

A Work Project, presented as part of the requirements for the Award of a Master's degree in
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ENHANCING REVENUE PERFORMANCE IN THE HOTEL INDUSTRY THROUGH AI
AND STRATEGIC INSIGHTS: A COMPREHENSIVE EXPLORATION

Industry Assessment from Practical View of Experts

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Abstract:

The most precise and reliable information regarding hotel sector can be gained only from professionals who research and develop Hospitality industry daily. Their experience and knowledge help to develop the dynamic influx of cutting-edge technologies that are driving innovation in hotel businesses.

The research reveals how Artificial intelligence, automatization and other digital tools improve operational and financial management. Relying to the numerous interviews with higher management employees and hotel owners, the case study was developed, using the IDC MethodologyScope, to provide a scientific base of how a hospitality business enhance customer-perceivable and back-end innovations, keeping the competitive advantage during dynamic market conditions.

Keywords: Innovation, Digitalization, Evolution, Revenue Management, Artificial Intelligence, Key Performance Indicators, Practices.

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1 Case Study

The following case study should represent how a company could keep its competitiveness in the market by implementing the right combination of back-end innovation and customer-perceivable innovation, while taking its characteristics - type, size, and location - into consideration. Thus, the purpose of it is to provide *Banco BPI* a potential way of how a consulting project regarding digital transformation could be outperformed that will consequently have a positive impact on revenue performance and, in parallel, will exceed customer expectations.

Generally, the case study is divided into three individual methodologies – “IDC Future Enterprise MaturityScape Assessment”, “IDC Future of Customers and Consumers MaturityScape Assessment”, and the “Use-Case Taxonomy”. The first two methodologies provide an in-depth analysis of the company’s current digital maturity level, as well as its digital bottlenecks compared to a benchmark of 2200 companies. Based on the outcome of both assessments, the third one should then highlight specific maneuvers that should be undertaken to jump from the current level to the next better one. These maneuvers are supported by literature and the obtained insights from the interviews.

As each assessment has its own importance for the final results and future recommendations, a clear and structured way to finalize each assessment was crucial. That said, all methodologies contain their own executive summary, outcome, and conclusion. Yet, the sequence of the methodologies should represent the guidance for completing the whole case study successfully.

1.1 Methodology I: IDC Future Enterprise MaturityScape Assessment

1.1.1 Executive Summary

Ovolo Group is a Hong Kong-based hotel group that owns and operates boutique hotels across Asia and Australia. Using the IDC MaturityScape Assessment, as well as first-hand insights from a former employee and extensive research, the digital maturity of the group was categorized in Maturity Stage 3 – Repeatable and therefore as “Digital Player”. The hotel group has an embedded vision, digital strategy and a bridge between business processes and customers. The leadership team leads the transition to a culture of change and innovation. However, the digital vision and strategic goals have not been adapted by all employees yet. The group is on its way to a successful digital transformation but does not yet stand out in the market. Based on the IDC MaturityScape Assessment and our research we recommend, among other things, appointing a dedicated Chief Digital Officer (CDO) to coordinate and integrate digital experience (DX) processes, collecting customer data and feedback, implementing a digital operations strategy to manage projects and processes, and fostering change and innovation throughout all employee levels to outpace competitors and be well prepared for the digital challenges in the future. Our report is structured as follows. First, we provide an overview of the IDC Maturity Scape Assessment methodology. Then we provide a summary of the client, Ovolo Group, followed by a detailed analysis and the results of the assessment.

1.2 Methodology II: Future of Customers and Consumers Maturity Assessment

1.2.1 Executive Summary

In today's world, companies can seamlessly collect data from their customers and operating systems to gain deep insights into their customers. Those with an eye on the future are expanding their capabilities and are using predictive insights to work more closely with their

-Group Part-

customers, anticipate behaviors and identify CX bottlenecks and opportunities. These companies can better understand their interactions with customers and even anticipate problems in the customer journey. Ovolo Group has the digital foundation and personnel capacity to achieve a strong market position and differentiate itself from its competitors. The Asian hotel group is currently at Stage 3 of the IDC Future of Customer and Consumers Assessment. Ovolo collects feedback from its customers and uses surveys and social media to better understand their needs and expectations. The company also uses this feedback to continuously improve the customer journey. We recommend adopting a customer-centric approach by initiating information flow from customers, implementing new technologies and digital platforms, and ensuring transparent and efficient data collection in all dimensions of the Customer and Consumers framework for Ovolo's strategic positioning.

1.3 Methodology 3: Use Case Taxonomy

1.3.1 Executive Summary

This document shows how Ovolo Hotels can reach the next IDC maturity stage with an appropriate strategy and innovative solutions. The strategy development is based on the IDC use case taxonomy. It consists of three levels: different Strategic Priorities and their respective programs and use cases. A Strategic Priority always describes a management initiative aimed at achieving a specific goal. The associated programs are individual projects that consist of different use cases. This ever further subdivision of a large overriding priority enables a structured and application-based approach. Based on our previously conducted maturity assessments with the IDC methodology, we have determined that Ovolo is currently at IDC Maturity Stage 3. Our analysis showed that 3 Strategic Priorities, Connected Journey & Experience, Digital Customer Engagement and Operational Scale and Agility from the

-Group Part-

Hospitality Industry are particularly important for Ovolo. In the Strategic Priority Connected Journey & Experience, Ovolo should focus primarily on the connected guest experience and on next generation customer care. In the Strategic Priority Digital Customer Engagement, it is particularly important to pay attention to how customers can be persuaded to return using digital technologies. We also see a lot of potential in the analysis of digital customer engagement data. In the Strategic Priority Operational Scale and Agility, the topic of profit optimization and agile working in the digital context is very important. Ultimately, our analysis also leads to the recommendation to appoint a CDO who is responsible for implementing the solutions we have outlined.

1.3.2 Discussion

Digital transformation is a topic that is consistently gaining importance. According to IDC, global investments in hardware, software and related services amount to over 9 trillion US dollars, which once again highlights its significance. For this reason, it is crucial for companies to know what their current position is regarding DX and subsequently take steps for further development. Otherwise, there is a risk of being left behind by the competition. In our two previous maturity assessments, we focused on the current position of Ovolo. We applied the IDC methodology to analyze the current state of Ovolo Hotel Group regarding DX. Based on the first, more general Digital Transformation Maturity Assessment and the second, dimension focused Future of Customer and Consumers Assessment we ranked Ovolo at an overall maturity stage of 3. The two assessments provided a comprehensive overview of the current status of the Ovolo Group, forming the foundation for the development of the DX Roadmap detailed in this paper. Therefore, the whole case study should be seen as an educational instrument to anyone interested in DX. Apart from this, an analysis of the evolution, practices, and trends of revenue management in the hotel sector was needed as it

facilitated the whole understanding of the technological progress in the hotel industry. This analysis is outlined in the following section.

2 Industry Assessment from Practical View of Experts

2.1 Sectors of the Hotel Industry applicable to be improved with AI Tools

AI tools have a valuable impact on the processes of collecting data, analyzing it and providing information to humans to make the final decision. Thereby, it is assumed that in future times, AI could eventually replace many hospitality jobs. Yet, hotels managers deny the assumption that AI will replace human touch totally. According to an interviewed Chief Operating Officer of international hotel chain (Interviewee A):

AI tools will be deployed in different sectors of hotels, depending on the segment and on where the human touch is needed. AI is seen as a tool that is currently providing important information to the people who are responsible for future decisions. Robots at the front-desk, chat-bots as a communication tool, clouds as a data storage, smart room devices, and so on and so forth are common things nowadays, but the necessity of these things depends on the hotel type, the location, the budget, and the expected customer journey.

In the future AI will be deployed in lower budget hotels to save staff costs rather than in luxury hotels where it would not have a high positive impact. This is also due to the human touch, that still plays a big role in the whole perception of the customer journey. Additionally, the human-touch won't be outdated, because the exchange of emotions between human-to-human will always be more appreciated than the one between human-to-machine.

Another interviewee, a Director of Sales and Revenue, expressed his opinion regarding future operational processes which can be dedicated to AI (interviewee B):

If it would be needed to choose one sector where the impact of AI will be the most, it would be revenue management. There are already some players on the hospitality market who are doing some beta testing on automated pricing software based on AI and there are some

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believes that in a few years, it would be possible to estimate the specific price based on your individuality and online search journey instead of one inflexible selling model used by the most types of hotels.

By taking the needs of every guest into consideration, the management's responsibility is to create a special customer journey which should surprise customers and exceed their expectations. This includes tailoring the guest's experience by fulfilling any individual preferences and requests. Consequently, a warm and loyal relationship between business and customers will be established. Depending on the hotel sector, AI may also take part in more sensitive processes of hospitality, yet they should be suited and designed to the characteristics of a hotel. A Development Director of a global luxury hotel chain explains (interviewee C):

AI could have a very strong impact on the hospitality landscape in the next few years.

However, we should never forget that we are a business of people, and this should remain at our core. A robot concierge won't be able to replace the empathy and warmth of a human interaction, especially in luxury segment, and our main focus should still remain on creating memorable experiences for our guests through human interactions. AI can support management in the backend of hotel operations, including revenue management as well as in all the marketing and prebooking activities. Using digital tools will be much easier to make right business decisions and to determine people's preferences.

AI tools could allow a hotel to increase revenue and reduce costs too. Revenue Management is one area where the hotel companies can benefit the most from AI tools, setting smart prices and reacting quickly to market changes would give a major competitive advantage.

This statement has been confirmed by a General Manager of a Portuguese Hotel (interviewee D):

The sales and distribution are the main sectors for AI innovations. Digital tools can help to process bookings and improve buying experience before the stay, but it is unlikely not possible to deploy AI during the service period in efficient ways. The highest risk of customer dissatisfaction is mainly in a luxury environment, where people require excellence in hospitality with human touch.

2.2 Sectors in the Hotel Industry that are most relevant for AI-Tool Innovations

Interviewee	Themes	Opinion
Interviewee A	AI in specific hotel segment	AI tools will be mainly deployed in low-budget hotels, where human-touch is not needed
Interviewee B	Digitalized operational management	Self-developing revenue management systems are the most potential innovation in hotel working processes
Interviewee C	AI can't substitute people	In luxury segment clients require only human-based hospitality approach
Interviewee D	Sales and AI	AI can be helpful during booking and marketing processes but not in the main service activity
Interviewee E	Hotel cost reduction	With the help of AI hotel can significantly decrease labor costs and substitute sales managers or front office specialists with automatized systems.

2.3 The Impact of using RMS on a Hotel's Performance

The popularity of RMS increases every day. More and more companies decide to dedicate financial data analysis and control over their revenue to modern digital tools. The hospitality industry, inspired by successful examples from related business areas, assess risks and benefits by using newly designed digital business solutions. RMS can significantly improve a hotel's performance by optimizing pricing and inventory strategies, maximizing revenue, and enhancing overall operational efficiency. The importance, the competitive advantage, but also small inconveniences of using RMS were confirmed by the experienced Sales and Revenue Director (interviewee B):

A RMS looks into your hotel's performance 24/7 and analyzes millions of data points in seconds. Even for the experienced revenue managers it would be very difficult to do the same analysis on a daily basis and keep in mind all factors and risks. It saves a lot of time and brings benefits of quick decision-making. Integrating AI in RMS will play a big role in the future too. It will mainly improve pricing decisions in order to be more accurate based on the existing demand, and the market price fluctuations. Using digital tools which analyze external data like airlines info and their discounts, regional holidays or weather forecast can operate more efficiently hotel's pricing strategy and provide personalized rate model for each client. Nevertheless, an RMS does not replace 100% of the revenue manager position, as the system needs to be supplied with some unique data that only humans can operate. For example, digital systems still can't predict emerging trends, brand reputation and bank holidays that are flexible in dates. The person in charge must put the relevant information into the system or adjust the algorithm regarding the expected demand to create an appropriate business strategy.

An Owner of a single luxurious hotel also highlighted the importance of having RMS to maintain competitiveness (interviewee F):

Software can and, most likely, will recognize changes in the market and in occupancy rates sooner than human beings. Hotels with sophisticated systems tend to be ahead of the competition with traditional rate management. The human factor reduces efficiency and those who use old methods of revenue management lose competitiveness. Hotels that analyze data faster will attract more guests and can therefore offer them better booking proposals due to the selling model "the right room to the right customer at the right time for the right price".

Revenue management systems help to analyze and contextualize huge amounts of data. Yet, it is still not common to solely rely on the information provided by these systems due to inconsistencies, limitations, and incorrect data. This consequently impacts accurate forecasting and increases the probability of missed innovation opportunities in the long term. Hence, it is assumed that future AI improvements will solve the mentioned inconveniences and could even go beyond just providing information. According to a General Manager (interviewee A):

In general, any improvement made in a hotel is based on historical revenue data. In terms of the tool itself, it is crucial to have and use RMS as it facilitates a lot of operating processes (optimized pricing; dynamic pricing, forecasting and demand analysis, competitor analysis, etc.). Nevertheless, the system itself lacks a lot when figuring out the status quo of the current market conditions, especially in hard times such as COVID-19. Additionally, the system also feels scarcity of providing enough information about future trends, which sometimes generates huge obstacles for non-high budget hotels.

Therefore, it is hoped that AI will make things more transparent, alert people to threats, and provide trustful information about future trends. This is crucial for all Revenue managers as it will help them reduce uncertainty and imperfections and it will give confidence that they will do the right thing at the right time. Furthermore, it could also be the case that at some point AI will be so advanced that it will guide managers through a problem-solution process of how to do things differently by keeping in mind the characteristics of the hotel concerned.

To implement and tailor digital innovations successfully, the management team needs to fully understand the story and characteristics of the hotel. Otherwise, the investments made could negatively impact a hotel's revenue or even lead to a financial distress because of being too

risky. A tailored RMS to each hotel is important, as different properties have unique characteristics, market dynamics, and business strategies. Additionally, each hotel staff has different levels of expertise and training, and the whole business view of the company may vary depending on the market trends. In order to have a more effective optimization of pricing, inventory management and overall revenue management, the adaptation of RMS might be required. According to a Customer Service Manager of a Portuguese hotel (interviewee G):

The primary goal of RMS is to sell hotel services with the right offer rate. Most professionals of the hotel industry would agree that RMS is an essential tool to streamline various crucial aspects of hotel operations. The upside is clear and even small hotels can benefit from using this digital tool. There are many options available today on the market and some are not that expensive. Nevertheless, to launch digital innovation properly, the level of understanding regarding revenue management for the management team is crucial. The RMS by itself is a software that is quite similar to the PMS thus, it simply collects data that needs to be analyzed thoroughly. Hence, the use of ML can give main advantages if it is well trained by the staff and suits the hotel's general characteristics (size, type, and location). Furthermore, the software should be configured to align with the hotel's business model, target audience, and pricing strategy.

Besides, if new innovations or changes do not suit the hotel concerned, it will have a negative impact on the overall performance, leading to a negative return on investment. The worst case would be facing liquidity issues due to wrong digital adjustments.

2.4 Impact of RMS on Hotel Industry

Interviewee	Themes	Opinion
interviewee B	Rapid Data-analysis	RMS can analyze much more data in a shorter time than any revenue manager. Usage of external data would reduce risks and improve profitability
interviewee F	Competitiveness	Faster RMS analysis gives competitive advantage to operate hotel more efficiently
interviewee A	Long-term operational predictions	Future RMS with AI will predict trends and give recommendations for managerial decisions in hotel industry.
interviewee G	Personalized adaptation for revenue improvement	Only customized RMS can guarantee successful and profitable innovation for the hotel as a unique item of the market.
interviewee D	Price-management policy	highly sophisticated RMS can thru algorithms and massive calculation create advanced rate strategy for hotels

2.5 Having someone specifically in charge to optimize Revenue Performance and Revenue Management is crucial

In response to the lack of proper information and inability to find and operate valuable data, businesses still require hiring specialists who keep an eye on the correct work of automatized systems. All interviewees assured that it is totally relevant to have someone specifically in charge to optimize revenue and revenue management, regardless of hotel type, level of operation, and location.

A hotel can be fully booked, but at the wrong price, which minimizes the revenue of the company. Therefore, it is of increasing importance to have a single person or even a team totally in charge. It might open doors to new revenue opportunities and will create an optimization of business processes as well.

Besides, there are two possibilities of how to run a revenue management system: having someone internal, or external. Depending on ones' own preferences and the budget limit, it is

possible to estimate pros and cons of these approaches and to organize the suitable pattern accordingly. Furthermore, some companies even find it beneficial to do both: outsourcing of revenue optimization processes and still have someone hired internally.

While pricing strategies are already being done by algorithms, it takes adjustment to record single events or to develop future strategies for individual hotel requirements. Budget hotels can probably rely on automated revenue systems and don't need individual handling. It doesn't differ by market type but certainly changes by hotel categories.

Considering the need to find a partner company which handles the task of revenue management practices, hotels find various incentives. One decisive motivation is to avoid huge labor costs. Additionally, having a contract with an outsourcing company reduces the risk of failure and cuts the extra R&D costs.

Moreover, outsourcing revenue managing partner might give more insightful information and advice related to the current market situation as they do have an outside-in approach. This in return facilitates the clarification of the current status quo of an organization competitiveness and enables the management staff of a hotel to obtain a bird's eye view. Consequently, future trends regarding in-house services can be identified and implemented more accurately and quickly.

2.6 Other Revenues in the Hotel Sector and the Sources from where these come from

The percentage of other revenues generated is most likely dependent on the geographic setting, and on the ability of an organization to foster change and innovation. Therefore, it is essential to a hotel's management team to identify new service opportunities by observing the

surroundings precisely. Additionally, it is recommended to differentiate one's offerings from the competition to maintain uniqueness. Yet, the possibility of collaborating with other service providers should not be neglected. Regarding this topic a General Manager and CEO of Portuguese hotels shared their opinion (Interviewee A and interviewee I):

The percentage of other revenue possibilities in a hotel revenue statement directly relates to the segmentation, location, and size of the hotel. A city hotel's F&B sector will never reach high profits because people most likely go out to have lunch or dinner. The cross-selling and up-selling tools can be a solution to compensate for this. The opposite is the case when the hotel is specifically a spa hotel. Then, almost 90% of revenues comes from spa activities, goods, and services.

To clarify, the story and characteristics of a hotel are most relevant for improving the performance of other revenues.

Apart from this, hotels also tend to offer services and activities not only for hotel guests, but also for random clients from the outside, who can book a slot for a massage or who have an abandonment to use a hotel's gym. Additionally, if a hotel is located close to a marina, it should not only provide standard amenities but also incorporate water-centric activities such as waterskiing and stand-up paddleboarding. This diversification aims to capture the marina's clientele, thus, fostering a broader range of revenue streams.

Consequently, hotels could develop new contracts with local service suppliers to enhance revenue performance, also in lower intense seasons.

Another valuable insight regarding other revenues was given by a Director of Sales and Local hotel manager (Interviewee D and J):

The share of other revenues in the total financial structure is increasing together with the technologies that have developed over the past years. It is not that far in time that you could only book on your hotel's website, room and board basis. Nowadays a good booking engine can help to sell other additional services such as late check-out, the arrangement of celebrations or some special tours. You can adapt these ancillary revenues depending on your hotel type such as the possibility of renting a sunbed in your resort or a tour in your city hotel. Different hotels in different segments may apply totally different approaches.

On the other hand, there is more legislation to remove fees and charges not related to the rooms service. Limitations are implemented by governmental recommendations in some areas. Also, guests want to pay for the room and have all-inclusive services. Additional charges can directly influence the customer's satisfaction rate. That is why some hotels are minimized in extra proposals. For example, Resorts and boutique hotels could not charge for parking, that would create a lot of negative feedback, but city hotels can do that and for the guest it would be acceptable.

The above insights illustrate various moves that a hotel can undertake to improve the performance of other revenue streams. As an add on, a Development Director (Interviewee C) of a global luxury hotel chain stated that due to the prevalence of living healthy lifestyles, especially the “Spa & Wellness” area gains in importance:

During recent decade people started to care more about their health and mental peace. Increasing popularity gives a chance for hotels in the segment “Spa & Wellness” to be destined to grow. The sources of profit from spa and relaxation services increased the percentage of other revenues and pushed room revenues to the lower share in total financial hotel performance.

2.7 Increasing Revenue Performance: Back-end versus Customer-perceivable

Innovation

The prioritization between customer-perceivable innovation and back-end innovation depends on the specific challenges, problems and goals faced by the hotel or hospitality business. Both types of innovation can have a positive impact on revenue performance and customers. A

Director of Sales explains (Interviewee D):

In the case of Revenue management systems, it is definitely more important to implement the back-end innovation. Yet, some of the RMS's back-ends are too complicated to understand for managers and in the end, it is time-consuming to find and search for the needed data. The main goal is to make sure that the price that it is deployed is the most accurate for your customer based on the existing demand. However, if a hotel needs disruptive changes to have quick results like to avoid negative feedback from current guests, customer-perceivable innovations would have a more immediate effect or return in the short term. This is valid across all hotel categories and markets.

In alignment with the above opinion, another expression was made by a General Manager and by a hotel group Chief Information Officer regarding this topic (Interviewee A and H):

Customer perceivable innovations need to be paid attention to because they cover the risks of almost all hotel operations. Implementing service innovation leads to positive reviews from clients, and will increase brand popularity, enhance the emotional connection with guests, and foster loyalty. Additionally, revenue performance can also be improved by focusing precisely on time efficiency when it comes to providing service equipment such as sheets, towels, cutlery, etc. - the simple concept of having the right resources at the right place and at the right time to avoid additional costs.

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By taking into consideration many diverse factors, the prioritization of innovation does not fully rely on developed price and quality systems, as sustainability topics gain in importance as well. A short explanation by an Owner of a hotel is outlined (Interviewee E):

One of the main factors of successful business strategy is that core hotel innovation must have a sustainability focus to improve customer perception. Customer-facing features set a hotel apart from competitors, providing a unique selling proposition that can attract a broader customer base with loyalty to the brand. Therefore, having a balance between customer-perceivable and back-end innovations is usually the most effective strategy to pursue within a growing organization.

As far as revenue goes to breakeven and once the rate of growth stabilizes, there will be greater focus on improving margins through cost reduction initiatives.

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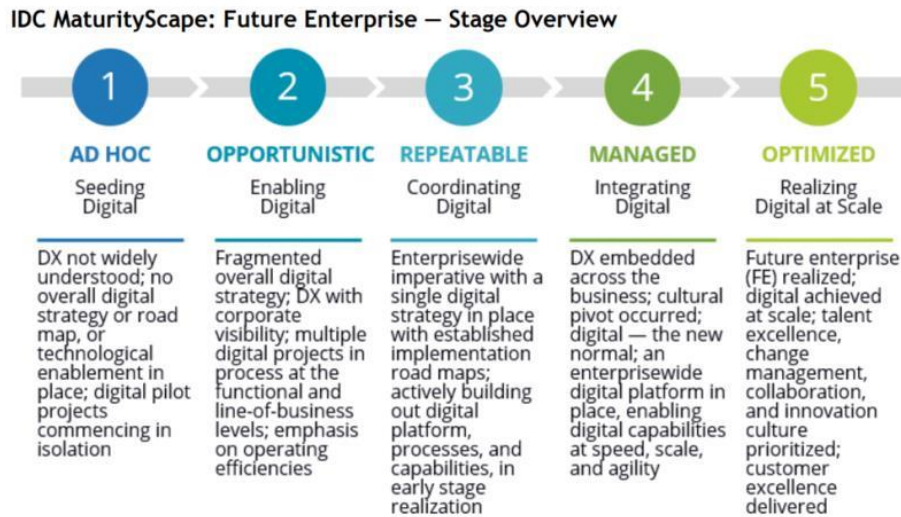
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4 Appendix

4.1 Exhibits

4.1.1 Exhibit 1: IDC MaturityScope: Future Enterprise – Stage Overview



Source: IDC, 2019

4.1.2 Exhibit 2: IDC MaturityScope: Future of Customers and Consumers - Stage Overview



Source: IDC, 2021

