Revenue management – the contribution of the finance function to profitability

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Abstract
Literature in the area of revenue [illegible] management concentrates largely on the operational issues of maximising revenues. The issues of profitability have been considered in recent years but practical attempts to implement an approach which recognises the profitability of different market segments have been problematic. This article considers the literature in the area of profitability and revenue management and then addresses the issues regarding its implementation. The need for accurate financial information is crucial and the provision of this relies on sophisticated systems which will analyse and predict appropriate data. Developments in technology are progressing rapidly and will provide the opportunity to expand the use of information for managers. Given the involvement of the finance function in the design and use of information systems their contribution to this development is now emerging as crucial to this process and the resultant increase in hotel profitability.

Introduction

Revenue management tends to be addressed from a marketing or operational perspective with few businesses considering the true effect on the "bottom line" of their yield management decisions. There have been attempts by writers to suggest a cost-oriented approach but this has been addressed from a technical, rather than a functional perspective. Most of the literature concentrates on operational decisions and does not address the supply of information to support these.

This article seeks to identify some of the factors used in applying a cost-centred approach to revenue management and then to discuss the factors affecting this approach for managers from a financial management perspective. It is not the intention to look extensively at the marketing aspects which have been discussed exhaustively by previous authors, and so only a brief overview of the topic is given. Literature in the area of cost analysis and the provision of management information will be reviewed and consideration will also be given to the impact of technological change on the financial functions of the hotel business.

The data presented will then be reviewed from a financial management perspective in order to discuss the implications for both operational and financial managers at the current time. Predictions for the impact of technological change on both revenue and financial management will also be presented to assist in identifying some of the challenges for the future in this area.

Definitions of revenue management

There have been many definitions of revenue management (RM). Many writers use the term interchangeably with yield management (YM) although some consider this relates to accommodation only whereas RM may encompass all areas of hotel revenue.

Jauncey *et al.* (1995) define YM as being an "integrated, continuous and systematic approach to maximising rooms revenue". Early approaches to YM addressed only rooms revenue overall and it was only later that segmentation factors were included. This approach was informal and fairly unscientific but "almost always practiced by managers" (Bryant, 2000). The "father of Yield Management" (Bryant, 2000), Eric Orkin, first formally demonstrated in 1988 how calculations of the yield and a review of displacement could identify where gaps could be filled to increase occupancy. He then developed his arguments to lead to staff "upselling" to maximise both average room rate and occupancy (Orkin, 1988). Two years later (Orkin, 1990) he also considered the profitability of different segments but only in the context of price-sensitivity

Revenue management is defined by Cross (1997) as being "the application of disciplined tactics that predict consumer behaviour at the micro-market level" that will "maximise product availability and price" in order to maximise revenues. He looked at a range of industries, airlines being some of the major users of yield management techniques and having developed their systems in advance of other industries and hotels in particular. A number of studies have compared the operating performance of those adopting or not adopting yield management techniques (Jarvis *et al.*, 1998).

The multiplier effect was first discussed by Kimes (1989) who identified that just concentrating on rooms resulted in a hotel ignoring other revenue opportunities. She suggested that these should be incorporated into a full RM system – hence not just maximising yield but revenues throughout. Donaghy (1996) discusses the "improved

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financial performance' but refers only to revenue and Jones and Hamilton (1992) also do not consider the impact on other revenues or on profits. A review of the short break market (Edgar, 1997) identified that certain market segments offer much greater opportunities for maximising subsidiary revenues than others.

This results in a RM approach (rather than yield) which attempts to identify which segments generate most revenues for the business as a whole, not just for the rooms area. Cross (1997) uses simulation modelling to improve the "bottom line" but is actually discussing improving revenue rather than profits – again the assumption that improved revenue automatically results in improved profits. However, his model could be adapted to include cost implications of the various products, or market segments. He does discuss "costing out the benefits" but implies these are just variable costs rather than all the cost of the particular transaction. He actively argues against taking a cost-oriented approach and focuses purely on revenue. He suggests that tactics which result in sales increases or price "improvements" will have a greater impact on profits that those that focus on costs. He does not address the concept of both approaches being used together to ensure optimisation of profits.

The need to identify costs

The concept of the identification of costs, and hence maximisation of profit, has been discussed for some years. An approach towards considering rooms profitability was identified by Lockwood and Jones (1990) based on the "value-engineering" approach developed by Kasavana and Smith (1982). Lockwood and Jones identify two types of costs for a room – servicing costs and raw materials (see Figure 1).

The first to consider a full market-segment approach were Dunn and Brooks (1990) who proposed a Market Segment Profitability Analysis approach (MSPA) which would drive staff to base their RM decisions on profitability rather than revenue maximisation. They recognised that certain departmental revenues are dependent on different (rooms) market segments and that the improvement of one may have a direct impact on the revenue, and eventually the profit, of another. Their major research suggested that what might appear to be a high-revenue segment might, when considering other revenue areas, be less productive of total profit than another with outwardly lower room prices. Costs need to be identified to support the YM decisions that are being made, not just for rooms (by segment) but for all ancillary revenue areas. These should include all support and fixed costs as well as the specific variable costs associated with delivering the product. This focus on cost, as well as revenue management, would improve the contribution to hotel profits and increase the overall efficiency of the unit. Their approach was supported by Donaghy *et al.* (1995) who suggested a "yield focused approach" to the profitability of market segments which does identify all product costs which will then "add value" to the YM decision. A segmentation approach is essential, however, as different segments may incur different types of costs – with marketing being quoted as an example. They do not, however, identify how these costs should be determined.

Noone and Griffin (1997) consider that the information already provided by a YM system can form the basis for a Customer Profit Analysis (CPA) approach, with information being sourced from the property management system for each segment. This relates only to revenue, however, and so for cost information alternative approaches need to be considered. CPA is widely accepted but systems tend to analyse by product rather than customer, and this may not consider all relevant costs. They propose using Activity Based Costing (ABC) as a basis which identifies the type of task rather than the product – for instance sales activities rather than sales salaries, telephone costs and so on. They suggest that overhead costs should be identified and then allocated to the respective market segment. They also suggest that certain types of customers consume far more costs than others, with the longer the stay, the lower the overhead costs per room night incurred (check in and out costs, for instance).

There is a widescale-acceptance of the usefulness of ABC but a lack of usage in practice (Banerjee and Kane, 1996, in surveying managers from a variety of industries) and managers found it difficult to implement given the complexity of the data required for analysis. The key factor is technological systems which can analyse data and produce the required information in an understandable format – and many more managers could use ABC if it were feasible. There is a clear identification of need here, but a lack of ability (and hence frustration) in terms of implementation.

The use of ABC in the hotel industry has been minimal (Tai, 2000) with an informal survey by Graham (quoted in Tai, 2000) identifying no hotels in Europe that had adopted this approach. Tai interviewed a range of industry personnel in order to identify the reasons for this and found that, although there was considerable knowledge of the theory of ABC, there was a low understanding of how it might be used in a hotel context. Principal deterrents were seen as the complexity of the data required and the lack of systems to support accurate and timely analysis.

Further work by Gu and Canoon (1998) showed the application of modelling to produce estimations of contribution required from the various rooms rates. However they suggest that variable costs may be "easily based on cost standards for the room operation". This suggests that standard costing techniques are used and that strong controls are made on the variable costs of the various departments, whereas in reality these may be less controllable than anticipated. However, in practice, hotels are diverse in character with a wide variety of cost structures (Harris, 1999) and so use of industry-wide standards may not be feasible. However, usage of budgeted costs, planned for the specific individual unit, may well be appropriate if the information can be accurately determined in the required format.

The need for information

One of the key issues when addressing the use of costs in RM decisions is the need for suitable information and its availability from modern computer systems. The need for accounting information for marketing decisions has been researched by Downie (1996) who has demonstrated that managers first need to identify what type of decisions are made and the specific type of information. The inference is drawn that, if the emphasis is placed on the profitability of their decisions – in other words, they take a financially-oriented approach – then they will contribute to the profitability of the establishment and not just the revenue (or the costs). She also concludes that information should be geared to the future rather than the past, so that the manager considers impending decisions rather than just reflecting on past performance. This approach, whilst initially focusing on the general marketing function, is obviously appropriate for those involved in RM.

The critical success factors (CSFs) in hospitality were identified by Jones (1991) who found that the two key areas were a good computer system and internal control procedures. Up-to-date information was the third most important feature and the measures most used by managers to assess CSFs were the analysis of financial data and weekly forecasts.

Goussak (1995) suggests that systems have developed somewhat haphazardly and that there has been a lack of strategic planning in systems – sections have been "added-on" piecemeal. A comprehensive review needed to take place to ensure future reliability and the identification of risk. These findings were supported by Teare and Bowen (1997) who also found a lack of strategic focus in planning hotel-wide systems. Other writers (Cross, 1997; Jarvis *et al.*, 1998; Hanson and Eringa, 1998; Puchik, 2000) highlight the need for both qualitative and quantitative data and confirm that this is only practical with sophisticated systems.

The model developed by Gu and Canoon (1998) factors in such items as seasonality, disposable income, service quality and competition, just to enhance room rates. They suggest that, once cost data has been included, the requirements of an information system become almost impossibly complex and multi-dimensional. This approach has also been considered by McEvoy (1997). Recently Wang (2000) has tentatively proposed a theoretical model which will utilise both market segmentation and ABC/MSPA to categorise those segments that result in higher profits and hence need increased information and management, although this has not yet been tested in practice.

It is clear that, without sophisticated technological systems, it is not possible to accurately identify the costs relevant to each market segment. The information required is complex and requires a full analysis of actual

Figure 1
Rooms profitability model

Room sales mix percentage	High sales mix percentage, low contribution margin	High sales mix percentage, high contribution margin
	Low sales mix percentage, low contribution margin	Low sales mix percentage, high contribution margin
	Contribution to profit, per room type	

Source: Lockwood and Jones (1990)

expenditure, by segment, over a period of time. Utilisation of the Uniform System of Accounts for Lodging (International Association of Hospitality Accountants, 1996) gives a standard approach to presenting data but this is designed only for the overall rooms area and not for individual segments (apart from revenues, which may be shown separately). Development of the USAL to provide full financial statements by market segment would facilitate a profit-based RM approach.

Technological developments for the future

There appears to be widespread awareness of the principle of CPA in hospitality and acceptance of the need to adopt a cost-centred approach, but minimal usage in practice. Given that one of the prime deterrents appears to be the lack of systems to cope with the detailed analysis of data, discussion of some of the future technological trends in the area may give some insight into future strategy.

The major influence on the provision of information is now seen as the World Wide Web (Jeong and Lambert, 1999). In the past this has been used for marketing and communications functions but is now expanding for a wide variety of business uses. The type of reservations facilities now available via the Web have four main features – checking availability, making reservations, securing reservations and receiving confirmation (Book-hotel, 2000) – all very much focused on the booking process rather than providing a detailed service for customers. These need to be clearly linked into Global Distribution Systems (GDSs), (Hot-key 2000) to ensure that the hotel can optimise the use of the Web, as well as the customer.

Integration of systems has been slow and expensive and many companies still do not appear to have a clear strategic direction about the role of technology in their future success (Cline, 1999). In 1999, 3.1 per cent of revenues were estimated to be spent on average on technology, and this was predicted to rise to 4 per cent in 2000. This expenditure is primarily on PMS (property management systems) with YM being seen as secondary – rather than a holistic view of full integration being considered. The integration of PMS and CRS has been very slow indeed although by the end of 2000 the vast majority of companies should have achieved this. However, YM systems are not always integrated to property management or central reservation systems which appears to complicate the processes – and hence increase the potential for both for error and costs.

For the future, the business to-customer (B2C) approach will prevail (Richards, 2000) which will provide not just a booking service but an entire customer-focused service approach. For the hotel, this will include GDS management but also provide products and services applied to customers as individuals, not just as a homogeneous group, which should build loyalty as well as revenues. The development of Web technology as a resource for all managers and in particularly for a full e-commerce service was still some way ahead, with a lack of understanding by senior managers as to the scope of systems to enhance the skills and information of all managers (O'Connor and Horan, 1999). Additionally, future changes in Web technology will improve the transfer of data between computers (Classe, 2000) by eliminating the need for expensive interfaces or re-analysis of data. The information gained from guests can be "mined" (Berkus, 2000; Troutman, 1999) to give detailed information on all aspects of guest lifestyle and expenditure within the property.

It seems feasible, therefore, that these systems could be extended to include a detailed analysis of guest expenditure by market segment, so satisfying some of the needs of a MSPA approach. If these individual guest spends could then be costed then a full profit-per-segment could emerge. Instant distribution of information will allow instant usage by relevant managers, providing it is presented in a format which they can use and understand.

The role of finance

Much of the YM/RM literature has concentrated on the Front Office areas with little consideration of the contribution of other managers, particularly the finance function. Hanson and Eringa (1998) have suggested that the conventional approach to YM is that it concerns the front office area only. They discuss the need for YM to be considered a "hotel-wide effort" and that the Yield Manager should be a co-ordinator of all those functions which impact on the objectives of the YM programme. They tend to ignore the finance function although there are implicit suggestions of the contribution that can be made. The human element in effective YM is "crucial". The need for a team approach to YM is also considered by Donaghy *et al.* (1995) who also identify the need for a team approach which utilises the cost and revenue awareness of all in order to improve decision making, and hence profits.

Joint consultation is essential between accounts staff and managers (Tjosvold and Poon, 1998) if informed and productive decision making is to occur, with a consequent improvement in efficiency and hence profits. Although managers may hold opposing views the identification and exploration of these may be productive and assist in solving problems to the benefit of all departments. This may be interpreted on behalf of the YM area where the involvement of the finance function in YM discussions enhances the information product and hence the decisions agreed – with consequent benefit for all parties.

Discussions held among financial personnel (Burgess, 2000a) have shown that, in their opinion, technology will continue to change the operation of the hotel with resulting changes in both costs and management required. Financial managers will need to provide a high level of information to operational areas and, with increasing responsibility for systems management within their hotel, this will include developing and implementing new processes to ensure that only information that is necessary to, and usable by, managers, is issued. Further focus group discussions (Burgess, 2000b) also identified a level of concern about the involvement of the finance function in operational decisions. Although financial managers were conscious of the need to become more knowledgeable about operational areas, and technology-driven topics in particular, there was still some resistance from operational managers as to a perceived "interference". However, the supply of information was crucial to all managers in better performance of their jobs, and the finance function is seen as paramount in this provision.

Other research (Burgess, 1999) also showed that the financial manager was crucial to the effective operation of the business, and that managers wished to become much more involved, and knowledgeable, about the operational and technological functions so as to be aware of the potential problems and facilitate solutions. There is a desire by financial managers to contribute to decision making by providing the necessary information and support to the operational areas. "Knowledge management" (Graham, 1999) will become increasingly important and this is likely to be managed by the finance area, all of which suggest that the role of the financial manager in revenue management decisions is crucial.

The contribution of the financial manager to revenue management and profitability

RM has developed from early YM techniques to considering a full MSPA approach. However, developments in this area have been largely theoretical and little practical progress has been achieved. The main reason for this has been the complexity of the information required if accurate decisions are to be made. The need for information is apparent, it is the supply that is problematic. Analysis of costs has in the past been largely based on departmental statements with little attempt to allocate these to different types of customer, or market segments. ABC is one technique that has been considered extensively in theory but has proved impossible to implement in practice.

The opportunity is now emerging to utilise modern technology to identify the relevant costs, by customer, and then to produce market-segment based information in order to achieve a full Customer Profit Analysis. The impending improvements in the transfer of data should make this process easier and cost-effective.

However, these are technical approaches and consideration should also be made of the human implications of improving financial information. The finance area has developed a key role in providing information for managers and this becomes more critical as the need increases. The financial manager is also frequently responsible for systems management within the hotel and projected improvements in technology will impact directly on their responsibilities – the B2C approach. It is no longer possible to consider RM as a function solely of the front office area – it now involves many other areas of management, and finance in particular. If the optimum profitability from customers is to be achieved then careful planning, including the design of systems, needs to be made by all involved personnel. A team approach to RM is essential.

In conclusion, the finance area has had little involvement in RM decisions in the past, due to the emphasis being placed on revenues rather than profits. Improved technology will result in improved financial information which will in turn facilitate RM decisions to optimise profits from all customers. The finance area has a key role to play in designing and implementing cost management systems approaches to enable this to take place.

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