

How Digital Disruption Changes Pricing Strategies and Price Models

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Abstract

The digitization of the economy leads to significant changes in the way companies determine their prices. Technological changes (availability of the Internet, digitization of production, product innovations) basically influence the corporate environment, since the basis for pricing can be improved. Companies can collect and analyze more relevant information and hence optimize their prices. However, these causes accelerate competitive reactions. On the one hand, consumer behavior changes (more information is available online, search-engines and price robots help to find best offers), on the other hand, market structures become fragile (market entry barriers for new competitors are lowered, traditional products are cannibalized by digital products). Due to these factors the pricing strategy must undergo a complete rethink. In addition, this has consequences for the types of pricing models applied in the digital age. In this context, this paper focuses on four pricing models. Firstly, the digitization makes it possible to offer products and services for free to the consumer (Facebook and Google are particularly profitable examples), while at the same time other sources of revenue streams (here: advertising revenue) are generated. Secondly, freemium models are especially popular with start-ups, which are also free of charge for a basic service, but for upgraded services (full range of features, no ads) users pay a fee. LinkedIn, Dropbox or Spotify are prominent examples of this pricing model. Thirdly, subscription models have a strong boost. Since production costs drop when new business models are based on digitization, subscription models (like Netflix) – which have a long tradition – become more attractive, nowadays. Fourth, pricing models with flexible prices, which are dependent on demand and customer profile will be discussed. Dynamic pricing has a growing importance in online trading, but is also being applied more frequently in retail stores.

This paper examines the implications of digitization on strategic and operational pricing decisions and shows examples from various industries (retail, media, music) and enterprises. The limits of technological changes are also discussed, mindful of both aspects the company perspective and the perspective (and perception) of the customer.

Keywords: Big Data, freemium, dynamic pricing, one-to-one-pricing

1.0 Good reasons to rethink the current pricing strategy

A frequently stated key objective of pricing strategies is maximizing sellers' profits by capturing consumers' heterogeneous product valuations and accounting for competition and cannibalization (Kim et al, 2009; Simon, 2013). Furthermore, consumers' willingness to pay and reactions to different pricing strategies may not be purely rational but rather driven by behavioral aspects, such as perceptions and preferences. Therefore, consumers' perceptions of different pricing models may be an additional opportunity for companies to differentiate themselves from competition (by applying a preferred or innovative pricing mechanism that is not typical for the industry).

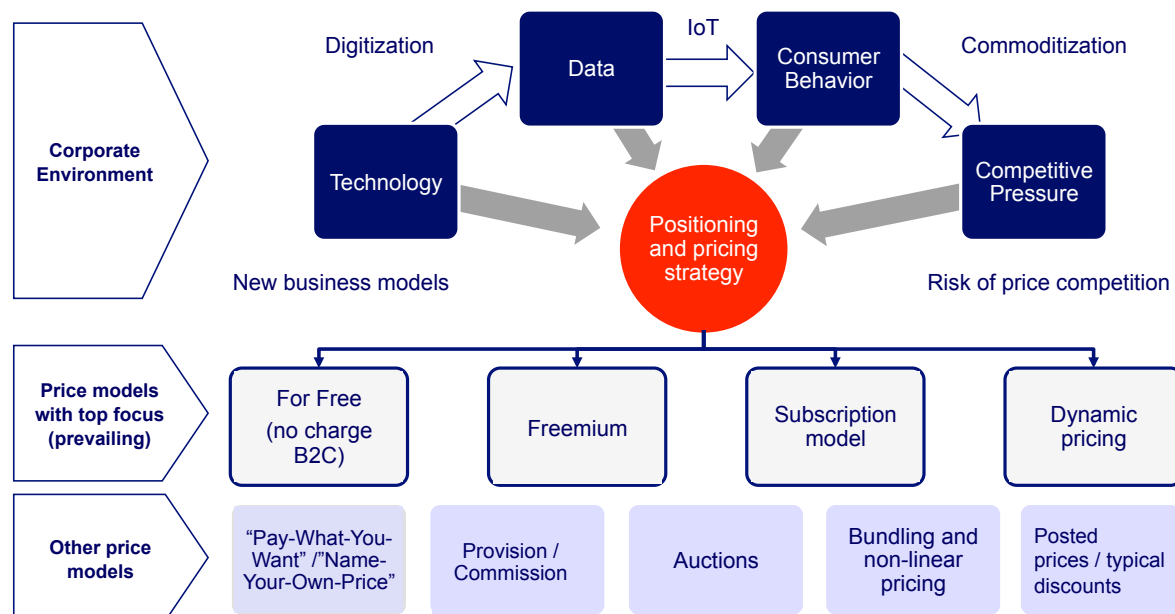
Today, for most businesses and markets customer loyalty and customer relationship management have become key competitive factors. During the process of optimizing prices it is often assumed

that the market is composed of single transactions, missing the perspective of a dynamic customer relationship with the company. Therefore Krämer (2015) proposes a widened definition of optimal pricing. This should include the customer’s willingness to pay as well as taking into account the effects on customer loyalty, and future gross margins generated by individual customers in terms of customer lifetime value.

There are several major factors motivating a company to rethink its positioning and its pricing strategy: (1) excess capacities raise the question, whether there are ways to significantly increase sales. In a digital company there are almost no capacity constraints (at least in the short run). (2) Managers increasingly face the risk of commoditization. As a recent study of Roland Berger (2014) shows - 60 % of managers believe they are caught in a "commodity trap" (a situation where even complex products and services are downgraded to "commodities", with limited differentiation and a competition that is primarily price-based). Therefore, decision makers are looking for new (unconventional) way to set prices. (3) In many new markets, lowering prices makes the market grow more quickly. The lower the price is, the stronger the additional demand effect. For firms that do not fear the risk of revenue cannibalization, radical price reductions could be an option to attract new demand (Krämer and Burgartz, 2016). As a consequence, it is stated that managers in marketing and sales increasingly see themselves exposed to stronger price competition and even price wars (Bertini, 2014).

Essentially, there are four pricing models that characterize the digital world and have themselves led to a certain disruption in pricing: (1) The free (no charge) offering, (2) the freemium model (created from “Free” and “Premium”), (3) the subscription model and (4) dynamic pricing. The discussion below will focus on these models. Nevertheless, other pricing methods have evolved in the Internet age, which are, however, less widespread (Figure 1).

Figure 1 – Impact of a changed corporate environment on pricing models



One trend is towards participative pricing, which gives customers more options to acquire a greater influence on the setting of prices (Krämer and Burgartz, 2016 ; Bertini and Koenigsberg, 2014). The most prominent examples of participative pricing mechanisms with horizontal interaction are auction (classic auctions, reverse auctions and exchanges) negotiations, in which the buyer and seller haggle

over the price for the product; eBay is certainly the most prominent example. Pay-What-You-Want” (e.g. openbooks.com) and “Name-Your-Own-Price” (e.g. priceline.com, bandcamp.com) are both characterized by the buyer setting the final price (Kim et al., 2009). The subjective evaluation of whether the price is adequate for the performance and represents fair value is the main factor influencing the final price.

2.0 Prevailing price models for the digital economy

Subsequently, first a pricing model is presented, which is particularly extreme in its design: a model where the price of the product or services is zero. Based on this model an extension is considered, the so-called freemium model. In contrast, models such as subscription fee and dynamic pricing are more driven by the objective of exploiting the consumers’ willingness to pay. This is particularly true for an extreme form of dynamic pricing, which uses customer data and profiles in order to develop an approach for one-to-one pricing.

2.1 For free

A key objective of innovative pricing models is to activate latent demand. To offer utilization of a product or service without being charged seems particularly effective for attracting new customers. One issue, often pointed out from behavioral economics is that benefit increases disproportionately during the transition to a zero-price offer ("for free"). Ariely (2014, p. 107) describes this phenomenon as follows: "Zero is almost another world. The difference between two cents and one cent is small, between one cent and zero cents, however, enormous."

One strategy - perfectly executed by Google - is to charge third parties. The first step was to offer an outstanding search-engine for free and to generate value to the customer, which led to an enormous flow of traffic. In 2015, mainly due to advertising Alphabet (Google) earned profits of almost \$16bn after taxes, based on \$75bn revenues. When Gmail introduced its free service in 2004 it provided 10 times more storage than Yahoo, the leading provider of free e-mail at the time. Yahoo, the leading provider of free e-mail, responded to Google’s entry by matching, and then exceeding, Gmail’s free storage offer. Another example is Finnish telecommunications company Blyk, which offers 200 free cell-phone minutes a month to 16-to-24-year-olds who fill out a survey and agree to receive ads. Blyk then sells access to its customers,, and information about them (Dyer and Hatch, 2011).

Another strategy may be to offer a product free of charge in the market in order to create a new market (for example, as a launch action) or to stimulate additional demand in off-peak periods. Megabus, a leading supplier of intercity bus trips used this trick when entering the German market (Krämer, Jung and Burgartz, 2016): it proposed to supply 20,000 free tickets to get into the market in January 2016 (only the payment of a transaction fee was required). Bla-Bla-Car, a French start-up company, which offers car ride-sharing has a free of charge service in Germany, while in France a provisional model was established once the market had developed. Basically, the offer of a free service seems particularly attractive for the start of the life-cycle of a product (launching of the product free, and later charging a normal price), an extreme form of Penetration Strategy. However, there are counter examples as well. Thus WhatsApp, the leading supplier of messenger services, announced early in 2016 it was abandoning its 99-cent subscription fee. Obviously, the subscription system introduced in 2013 had become rather a barrier, preventing the company from growing fast enough during its global expansion (the volume of users exceeded the threshold of 1 billion in 2016). However, the company pledged not to introduce ads, and instead hopes to find a way to make firms pay to connect with customers using the app.

Other companies use free services as an integral part of their product range. German Rail (DB) provides free train travel for children up to the age of 14, if accompanied by their parents. On the

one hand, such an offer always includes the risk of revenue cannibalization, on the other hand, risks are limited here. Furthermore, the free travel of children leads to a non-linear pricing of the family journey and thereby improves the competitive position of DB.

Obviously the main advantages of offering products and services for free are the attention gained and the rapid generation of customers by reducing or even eliminating their financial risks. By using “pricing for free” companies have a powerful marketing and an easy sales promise and can achieve a good market position in the short-term. But, of course, there are risks, which need to be taken into consideration. Consumers could have the attitude “what costs nothing is worth nothing”. This attitude depends on the subjective value of the product and/or services, and has to be evaluated by the company with regard to their brand identity and portfolio. Moreover a study of Shmpan´er and Ariely showed that in the zero price conditions test persons were more likely to choose a less attractive product than to pay a reduced price for a higher quality and more attractive product. By testing several possible psychological antecedents of this effect, they found out that the affect is the most likely source and conclude “In general, this research joins a larger collection of evidence, showing that zero is a unique number” (Shmpan´er and Ariely, 2006).

The most important driver of the success of this pricing model is to find a way to cross finance the zero price product. As shown, the most successful strategies are either to charge third parties, to create a new market, or to use it as integral part of the product range.

2.2 Freemium

The digitized era has not only spawned new business models and products, but also new pricing models. During the last decade “freemium”—a combination of “free” and “premium” - has become the dominant business model among Internet start-ups and smart-phone app developers. Users, who are just interested in a basic product or service, receive it for free. If a service with higher quality is preferred, the user can opt for a subscription fee. Nowadays online music providers offer the possibility of listening to an almost unlimited range of songs simply by free registration for an online music account. The challenge for the provider, which covers the cost, is to find a way to cross-finance such offers. One option is to embed advertisement; another is a freemium approach, a popular pricing method due to its user-friendliness. Today, we find various Internet services based on the freemium concept – such as LinkedIn, Dropbox, or Skype (Kumar, 2014) and the majority of the smart-phone apps are based on this concept.

There are obvious advantages of a freemium strategy. First, free features are a potent marketing tool, when basic features offered for free meet fundamental consumer needs, such as: free music (Spotify), free cloud-based storage (Dropbox) or free calls (Skype), and free services are conveyed in the social networks as an instrument to distribute new services quickly. Secondly, it allows new ventures to scale up and attract a user base without expending resources on costly ad campaigns or a traditional sales force. For venture capitalists it is an attractive proposal to see a business grow at high speed and at the same time generate revenues. Here the subscription fees, typically charged monthly, come into play, since they become a sustainable source of revenue. Dropbox attracted 200 million users with a simple service. Provided a customer has a username and password and thus a unique login, two gigabytes of cloud-based storage is provided for free. If users perceive the storage volume as too limited, they can pay \$9.99 a month (or, alternatively, \$99 a year) for 100 GB of storage. Hence the business model targets at least two different customer segments. The first segment is satisfied by the adequacy of the free version for basic documents, the second segment needs more space since customers use Dropbox professionally or back up large files (music, photos). By accepting the subscription fee people belonging to the second segment create a cash flow that is necessary to cross-finance the first segment. Although there is a certain willingness to pay even in the first segment, Dropbox leaves the full consumer surplus on the user side.

One important success factor for the freemium concept is, therefore, to increase the conversion rate (or reduce the correlation between users who pay nothing and users who pay the subscription fee). However, a high conversion rate could also be counterproductive (Kumar, 2014). Accepting that one of the benefits of a freemium model is the ability to generate traffic, means that a significant basic customer value delivered for free is required. Additionally, the supplier must find a way to make its service distinctive and create additional value.

Another important point is easily overlooked: the large number of users who do not pay for performance, not only generate costs but are also an asset, for they increase the company's goodwill (an important factor when measuring company value is the customer base). While Skype attracts 400 million users (many of whom become paying customers) Flickr, the free photo-sharing site, has a much smaller user base and a low conversion rate. This partially explains why eBay paid \$2.6 billion for Skype (in 2011 Microsoft even paid \$8.5 billion in cash to acquire Skype; the number of users amounted to 660 million at that time), and Yahoo paid less than \$30 million for Flickr.

Furthermore, the seller also has unlimited possibilities to gain insight into their consumers by observing the usage behavior or to understand customer behavior better (for example Spotify can identify what kind of music a specific segments prefers or shares and categorizes customers based on those information, and can use the same data to define up sell campaigns (LinkedIn offers a free premium account or the option to use Lynda.com, a service that provides educational videos, for a limited period of time).

2.3 Subscription

The subscriptions model including a yearly or monthly payment does not constitute a truly new form of pricing. Even before the digital age, companies used subscriptions either to generate customer loyalty by offering subscriptions, or to achieve a basic utilization of production and marketing capacities. The underlying price logic of flat price, however, has a significant disadvantage in a non-digital world. Consumption must be limited at all costs. In newspapers and magazines, a given circulation defines this limitation. Corresponding limitations for service branches such as fitness studios or telecommunications would hardly be feasible. An example for a kind of "natural" limitation is embodied by hellofresh.de. The online food service sends their members weekly cooking boxes filled with the ingredients to prepare a specific recipe for a price flat per month. Dollarshaveclub.com follows the same concept sending their members specifically chosen blades, shaves and creams each month for a monthly flat-rate. The frequency of the delivery can be adjusted and the membership can easily be cancelled per month for both these online shops.

The high market share of the public transport in Switzerland is not only due to easy access by train and bus as well as outstanding network and quality, but also due to the proliferation of the "General-Abonnement"(GA), which guarantees unlimited use of buses and trains in Switzerland. Currently about 6% of the Swiss population own this network card. A significant proportion of the total public traffic is allocated to this ticket. Consequently, the GA allows the public transport system to predict quite accurately with respect to demand, but there could also be capacity constraints if the GA is utilized intensively. The example also shows that no effective levy of willingness to pay is possible with flat pricing. For those with low train use there is a slight discount compared to the regular price, whilst a very strong use results in an extremely high discount (Kalt, Bongaerts and Krämer, 2013). In Germany, the BahnCard is a well-known marketing element (5 million users) to increase train trips. Customers of Deutsche Bahn pay a yearly card price (subscription differs across target groups) and get access to a 50% discount on the usual full flex fare (BahnCard 50), 25 % discount on full flex and saver fares (BahnCard 25) respectively.

The subscription model is not only used by industry giants like Netflix but also by promising start-ups like The Honest Company. Launched by actress Jessica Alba, the e-commerce company The Honest Company could collect 100 million dollars in Series D funding in August 2015 - with an average rating of 1.7 billion US dollars. The basic idea is a monthly fee for a constant supply of ecological products for babies and small children.

The safety of capacity consumption and/or product use is one advantage of the subscription model, whilst also being an efficient instrument for customer loyalty. It can be especially targeted at heavy users and users who prefer to have certain price security. At the same time the model includes an entrance hurdle. Therefore, communicating the key value is one of the main success factors, and the customer loyalty is mainly based on a contractual level. In addition, important elements of emotional and non-rational customer loyalty must be kept in focus and have to be expanded. Finally, there is an ultimate risk for the provider if the consumption growth is stronger than expected, accompanied by an increase in the variable costs.

2.4 Dynamic Pricing

As the economist Paul Krugman has pointed out, dynamic pricing is merely a new version of the age-old practice of price discrimination (Krugman, 2000). Parties involved in commerce have experimented with variable pricing since the beginning of commerce itself. Yet, what is new about today's form of price discrimination is that current technology has made dynamic pricing not only widely possible, but also commercially feasible and faster. Over the past 15 years, technological development has progressed further. Digital companies offer customer accounts in which all the essential data is recorded, they know about the search behavior of customers and their preferences, even being able to discern the probability of them terminating their relationship with a firm.

In comparison to the previous three models the dynamic pricing is not to be regarded as an acquisition instrument to attract new customers. It is more a general rule and the fact that prices can vary due to specific factors is not openly communicated to consumers.

Since for pricing managers the limitations of an undifferentiated posted price are clear, they are working with a wide toolbox to adjust prices. A common form of dynamic pricing is variation of prices over time. On days or time slots in which the companies expect a clientele with more purchasing power, the prices will be increased and correspondingly reduced in times of weak demand. These are norms that consumers have experienced over many years for services such as airlines, hotels or car rentals. These companies strongly rely on yield management systems, which try to improve capacity utilization and overall revenues by adjusting available prices to demand (see Cross, Higbie and Cross, 2011; Hinterhuber and Liozu 2013). More recently, other sectors like the retail sector are also discussing the increasing use of dynamic pricing.

A further more extreme form of dynamic pricing is to set personalized prices, in which data analysts help companies identify the characteristics of the purchasing environment or the customer's profile and behaviors impacting their willingness to pay. In the United States, for example, The Wall Street Journal found that office superstore Staples adjusted prices as did Home Depot, and Orbitz the popular online travel company. In Germany, a study verified that a company supplying lenses online offered customers a lower price when acquired via Google-Shopping Ads to the web shop compared to the price via a direct visit to the web shop. Consequently, the direct, and obviously, loyal visitor pays a higher price than a customer probably coming for the first time to the web shop (Kobrück, 2015).

The Internet, Big data and digitization enable firms to technically incorporate information into their price setting with the help of algorithms such as

- Time-based-pricing: prices rise systematically when increase in demand is foreseeable and alternatively fall when a decrease in demand is forecast. Attractiveness, weather, school vacations e.g. can be influence factors
- Competitive-based-pricing: the competitor's price changes can influence the own pricing policy
- Distance-based-pricing: the distance a customer is located from the next bricks-and-mortar store
- Browsing-based pricing: the customer's browsing history provides knowledge of its willingness to pay
- Past-behavior-pricing: the customer's transactions and hence his loyalty in the past (product, price etc.) determine the current price
- Devices-based-pricing: the use of the technical device (type of smart phone, PC, Laptop, Tablet), which generated the query, influences the price
- Demographically-based-Pricing: the customer's age and gender allows an estimation of his willingness to pay
- Dynamic Merchandising: prices adjustment as a tool for stock and inventory management.

Online businesses have experimented with tailored offers since the dawn of the Internet era. Amazon was one of the first to move in price discrimination. In 2000, Amazon.com Inc. infuriated many customers when it sold DVDs to different people for different prices. Amazon called it merely a test and ultimately refunded the price difference to people who paid more. (Valentino-Devries, Singer-Vine & Soltani, 2012). Jeff Bezos said in a news release: "We have never tested and we never will test prices based on customer demographics," founder Amazon.com spokesman Bill Curry said the tests were useful in determining a price point — the right balance between how much Amazon.com could charge and still maintain a good sales volume. Nevertheless, because of the consumer outcry, Amazon.com ended up refunding 6,896 customers an average of \$3.10 each, or a total of \$21,377.60.

Despite the public criticism, there were economists who justified Amazon's activities as fair. For example, Weiss and Mehrotra (2001, Nr. 21) argued: "Proponents of personalized pricing contend that prices based on value, and not cost, benefit not only companies, but also those consumers who are offered relatively lower priced goods and services, since these customers pay only as much as they value the goods or services". There are doubts, however, that the majority of consumers regard such behavior as fair and acceptable (Krämer and Kalka, 2016).

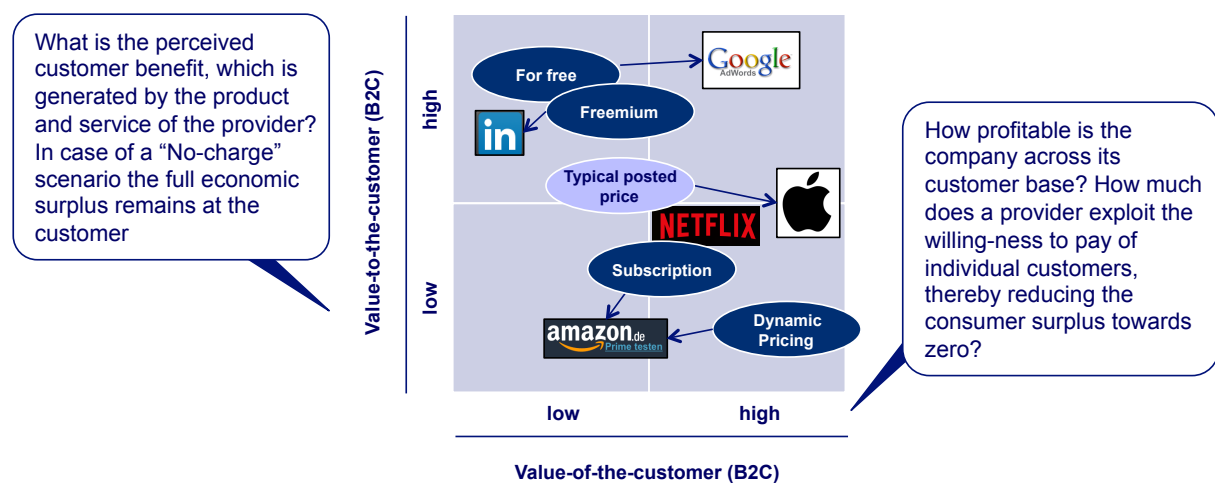
At the end it is the decision of the company, whether the strategic focus of the company is to build up customer relationship and loyalty (this is achieved through a high customer benefit, the so-called "value to the customer") or whether the focus is rather on a short-term maximization of cash flows ("value of the customer"). In this case, a company is aiming to extract as much of the consumer surplus as possible (Bongaerts and Krämer, 2014).

Here, the four pricing models presented above have a very different focus. In the trade-off between the 'value to the customer' and the 'value of the customer' decision, the pricing model for free is in favor of the consumer (Figure 2). In this case, the provider requires a different source of liquidity. As is widely known, Google's decision was (in 2000) to define revenue from advertising and analytics, as e.g. from the B2B business based on Adwords, as the economic core of its business model (Bernasek and Mongan, 2015).

3.0 Case Study: Dynamic pricing at Amazon

The e-commerce giant Amazon is used as a case study for the review pricing strategies in the Digital Age. The first step explains the special characteristics, which make the Amazon's business model unique. In the second step, a core element of the business model will be investigated in detail: the customer-centric orientation of the company. Based on an empirical analysis in Germany (online survey, Sep. 2015) the competitive edge of the Internet retailer is investigated from a customer perspective. The prices of a random sample of products at Amazon are analyzed based on typical forms of price discrimination that are used in online retail. Finally, the customer's perspective (review different forms of price variation on Amazon) is introduced.

Figure 2 – Pricing models of the digital age and customer value



3.1 Key elements of Amazon's business model

Founded in 1994, amazon.com is a leading e-commerce firm, engaging in the retail sale of consumer products, selling merchandise and content purchased for resale from vendors, as well as those offered by third-party sellers through retail websites, such as amazon.com. Amazon did not invent the online store, but the company recognized the potential to transform the way consumers shop by building the next generation platform and infrastructure that gives customers unprecedented choice, scope and value. From the beginning the business model was purely customer-centric. By building the online shopping platform, Amazon radically reinvented the traditional retail business model and the fundamental dynamics of how consumers shop. While the company started as a bookseller, it later began manufacturing and selling electronic devices (including Kindle e-readers, Fire tablets, Fire TVs, and Echo, as well as Fire phones). The company is continuously looking for scale-effects. Therefore, Amazon acts as a reseller for high-demand products but also as a multi-sided platform for long-tail (low demand) products, which are available on the site from independent sellers.

An activity lesser known in the public eye is that Amazon offers Amazon Web Service which encompasses fulfilment, publishing, digital content subscriptions, advertising, and co-branded credit card agreements services. AWS indeed has a first mover advantage. It was built from the company's core technology infrastructure and makes web-scale cloud computing cheaper and more accessible and turned out to be very profitable.

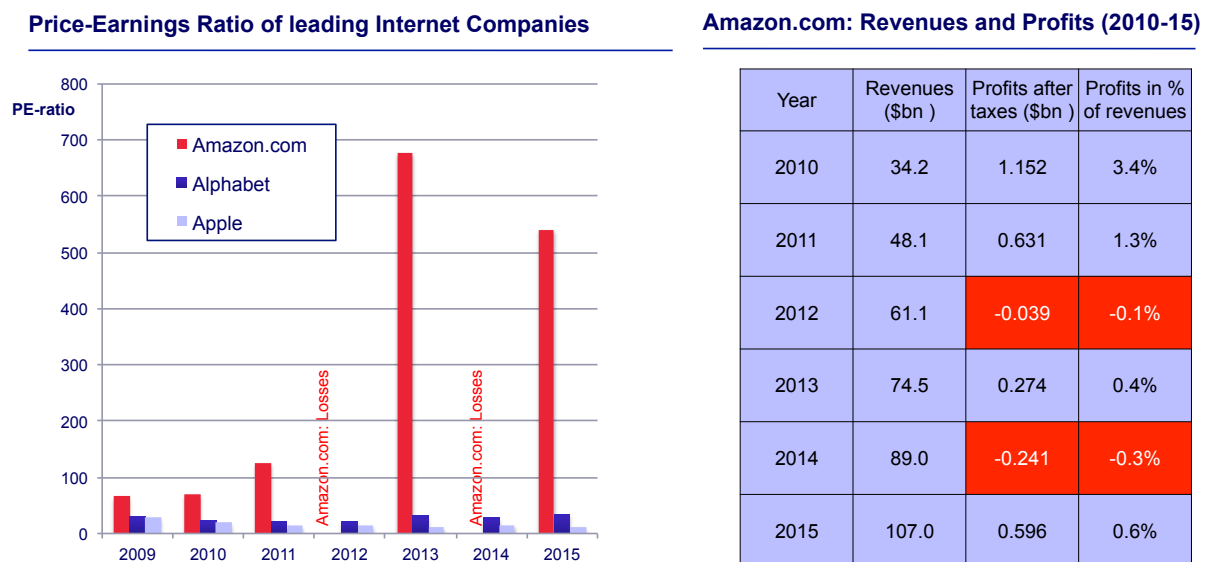
Since 2004 Amazon has offered its loyalty program Prime, an annual membership program with a fee of \$99 (U.S.) per year (\$79 in 2005). The loyalty program provides free shipping of various items;

access to unlimited streaming of movies and TV episodes; and other services. It was estimated, that at the beginning of 2016, Amazon Prime has reached 54 million members. Prime membership is an efficient growth tool since it tends to cause subscribers to stop shopping anywhere else. Consumers who know Amazon are aware that prices indicated on the platform are competitive. When customers decide to become a Prime member, shipping costs are no longer an issue. Subscribers automatically defer to shopping at Amazon first because they know shipping is free and fast, due to express service. Amazon covers all the shipping on Prime orders. A 2011 investigation estimated that the average Prime member used \$55 worth of shipping and \$35 in digital content annually. In other words: Amazon was “losing” \$11 annually by collecting its \$79 membership fee (Tuttle, 2013). But this did not include the main trigger of the customer relationship. Amazon’s share of the wallet is strongly increased, as well as customer loyalty and thereby, future contribution margins across its customer base.

For years, Amazon has been obsessed with growth. Total revenues tripled from \$34bn (2010) to \$107bn (2015). Amazon made clear decision long ago to trade off short-term profit against long-term cash flow. Its key strategy is to be able to capture the largest market share and scale possible that will allow it to drive down costs and increase profitability in the future.

This is reflected in Amazon’s financial performance indicators. In 2012 and 2014, Amazon generated losses while at the same time revenues strongly increased. In 2015 the price earnings ratio amounted to more than 500, compared to 250 for Alphabet and 20 for Apple, the most valued firms in terms of brand value (see Figure 3). Even in 2015 when Amazon profits after taxes raised to \$0.6bn the overall return on sales was only 0.6%. Retail giant Wal-Mart reached 3.4 % at the same time (profits of \$16bn related to revenues of approximately \$485bn).

Figure 3 – Amazon.com: Financial performance indicators



3.2 Building customer equity based on trust and customer centricity

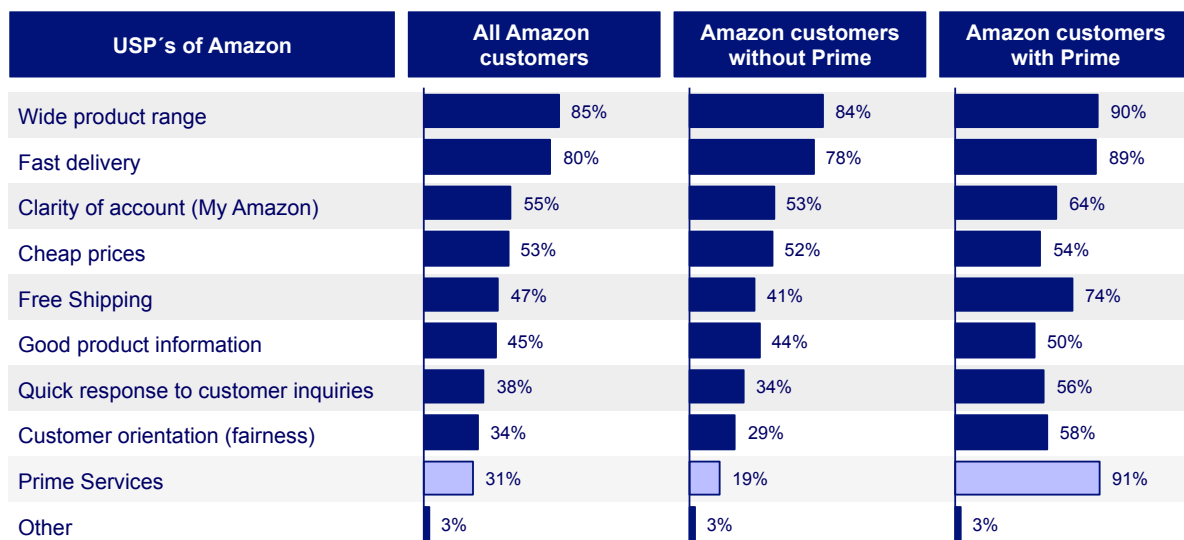
As Simons (2014) stated, Amazon devotes maximum resources to pleasing consumers, even if that means sellers or content providers sometimes feel short-changed (sellers whose store- fronts are hosted on the Amazon platform have been known to sue Amazon for more resources). This is a side effect of customer centricity innovation such as Prime free-shipping, detailed product reviews (including negative ones), look-inside-this-book, and the listing of lower-priced products from onsite

competitors. While competitors have often criticized these practices, Amazon has continued to improve its competitive position and success story due to unparalleled customer loyalty and stratospheric stock valuations.

Prime was introduced in 2004, as a result of Amazon searching for the right loyalty program for many years. An Amazon software engineer named Charlie Ward first suggested the idea of a free-shipping service via a suggestion box feature on Amazon’s internal website. One direct effect that comes with the Prime membership is an increase in spending at Amazon. Consumers shift budgets from other retailers to Amazon, leading to a strong sales growth. It is estimated that Prime members increase their purchases on the site by about 150 percent after they join and may be responsible for as much as 20% of Amazon’s overall sales in the U.S. According to a study by RBC Capital Market, 39 % of Prime members had expenditure of more than \$200 in the past 90 days and for 25 % expenditure was between \$101 and \$200. While almost 67% of prime members spent more than \$100 in 90 days, the corresponding figure for non-Prime-customers was 28%.

A study conducted by the authors reviewed in which elements customers see Amazon’s performance superior to its competitors. During the survey 500 consumers from an age of 18 years were interviewed in Germany (Online Study, September 2015). From the perspective of Amazon’s customers the most important performance characteristics are the wide product range (85%) and fast delivery (80%), followed by a clear account (55%). Astonishingly, the factor "low price" ranks only in fourth place in the top performance with 53% (Figure 4). This reflects the fact that German consumers are not primarily focused on getting the lowest possible price on Amazon, but rather that service elements receive clear preference. Particular the customer account that provides transparency with respect to its previous orders is seen as beneficial by Amazon customers.

Figure 4 – Amazon’s Unique Selling Proposition



1) What makes Amazon special / Where is Amazon superior to the competition?

These findings correspond to the results of a study that compared Amazon’s pricing with that of its main competitors (Boomerang Commerce 2015) and show that Amazon isn't always the cheapest place to shop. The giant online retailer uses its vast computing resources to monitor and analyze the prices of many thousands of items sold by competitors. Popular items are quickly discounted, while items that are less attractive may actually cost more than they do on rival sites. In almost two thirds of all observed products investigated in the study, Wal-Mart’s products were exactly the same price

as on Amazon.de; for products that are core to Amazon, Wal-Mart turned out to be less competitive and vice versa.

Customers with Prime status basically show a similar preference structure. However, results indicate that Prime members particularly value services such as free delivery and other prime features provided exclusively for them.

In addition to the information provided to customers about their accounts, Amazon still has a variety of customer-specific information. As Villas-Boas (2014) points out, sales are recorded, as are browsing and 'click through' patterns for each personal computer accessing Amazon.com, which enable Amazon to understand demand much better than the competition. Amazon does this by tracking not only what customers bought, but also what else they looked at; how they navigated through the site; how much they were influenced by promotions, reviews, and page layouts; and similarities across individuals and groups. Since the business model was fully digitally-driven, customer and data analysis have been core competencies of Amazon from the beginning, providing all the information needed to pursue all kinds of price discrimination. Competitive pricing requires data, intelligence, and strategy, played at high speed and at a high level.

3.3 Research on price discrimination at Amazon.de

According to a study conducted by price monitoring provider Minderest, it was found that Amazon made more than one million price changes on Valentine's Day alone (Minderest, 2015). For each product, prices fluctuated within a few hours by up to 240%. The reason for this variation in the price is the algorithm of "Dynamic Pricing", which is currently being developed by Amazon. As previously mentioned, this tool will maximize profits depending on the market price and economic viability. Changes can be made in a short period of time in order to increase competitiveness. To date, Amazon is the leader in using this business intelligence tool. To illustrate this with a clear example - the camera "Nikon D610 SLR" was truly remarkable as the price fluctuated between EUR 700 and EUR 1.687. This meant a difference of EUR 987 or 240%. These savings could have been achieved, if the camera had been ordered on Feb 12 at 10:00 am, instead of on Feb 13 at 9:26 pm.

Whether prices at Amazon vary or not, how strongly they differ, and what forms of price differentiation are applied, was reviewed based on an experimental study. Here, prices for selected products were recorded on the websites of Amazon and competitors, and compared. This was done simultaneously by using different types of devices. In this way, it could be examined whether, for example, customers with iOS devices were shown higher prices than consumers using other types of devices. The investigation also included an analysis of mid- to long-term price developments, which was executed using the website www.mein-wunschpreis.com. The results showed significant fluctuations in price in the long-term, e.g. by up to 300 EUR for the camera (Nikon D610) as well as for the coffee machine (Krups Nespresso 3006X). In contrast, little price variations were evident on the individual consumer level (Figure 5). However, variations in price were observed, e.g., on one day the coffee machine was offered cheaper when requested via smart phone with operating system iOS compared with other types of devices (including laptop with iOS).

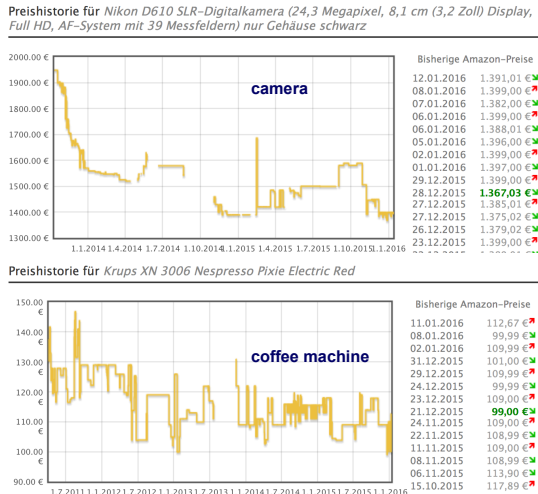
3.4 Customer perspective on Amazon's price discrimination

While the price monitoring aimed to generate objective results in terms of price variations in online retail and to determine forms of price differentiation, a consumer survey examined how the Amazon customers evaluate different forms of price discrimination. First, during the survey a form of dynamic pricing was presented in which the seller changes the price of a product according to demand. Consequently, prices for one and the same product may vary, sometimes being higher, sometimes lower. In this case the customer's perception was rather indifferent, the share of respondents that

agreed (25% top-2 rating on a scale of 1 to 6) was overcompensated by customers with negative ratings (34%). Although, one has to appreciate that this ignores the fact that a certain proportion of consumers will probably not notice any price differences in practice. Only 23 % of the Amazon customers agreed to the statement “When I search on Amazon, I can be sure to get offered the lowest possible price” (12 % of non-customers).

Figure 5 – Research on Amazon’s price discrimination

Price variation over time (coffee machine and camera)

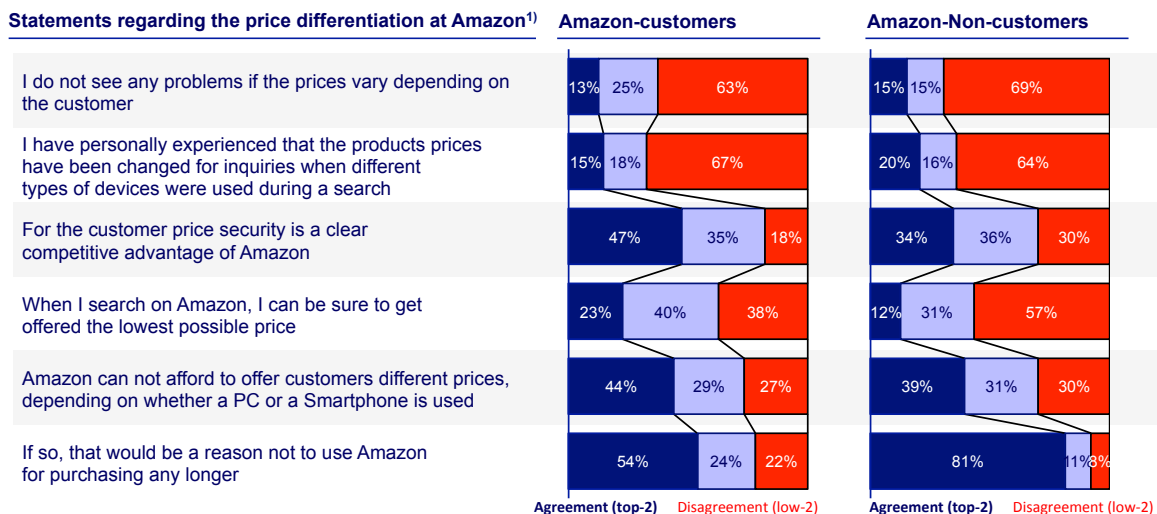


Price variation across individual consumers

Produkt	Laptop (Win7)	Laptop (Win10)	Laptop (iOS)	Smartphone (Android)	Smartphone (iOS)
Nikon D610 SLR - Gehäuse					
Sonntag, 10:00 Uhr	amazon.de	1.399,00 €	1.399,00 €	1.399,00 €	1.399,00 €
Sonntag, 21:00 Uhr	amazon.de	1.399,00 €	1.399,00 €	1.399,00 €	1.399,00 €
Montag, 15:00 Uhr	amazon.de	1.399,00 €	1.399,00 €	1.399,00 €	1.399,00 €
Donnerstag, 08:30 Uhr	amazon.de	1.399,00 €	1.399,00 €	1.399,00 €	1.399,00 €
Krups XN 3006 Nespresso Pixie, rot					
Sonntag, 10:00 Uhr	amazon.de	109,99 €	109,99 €	109,99 €	109,99 €
Sonntag, 21:00 Uhr	amazon.de	109,99 €	109,99 €	109,99 €	109,99 €
Montag, 15:00 Uhr	amazon.de	109,99 €	109,99 €	109,99 €	109,99 €
Donnerstag, 08:30 Uhr	amazon.de	109,99 €	109,99 €	109,99 €	109,99 €
Nike Roshe Run 511882, Damen (42)					
Sonntag, 10:00 Uhr	amazon.de	89,95 €	89,95 €	89,95 €	89,95 €
Sonntag, 21:00 Uhr	amazon.de	89,95 €	89,95 €	89,95 €	89,95 €
Montag, 15:00 Uhr	amazon.de	89,95 €	89,95 €	89,95 €	89,95 €
Donnerstag, 08:30 Uhr	amazon.de	89,95 €	89,95 €	89,95 €	89,95 €
Puma Herren T-Shirt ESS No. 1 Logo Tee (L)					
Sonntag, 10:00 Uhr	amazon.de	17,15 €	17,15 €	17,15 €	17,15 €
Sonntag, 21:00 Uhr	amazon.de	17,14 €	17,14 €	17,15 €	17,14 €
Montag, 15:00 Uhr	amazon.de	17,14 €	17,14 €	17,15 €	17,14 €
Donnerstag, 08:30 Uhr	amazon.de	17,15 €	17,15 €	17,15 €	17,15 €

Secondly, another form of dynamic pricing was discussed; describing a scenario where different prices are offered to Amazon customers, depending on how they are shopping and which device they use. 44% of the Amazon customers believe that Amazon cannot afford to offer customers different prices depending on whether a PC or a smart-phone is used. More than 50% think this would be a reason not to purchase on Amazon in the future.

Figure 6 – The customer perspective on price discrimination at Amazon (Krämer and Kalka, 2016)



1) In Internet blogs is discussed that Amazon customers get different prices displayed, depending on how you are looking for and from which device. Do you agree to the following statement or not?

As the analysis shows, dynamic pricing based on rapid price adjustments over time depending on demand, is less problematic from the customer's perspective. However, a large majority of Amazon customers feel uncomfortable in the dynamic pricing world based on the customer profiles that is if prices vary for individual customers. If customers comprehend that a retailer misused their personal data for a "better" pricing, customer confidence as one of the biggest company assets is potentially forfeited. Then the damage for the company could be worse than the benefits of a one-to-one pricing.

4.0. Outlook: Chances and limitations of pricing in a digital world

Digital disruption with its new technical possibilities, Big Data, changes in customer behavior and competitive pressure have implications for positioning and the pricing strategies and models of enterprises. Four pricing models are predominately implemented in the new digital world, which have redefined the rules of the game in pricing. Each of them follows other objectives, opportunities and risks. The use and value depends, of course, on the specific product and customer characteristics. With reference to the "for free" and "freemium" model, success factors are mainly to be seen in the re- and cross finance instruments, whereas the "subscription" model focuses on optimizing capacity utilization whilst keeping an eye on the variable costs. These three models are driven principally by the objective of quickly acquiring new customers and building up loyalty among users.

In contrast, the fourth model "dynamic pricing" is not openly communicated to the customers and tries to fully exploit what the target group is willing to pay for the product or services due to time, behavior, customer profile, used devices and so on. With the help of algorithms, different approaches can be used in almost real time to change prices in order to maximize profits. While the first three models can not be combined with each other, it is theoretically possible to combine the "dynamic pricing" model with the "freemium" as well as with the "subscription" model, because an offsetting effect is not foreseen. Nevertheless, psychological effects always have to be considered if the company wants to create a value for or of the customer, especially with regard to the one-to-one pricing policy, which some companies see as the biggest opportunity for the future pricing on the basis of big data. When evaluating chances and risks of new or changed price models, key elements must be the perception and psychological price evaluation by the customer as well as the potential damage to the brand image. If the customer feels unfairly treated, the main risks of all four models are customer dissatisfaction and customer churn, both leading to negative effects for the customer lifetime value.

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