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Dynamic Pricing leads to fluctuating parking prices. Representatives of the parking industry attach importance to a clear communication of the principle to customers.

Survey among experts

Learnings and challenges – first steps towards a flexible pricing policy

Dynamic Pricing and Revenue Management are key terms that have been heard more progressively across parking management across the world for some years now. The principle of a flexible approach to parking prices should offer advantages for operators and customers alike. So what is the current status of Dynamic Pricing?

The basis of parking space management is the principle of allocating parking spaces for a certain time and at a certain price. If there is no fundamental price increase or decrease for parking spaces, the customer can assume the same price per time unit at day and night and in all seasons. In this classic management model, the customer as well as the operator can calculate the cost framework. The latter is only dependent on a good location of its car park within the respective city to have a constant number of customers.

In many industries, conditions have been comparably simple up to now. But sectors such as the hotel industry or airline carriers have long since taken leave of such static and well-ordered conditions. However, parking management in Europe now is slowly following on the path. While operators can make their prices more flexible and adjust occupancy peaks or troughs, from the customer's perspective, more use can be made of off-peak times. A distinction must be made between new management models in which a special price is set on certain days of the week or at certain times and those payment models, in which each driver who is entering the car park has to pay a separate rate. The increasing possibilities of computer-aided analysis of car park occupancy and possible pricing models offer new perspectives for operators and customers in both models alike. A further distinction is made between dynamic pricing for online bookings and for roll-up systems.

Price adjustment depending on capacity utilization

To get an idea of the similarities and differences between the two concepts Dynamic Pricing and Revenue Management, one should first look at the definitions. Revenue Management according to Sheryl E. Kimes is a "process of allocating the right type of capacity to the right kind of customer at the right price so as to maximize revenue or yield."

What does this mean in a practical way? "Following this definition, Revenue Management can be seen as a quantitative strategy aimed to assign existing capacities to the demand in order to maximize revenue, under simultaneous price and capacity constraints", says Dr. Mark Friesen, Management Consultant at QUINTA Consulting. Dynamic Pricing is on the other hand a fundamental method to change a price dynamically over time. This depends on factors such as changes in demand, capacity or availability. This leads to high prices when the demand is high and low prices when the demand is weak.

Dr. Friesen's company QUINTA Consulting is a Frankfurt-based consulting company specialized in commercial optimization, which has already supported more than 25 clients in Europe and the US to implement Dynamic Pricing in parking. According to their own statements, the company has worked together with operators, investors, insurance companies, airports and fairs, who have achieved an average revenue uplift of approximately 10 – 15 per cent per year by implementing innovative pricing schemes like Dynamic Pricing.

Understanding the customers

Industry experts and consultants are currently still observing a clear caution against the model in many places with regard to the operator side, although there are perspectives for revenue growth. "There is little experience with Dynamic Pricing in parking.

Even though all private parking operators want to maximize revenues, none dares to be the first to introduce Dynamic Pricing on a large scale", says Friesen. Outside of Europe there are already successful exam-

ples, such as SFpark, San Francisco's management system for on- and off-street parking. According to Friesen, a crucial precondition of Dynamic Pricing is the use of transactional parking data: "Only few parking operators make use of transactional parking data to understand drivers." Nimesh Inamdar, International Chief Analytics/Data Officer of Indigo Group S.A.S., confirms how important this is: "You really need to understand the behaviour patterns of customers at each specific location." His experience shows that each sector (airports, rail, on-street, hospitals, retail and others) within parking industry varies when it comes to Revenue Management and how Dynamic Pricing is applied. The data for the drivers and subsequent analysis required for each location can vary greatly and thus the analysis and modelling requires state of the art tools and knowledge before pricing can even begin.

The experienced Revenue Management team at Indigo began using Revenue Management methods, analysis and automated Dynamic Pricing in parking over 20 years ago. From an Indigo perspective, to implement Dynamic Pricing at any location the foundation of business intelligence and advanced data sciences are essential. Implementation is one step, for Dynamic Pricing to be a success many more factors needs to built-in all with the customer being at the centre. According to Management Consultant Dr. Mark Friesen the presence of trained staff in local authorities or private operators is another particularly important aspect. In many cases this is still an obstacle. Likewise, effective internal and external communication is a key to success on a larger scale.

First practical applications

Despite such obstacles, Dynamic Pricing is becoming a topic, which is being talked about in the European parking industry. A first starting point for this was the online reservation of parking spaces several years ago. In this context, Dynamic Pricing was implemented at London Gatwick Airport as early as 2010. This now also applies to many other locations worldwide.

But now more and more projects are also being implemented in Dynamic Pricing, where the prices are displayed on a roll-up. This can be seen in first applications among individual parking space operators. For example, Q-Park Operations Germany GmbH launched its first pilot project in Dynamic Pricing in December 2019 in the parking facility "EBV Carré" in Aachen. Further parking facilities are to be converted to Dynamic Pricing operation in the course of 2020 on a trial basis. The operator told our magazine, they are currently unable to make any well-founded statements with regard to the development of sales by introducing Dynamic Pricing. However, the company is confident that Dynamic Pricing, which in other areas has already become a natural part of the purchasing process for end consumers, will be able to play an important role in the parking context in the future. It is hoped that a price controlled by supply and demand will enable the company to offer more favourable prices at lower capacity utilisation rates and thus to be more customer and demand-oriented. But such test-based approaches to the subject are still far from being common among all car park operators in Europe. At the Interparking Group and the German subsidiary Contipark, respectively, we were told that they have no experience with Dynamic Pricing so far.

Photo: Q-Park

Q-Park is currently testing Dynamic Pricing within the framework of pilot projects. The display at the access road shows the driver the current price.

Pilot projects in Germany

APCOA Parking has started a pilot project in Dynamic Pricing in Germany in the summer of 2019, starting with car parks in Hamburg, Stuttgart and Dresden. Later, the system, which was developed in cooperation with Scheidt & Bachmann, was also implemented in car parks in Frankfurt, Leipzig, Berlin, Düsseldorf and Cologne. Entrances and exits are recorded automatically so that the system always knows how many free parking spaces are currently available.

"Our experience shows that the demand-oriented system has an enormously positive effect on the local properties. It also allows us to draw valuable conclusions and develop dedicated parking space concepts based on them," says Detlef Wilmer, Managing Director of APCOA PARKING Germany. APCOA has already received much positive feedback on Dynamic Pricing during the test phase. "The digital development and design of our parking garages pay off both in terms of the development of our service portfolio and the needs of our customers. In addition, the new tariff model allows us to act even more customer- and demand-oriented. APCOA's greatest experience in introducing Dynamic Pricing is the enormous importance of transparency and analysis", adds Anja Müller, Operations Director of APCOA PARKING Germany.

Regulatory restrictions in the UK

National European associations sometimes speak of further hurdles that exist in the ar- →

→ ea of Dynamic Pricing. "The public sector providers would find dynamic pricing legally challenging as well as difficult to achieve. All public parking is regulated by a local Traffic Regulation Order (TRO) or Parking Place Order (PPO) both of which must specify tariffs before motorists can be charged a fee to park and before they can be legally collected. In this context Dynamic Pricing would be virtually impossible", tells us the British Parking Association (BPA) on request.

In the private sector or where car parking is managed outside the regulated sector, ANPR camera controlled time-limited free parking prevails as the most popular method of control. Where parking is paid for, pay-and-display is often the norm. Neither of these operations lends themselves to dynamic pricing, the association says in a statement on the topic.

Other industries can serve as role models

Flexible prices can be particularly attractive for operators in places where demand is very volatile. This is the case in regions with high tourism, such as winter sports areas. In Swiss ski regions, Dynamic Pricing for ski tickets is already in use in various ways. In such regions it promotes early online reservations. The currently valid price can be viewed there and on site. This leads to fewer people who are paying cash and to income that can be generated in advance, says Jean-Claude Constantin, Board member of ParkingSwiss, national parking association of Switzerland. In this way a cost-efficient operational planning could be carried out. According to him, the price depends on the season, day of the week, time of day and even the weather. One of the most important criteria is the time of booking. In his experience, young customers in particular react positively to the advantages of online reservations. For those who decide spontaneously, the system is less interesting because the regular rate at the checkout is usually higher, Constantin says. Dynamic pricing is still relatively new in Switzerland and each region is developing its own model. Some ski resorts already have experience with it others are following. "But many are still waiting", he says.

Photo: APCOA

APCOA also tests Dynamic Pricing. Flexible prices have been used in parking garages in Germany since 2019. According to the scoreboard, the daily maximum is ten euros.

Data processing as a core element

One of the results of the application are the similarities in individual aspects – regardless of whether the system focuses on ski tickets or parking tickets. One of the comparable aspects is the data processing, which is required in the background to adjust prices according to occupancy. But Dynamic Pricing must not only be mastered in practice at the level of the payment modalities and the IT structure in the background, but also with regard to the concrete technical implementation on site.

"There are many challenges to overcome when implementing dynamic pricing from a technical perspective. The accuracy and speed in which data including pricing can be pulled or pushed from the parking equipment varies due to the level of maturity of each equipment provider", says Nimesh Inamdar CAO/CDO of Indigo. From his experience with practical application. "The requirement for Machine Learning and Artificial Intelligence along with seamless integration to digital ecommerce will be key going forward. The automation of the process from data extraction to publishing prices is key to enable us to scale Revenue Management and dynamic prices out to each of our and our client's locations worldwide", he says. The associated processing, storage and evaluation of parking data and the automation of this process is particularly important. In addition to the price for acquisition or retrofitting, real-time connectivity and the applicability for different levels of Dynamic Pricing are decisive factors. In general, the collection and processing of parking data is at the heart of the process, because it is the only way to generate new prices. In order to deal with the topic transparently to the customer, it is essential to communicate prices to customers in a comprehensible way and to do a good in the field of public relation.

Future prospects for the industry

Although there are currently still certain hurdles to a broad application of Dynamic Pricing in the parking industry, under certain circumstances experts and users see a positive perspective for flexible pricing accompanied by comprehensive Revenue Management. „In order to implement Dynamic Pricing successfully, car parks should be characterized by a high occupancy level, heterogeneous user groups, high parking pressure especially in peak times and only few alternatives to park cheaper or even for free in the neighborhood", says expert Dr. Mark Friesen.

From this perspective, Dynamic Pricing in combination with revenue management in the parking industry certainly continues to have a high potential if it is implemented wisely. This is especially true with regard to a sensible combination with other innovative approaches like digital booking methods and cashless payment. ■