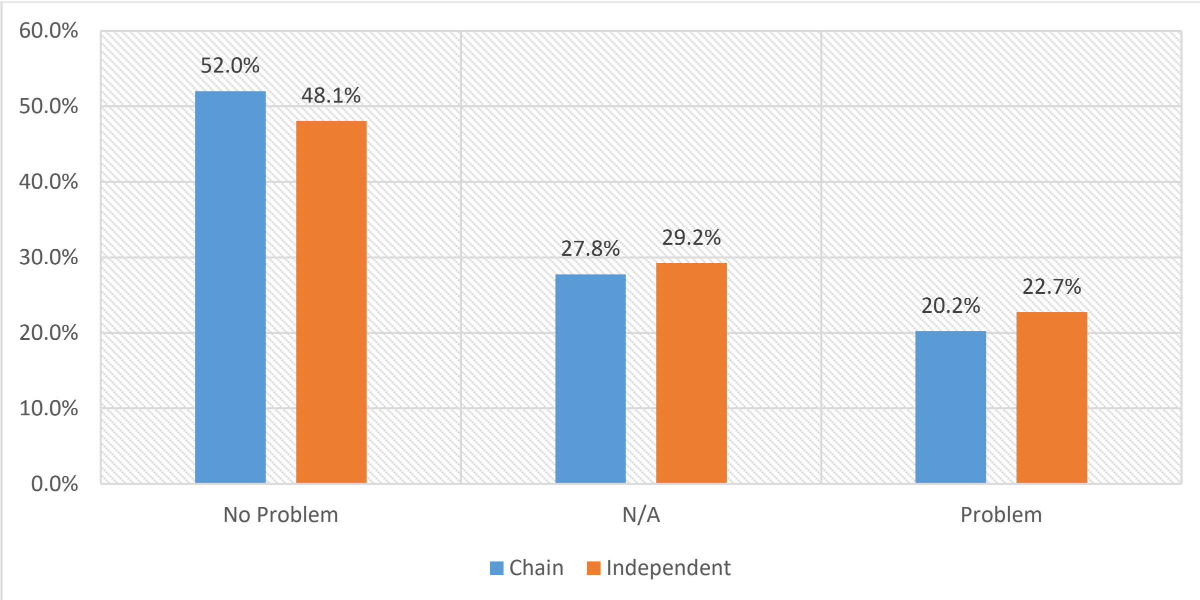

Figure 18. Perceived Measurement Problems by Property Type

6.5 Comparison of Willingness to Share Data

Chi-squared analysis shows that the willingness to share data is not associated with the type of property ($\chi^2(2) = 1.742$, $p = .418$). Most importantly, more than half of the chained and independent hoteliers are willing to share the data and only about one quarter are unwilling to.

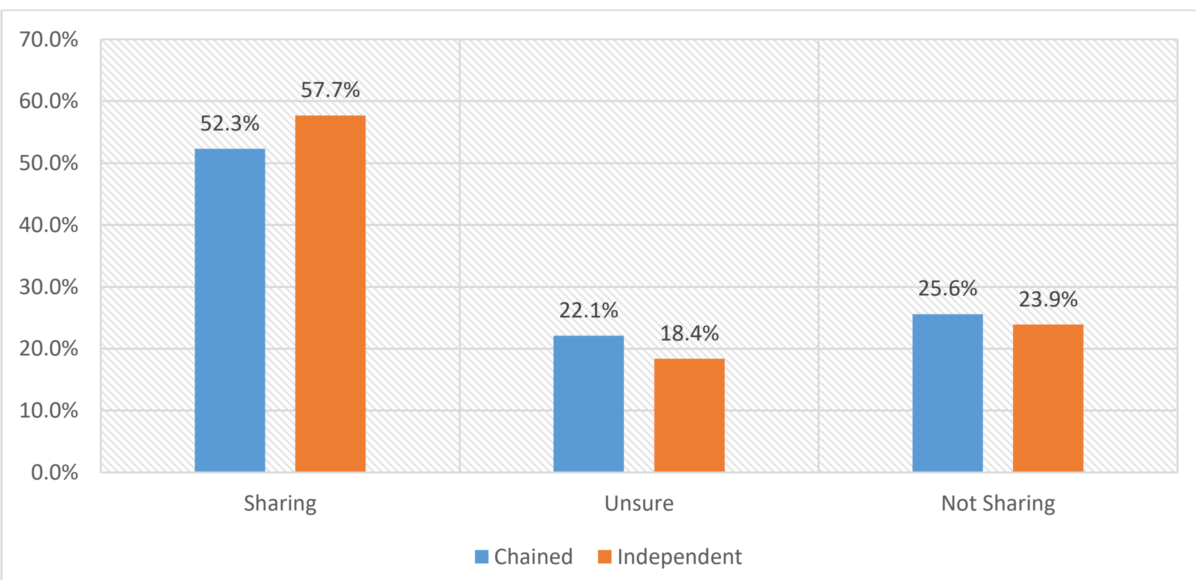

Figure 19. Willingness to Share Data by Property Type

7. Vendor/Suppliers View on New Revenue Management Metrics

Although the main population of the study is the hotel revenue managers, the role played by Revenue Management suppliers and vendors should not be undermined. They are the ones collecting performance data from the hotel industry, analyzing them for benchmarking purpose, as well as collating and disseminating the information to the industry practitioners.

Subsequently, the leading Revenue Management vendors and suppliers were invited to express their view via an online survey. The response rate is 43.8% (7 out of 16).

7.1. Existing Revenue Management Metrics

Firstly, the participants were asked for their view on the existing Revenue Management measures.

One vendor argues that "*insufficient but it's the best we can do today*", whist another criticises "*mostly pointless as even RevPAR is not accepted industry wide. Having asked 10 people their current key KPI and getting 7 different answers, proved that*".

Interestingly, the results show the divided opinions on the existing metrics even on a small scale. These existing metrics are in use, although not yet accepted industry-wide. Furthermore, there is a lack of one standardized KPI for Revenue Management performance.

7.2. New Revenue Management Metrics - NRevPAR

The next question asked for the vendors' and suppliers' view on NRevPAR as a possible new Revenue Management measure.

The responses unveiled quite interesting insights, such as "*while in theory it is a great approach, the way cost of distribution and marketing are difficult to calculate and standardized*", "*although this is a good attempt at working out channel costs and folding this in, the challenge is that there is no standard for the way costs are accounted. Therefore, at the current time it is not a reliable metric yet*".

The responses highlighted one of the challenges for any new Revenue Management metric, that is to establish and define industry-wide standards (i.e. which costs to be considered for deduction in NRevPAR calculation).

The vendors and suppliers were also asked how they would define the framework/formula for NRevPAR, specifically which distribution (respectively marketing costs) shall be deducted to ensure similar standards across the industry.

One respondent mentioned that "*all sales & marketing costs must be associated with the NetRevPAR calculation. Not just commission and marketing costs*".

Whilst another participant argues that "*this is something that finance needs to get involved in. If there are costs involved, then finance should be driving the way this metric is used and calculated. For example an organization like HFTP should play a much bigger role in setting the standard here (or through USALI or similar). The challenge on what the costs should be accounted for is that there is a bias amongst the large brands to downplay the costs of their distribution models*".

Again, the responses indicate the common problem with any new Revenue Management metric, that is finding the consensus on industry-wide standards.

7.3. New Revenue Management Metrics - RevPAC

This study is also interested in another new metric, RevPAC, and subsequently asked the vendors and suppliers for their view on this metric.

Again, some interesting insights were observed. One respondent said that "*this really depends on the business type and how important non rooms revenue is to the asset. I believe it is only truly relevant to a resort style property and does not consider cost of sale. All revenues are not equal*".

Another respondent commented that "*there are two aspects to consider - customer and asset (property). Both the metric RevPAR (or other asset related metrics) and RevPAC (and other customer relate metrics) should be used and analyzed*".

Although RevPAC is an under discussion metric, it seems that much work is needed to frame this metric and that not all respondents are aware of its meaning.

Subsequently, vendors and suppliers were asked how they would define the framework/formula for RevPAC, specifically to define the framework of "customers" (which could be in fact both, business and/or leisure, and to avoid double-counting) to ensure similar standards across the industry.

As this measure has not been conceptualized, it is not surprising that respondents argued that "*hard to define uniformly and even harder to execute*".

Another respondent stated that "*this should be done per person. Initially, this should be limited to customer who have a room reservation only, and the room + other spend of these customers could be benchmarked. Once individual profiling of customers gets better, spend in F&B and other areas without a room reservation could be considered*".

Overall, the responses point to the difficulty in defining this rather new Revenue Management metric.

7.4. Supporting New Revenue Management Metrics

As uncovered at the second stage of this study, hoteliers indicated their strong interest in the new Revenue Management metrics. The next question asked about the vendors' and suppliers' inclination to support the initiative.

The majority of vendors and supplier (n=6) would support the initiative of introducing a new Revenue Management metric (see Figure 15).

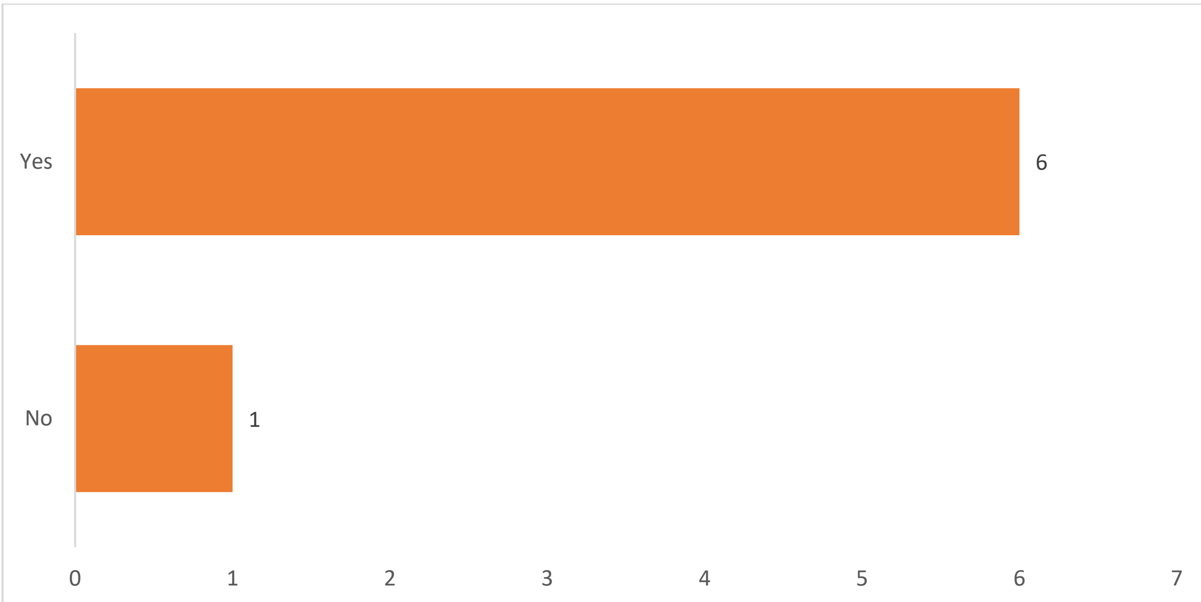

Figure 20. Vendors Supporting New Revenue Management Metrics

The vendors and suppliers were also asked whether they would adapt these new metrics, if the hotel industry indicates strong interest.

The results show a mixed picture:

One respondent argued that "*if there are tangible measurables and system to account for all components*".

Whilst another participant stated that "it would need GLOBAL adoption and it would require additional data sets".

Another vendor pointed out that "*we would adapt the metrics in our software and we would be glad to be at the forefront of this development*".

Finally, the vendors and suppliers were asked to suggest any other new Revenue Management metrics besides NRevPAR and RevPAC.

Quite surprisingly, some responses mentioned the already established metrics "*GopPAR, TRevPAR, I would like to see the true performance of the hotel based on all revenue (not just room)*".

One possible explanation could be that these metrics have not been fully applied in the hotel industry nor included in the industry report (i.e., STR report).

8. Conclusion

This study is the first to review the existing Revenue Management metrics and investigate the opportunities and challenges of new Revenue Management metrics. The 2002 HSMAI study focused on the use of some given performance metrics by the lodging and destination marketing organisations.

8.1. Existing Revenue Management Metrics (1st Objective of Study)

The first objective of the study is to investigate the use of existing Revenue Management metrics and its limitations.

In view of the ongoing discussions about the problems with the existing metrics, such as room-only focus and not considering cost of acquisition, it is surprising to note a majority of respondents indicated that they are contented with the existing Revenue Management metrics. In particular, RevPAR and RGI are the two widely used Revenue Management measures meanwhile at least one-fourth of the industry practitioners have not adopted RevPAR as the standard metric for their Revenue Management. One possible explanation to the overwhelming satisfaction with the existing metrics may be that respondents are being conservative by "playing safe" since any new metric brings with it its very own challenges.

Approximately one-third of the respondents perceive limitations with the existing measures. The primary limitation is in line with the undergoing discussion, namely its exclusion of cost of acquisition and revenue generated beyond room.

Other limitations include (a) data accuracy (authenticity, reporting practices, timeliness, inclusive of various types of property), (b) comparability (measures not in the current report thus not able to benchmark), and (c) organizational constrains (management support, staff knowledge, technology).

8.2. New Revenue Management Metrics (2nd Objective of Study)

The second objective of the study is to identify new Revenue Management metrics, the opportunities, limitations, and willingness to adopt these ones.

NRevPAR and RevPAC are two potential Revenue Management metrics. It is encouraging to note that majority of the respondents are willing to adopt the new metrics despite a couple of issues and concerns. Specifically, perceived usefulness (or lack of it) is the major factors promoting (or deterring) the adoption of new metrics.

Other inhibiting factors include (a) data inaccuracy and unavailability, (b) the substantial effort involved in collecting, collating, and analyzing the data, and (c) the management support and resource constraints within the organization.

Although the new metrics are not without problem, respondents are optimistic about the implementation in general. Only one-fourth of the respondents perceived some problems with the new measures and the problems coincide with the deterring factors, such as data inaccuracy and unavailability, internal constraints, and the tradeoff between effort and benefits gained.

8.3. Response from Revenue Management Vendors (3rd Objective of Study)

The third objective of the study is to investigate the willingness of Revenue Management suppliers/vendors to support the adoption of these new Revenue Management metrics.

Revenue Management vendors and suppliers appear to restrain from jumping into action although they are somewhat prepared. They are unsure if new metrics will be established and if the industry is ready for the adoption them.

Such concerns were well addressed by the findings of this study. Indeed, the hoteliers perceive achieving a consensus on the industry-wide standard as the pressing first step. In addition, more than half of the practitioners are willing to share data for competitive benchmarking purpose.

8.4. Outlook & Next Steps

NRevPAR seems to be the most promising upcoming Revenue Management metric albeit the journey to realize it may be long. The primary concern is related to the definition and respectively the formula. The central of debate is which marketing cost factors shall be deducted. On one hand, some argue that it should merely concern about the cost of customer acquisition. In other words, only distribution costs, loyalty costs, and direct marketing cost are to be considered.

Other experts, on the other hand, claim that all marketing costs should be taken in account. Undoubtedly, it is challenging for every hotel organization to begin including all marketing costs in revenue management. This approach, nevertheless, is going to be beneficial especially if the formula becomes simple and easy to manage, the practitioners agree on what marketing cost to be included and implemented it industry-wide. Indeed, one vendor indicate the challenges as such "While in theory it is a great approach, the way cost of distribution and marketing are difficult to calculate and standardized".

Therefore, the authors of this whitepaper have agreed with HSMAI APAC to establish a working group with up to 10 hotels from the region with different profiles such as resort hotels, & business, chain & independent, full service & limited services and different property sizes. The purpose of establishing this working group is to understand how these hotels would calculate NRevPAR. Specifically, it is of interest to learn from the businesses, which distribution and marketing costs to deduct, in order to find common ground to establish thereafter an industry-wide new Revenue Management metric.

RevPAC is another promising metric that should not be taken lightly. Despite the lesser attention given by the practitioners as compared to NRevPAR, the implication of RevPAC might be substantial. Unlike RevPAR which focuses on the room, RevPAC emphasizes on the customers. The revenue generated from a room occupied by two guests is not comparable to that occupied by a single guest. Although intuitive, there remains some challenge in defining the customer. For instance, how would a customer stays in a hotel for business purpose and then continues as a leisure traveler be categorized? Also, should it be considered as one or two customers?

The industry practitioners are somewhat ready for the new Revenue Management metrics. Not only are they willing to adopt the new metrics, but also to share the data for benchmarking. Thus, achieving a consensus on the industry-wide standards and defining the NRevPAR construct are the pressing needs to be addressed.

Appendix A – Hotel revenue management metrics formula

Occupancy (OCC)

- OCC is always a percentage, calculated as rooms occupied divided by rooms available

Average Daily Rate (ADR)

- ADR is calculated as total room revenue divided by rooms sold

Revenue Per Available Room (RevPAR)

- RevPAR is a dollar/currency figure calculated by dividing the total room revenue for an identified period (a single day or a full month is most common) by the total number of rooms available for the exact same period (alternatively, multiplying OCC by ADR for any given time period gives the same result).

Net Revenue Per Available Room (NRevPAR)

-Total room revenue minus cost of acquisition divided by rooms available

Revenue Per Available Seat Hour (RevPASH)

- This figure is most useful in optimising revenue and measuring costs in food and beverage outlets and is calculated by: Total outlet revenue / divided by Available seats multiplied X Opening hours.

Revenue Per Available Customer (RevPAC)

- Total customer-related revenues divided by total customers

Cost Per Occupied Room (CPOR)

- CPOR is calculated as the total on maintenance, housekeeping, and identified operating costs and marketing divided by number of rooms sold

Gross Operating Profit Per Available Room (GopPAR)

- Taking the total revenue over an identified period of time, subtract the expenses and then divide by the number of available rooms for the same period, 30 days or 365 days for example.

Total Revenue Per Available Room (TRevPAR)

- Dividing total revenue, including accommodation plus ancillary revenues, by the number of available rooms for an identified period. TRevPAR is most relevant when measured on a daily and monthly basis. TRevPAR is also commonly budgeted and measured on an annual basis.

Marketing cost per booking (ROI)

- total marketing spend, divided by the overall number of bookings. It can be done as an absolute figure,

or per booking channel

Market Penetration Index (MPI)
- one can calculate it by dividing the hotel's occupancy rate by that of the combined competitor hotels' set and multiplying the result with 100

Average Rate Index (ARI)
- Calculate ARI by dividing the hotel's ADR by the competitive set's ADR and multiplying the result by 100

Revenue Generated Index (RGI)
- Calculate RGI (hotel RevPAR / aggregated group of hotels' RevPAR) x 100

Appendix B – References

- Hernandez, R, 2016, “Per available customer: the future of hotel revenue management”, retrieved from: https://www.forsmarthotels.com/category/per-available-customer

- Ivanov, s., 2014. “Hotel revenue management: from theory to practice“, Hotel revenue management metrics, 43-55

- Mauri, 2012, “Hotel Revenue Management. Principles and Practices”, Pearson https://trove.nla.gov.au/version/205938759

- Mourier, J.F., 2012, GOPPAR, RevPAR, ADR, now NRevPAR? How about just making money?!”, retrieved from: https://www.hospitalitynet.org/opinion/4056186.html

- Walters, M., 2012, “The-3-most-overlooked-revenue-management-measures”’ retrieved from: https://www.hotelexecutive.com/business_review/3186/the-3-most-overlooked-revenue-management-measures

Appendix C: About the Authors

Hotel Industry contribution:

The Hospitality Sales & Marketing Association International (HSMAI) Asia Pacific Revenue Advisory Board initiated this project, framed the study, the study questions, the outcomes and results. The Advisory Board is made up of the heads of Revenue Management in hotel chains and management companies around Asia Pacific. More details on the Board can be found on our website at: https://hsmaiasia.org/revenue-advisory-board/

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Prof Remy works as Associate Professor for the Singapore Institute of Technology, SIT, Singapore. He is teaching Revenue Management, Data Analytics and Digital Marketing whilst researching on Pricing and Revenue Management related topics. Prof Remy started his career in the hospitality & tourism industry in 1986, working in various positions up to general management position. Additionally he has started his own consultancy business, "**Remy Consult**", advising international beverage, tourism and hospitality businesses, and providing executive education to a variety of stakeholders. Prof. Remy holds a Masters in Marketing from University College Cork, Ireland (2007), and a doctorate (DBA) from the University of Surrey, UK, (2014).

He holds membership of the ICHRIE, Irish Marketing Institute, the Chartered Institute of Marketing, UK, and HSMAI, acting as a Board member of HSMAI Revenue Management Advisory Board, APAC. Within his capacity as professor for various universities as well as owner of his consultancy firm "**Remy Consult**", Prof. Remy conducts Executive Education training programs, especially in marketing-related areas, such as branding, pricing, revenue management, digital marketing and so on. Most recently, he has delivered Executive Education training programs to Singaporean hoteliers, a Cambodian hotel chain, Investors from Russia and Taiwanese hoteliers.

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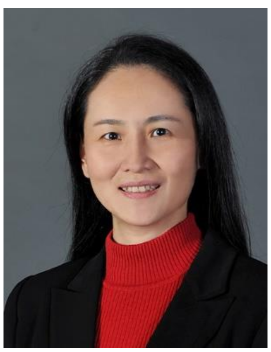
Seck TAN is an Assistant Professor at the Singapore Institute of Technology. He is an applied economist with broad research interests in policy analysis and policy recommendation towards sustainable development, evidence-based public policy formulation in relation to energy and environmental issues, as well as disruption impacts in the aviation and hospitality sectors.
His research focus is on environmental economics with reference to valuation of environmental goods and services, environmental accounting, and resource management applied to commodity-rich economies. He has been quoted and interviewed on mainstream media pertaining to climate change and weather issues.

 **Assistant Professor Boo, SIT**

Huey Chern Boo is an Assistant Professor in Singapore Institute of Technology (SIT). She obtained her Master of Science and doctoral degree in Hospitality Management from Purdue University and Pennsylvania State University, respectively. She has vast experience working in hotels, foodservice establishments, and food manufacturing companies in the US, Canada, and Malaysia.
Dr. Boo had led several industrial projects with topics ranging from human resources (e.g., employee retention, employee training) to operations (i.e., queuing management, foodservice menu), and to marketing (i.e., dining decision, market segmentation). Her most current research projects are related to robotics and revenue management in the food and beverage industry.

 **Ms Shirley Tee, NYP**

Ms Shirley Tee is the Course Manager of the Diploma in Hospitality & Tourism Management at School of Business Management Nanyang Polytechnic with ten years of tourism and hospitality experience. She completed her Master of Management in Hospitality in 2008 from the esteemed Cornell University. She also holds a Bachelor of Business Administration (Honours) from National University of Singapore.
Prior to joining Nanyang Polytechnic, she was the MICE manager of Tradewinds Tours and Travel, the tour subsidiary of Singapore Airlines. In this role, she was in charge of both Singapore and overseas incentive travels and in the organisation of conferences and events. Some of the events she has been involved included the 117th IOC Session Spouse Programs 2005 and the S2006 IMF/World Bank Governors' Meeting Delegates programs.
In addition, Ms Shirley Tee has held several positions during her term at Tradewinds Tours and Travel. This includes the position of Market Development Manager, whereby she supervised a team of tour planners for Europe, West Asia, North America, Southwest Pacific and South East Asia tour programs.

 **Dr. Stan Josephi, NHTV**

Stan Josephi (1970) received his DBA from the Maastricht School of Management in 2015. Since 2005, he works as Senior Lecturer at the Academy of Hotel Management at Breda University of Applied Sciences.

Stan has extensive experience in the international hotel industry and his career in revenue management spans over 20 years, in which he has been involved with the phenomenon as a consultant, trainer, educator, and researcher. Stan's research and expertise focus on the elements underlying the process of revenue management. He is particularly interested in studying the barriers that exist between the different commercial departments of hotel organizations, looking at (automated) solutions that will send organizations on their way to an integrated approach to demand management.

Stan is a member of the HSMAI Europe Revenue Management Advisory Board, and he is one of the founding members of the taskforce RevenueProfs. Furthermore, he is also a Member of the Board of Hotel Casa in Amsterdam.