

NR INDUSTRY INSIGHTS REPORT:

Analysis of prices of brands and online stores

in the category of Consumer Electronics in Germany

Abstract

This Netrivals Industry Report includes a sample of products and brands in the category of Consumer Electronics in Germany. These products and brands have been used to analyze price changes across sales channels, along with the behaviour and evolution of prices throughout time, and across all brands and online stores included in this study.

This Report offers a comprehensive analysis of over 78.15K products. This great amount of products results from the analysis of all the existing variants for every single product, given that the products analyzed have different EAN codes. That is why, in this study, we have included all the product variants that have been detected via Netrivals' Big Data. Thanks to this, we can ensure that we have a comprehensive view of changes occurring in the categories analyzed. This fact helps us assess whether price changes have an impact at a product variant level. It is worth clarifying what we understand as a product variant: any variations given for a specific product, such as colors available, something that may affect the price.

The products analyzed belong to 21 different brands, and 6 stores. Consumer electronics is one of the most popular categories of online sales regarding volume.

This report has been made via the technology of Netrivals BI, and it takes into account some of the most relevant online stores and brands in this category.

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Introduction

The category of Consumer Electronics is one of the most popular categories regarding volume. That is why products in this category are sold via a large number of players, both from a purely online approach, and also in an omnichannel way.

The nature of this category regarding volume of products and level of competitiveness in the market, makes it necessary for sellers willing to succeed in this sector to carry out comprehensive analysis of products.

That is why, the goal of this analysis is to provide businesses with quite an accurate picture of the state of sales channels in this category, by checking:

- Price evolution in this category
- The most active players in sales channels for this category
- Detection of patterns and behaviour of price changes



Key points of the analysis

Products, Brands and Time range of the analysis

The time range for this analysis comprises that period between January of 2020, and November 2020.

In this study we have taken into account a total of **78.15K** products (including variants of products if the latter have been detected by Netrivals). This amount of products have been analyzed across 6 popular online stores in this category. The total number of brands included in this study is 21.

- | | | |
|-----------|------------|--------------|
| • HP | • Sony | • LG |
| • Bosch | • Logitech | • Sennheiser |
| • Canon | • Braun | • Motorola |
| • Asus | • Kyocera | • Beko |
| • Samsung | • Msi | • Pocketbook |
| • Apple | • Huawei | • Hori |
| • Philips | • Nintendo | • Karcher |

Price change analysis

In the appendix that can be found at the end of this study, you can access the general number of price changes. Nevertheless, right now we'll focus on the behaviour of price changes in each of the stores analyzed. It is worth noting again that the number of products analyzed by Netrivals is different in each of the cases. It all depends on the number of products detected by our algorithms in each of the stores included in this report.

Behaviour of prices at a time level

View of price reductions and increases throughout the week

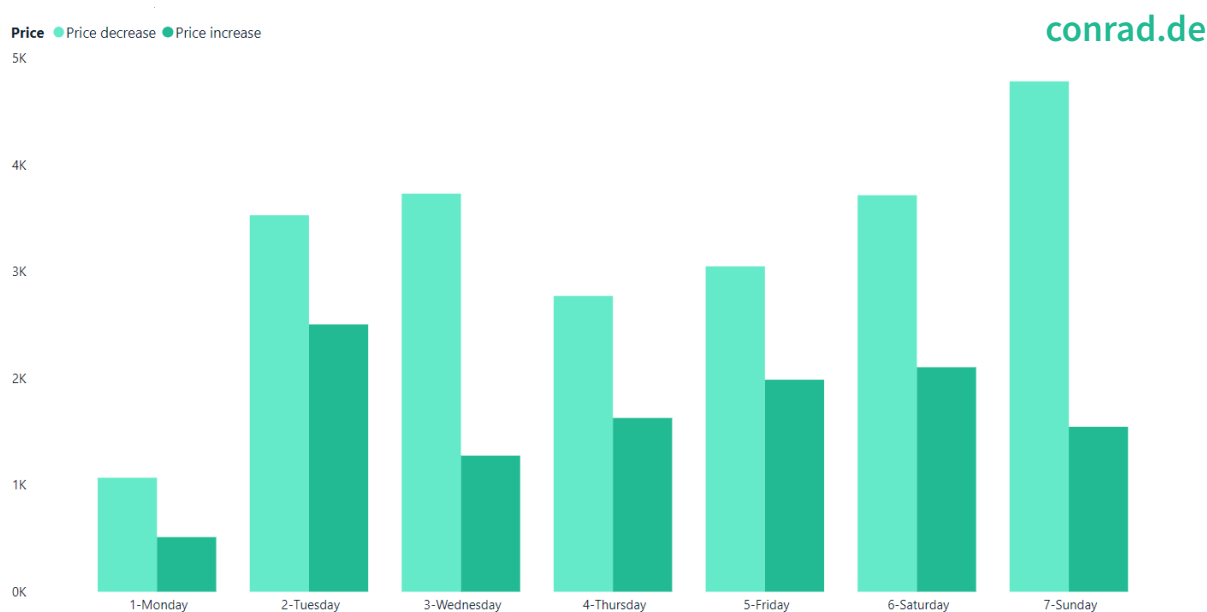


Figure 1: Price changes in conrad.de throughout the week. Source: Netrivals Big Data

We can notice that the majority of price changes on conrad.de tend to happen towards the end of the week. Analyzing working days, Tuesdays and Wednesdays are the days with the most activity, mostly regarding price reductions. On the other hand, Saturdays and Sundays, despite being the weekend are also very active concerning decreases in price.

On the whole, in the case of this store we can notice how price reductions are more dominant than price increases. Regarding price increases, the most active days are Tuesdays, by far.

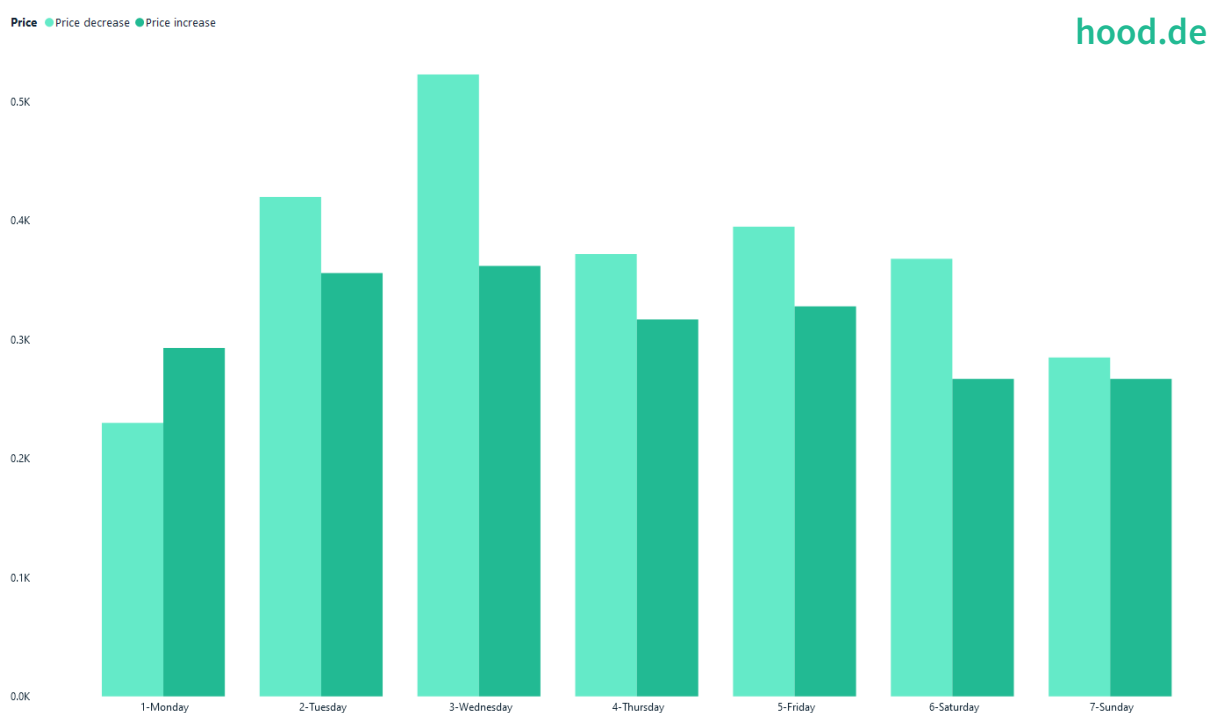


Figure 2: Price changes in hood.de throughout the week. Source: Netrivals Big Data

The case of this store is quite different from the previous one. This time, we can observe how Wednesdays are definitely the most active days, particularly regarding price reductions, while Mondays are the least active in that respect.

There is a certain stability on Thursdays and Fridays, though it is true that price reductions are still the dominant price change. And Sundays, on the other hand, are the most balanced days, with quite an equal level of activity, both regarding price reductions and increments.

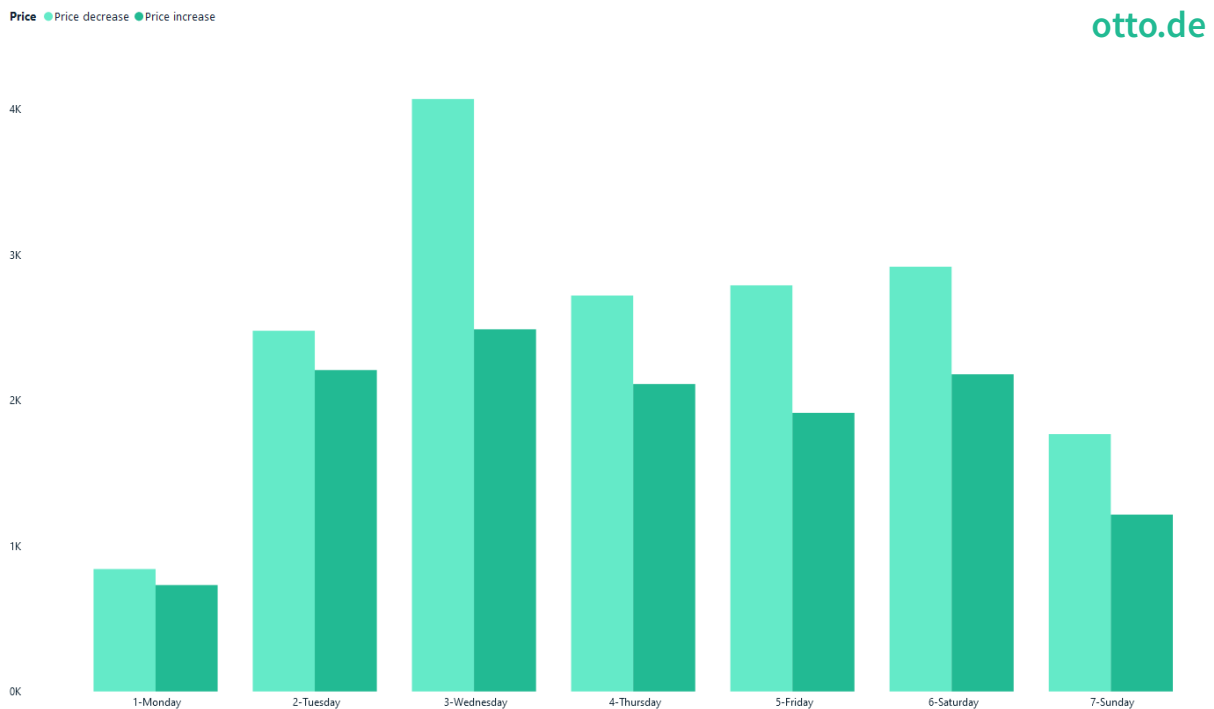


Figure 3: Price changes in otto.de throughout the week. Source: Netrivals Big Data

This case is quite interesting. Like happened in the case of hood.de, this retailer is remarkably active on Wednesdays, particularly regarding price reductions. Mondays are the least active days, and we can also observe a certain balance concerning price increases and decreases. The level of activity concerning price decreases is always more predominant than the one of price increments.

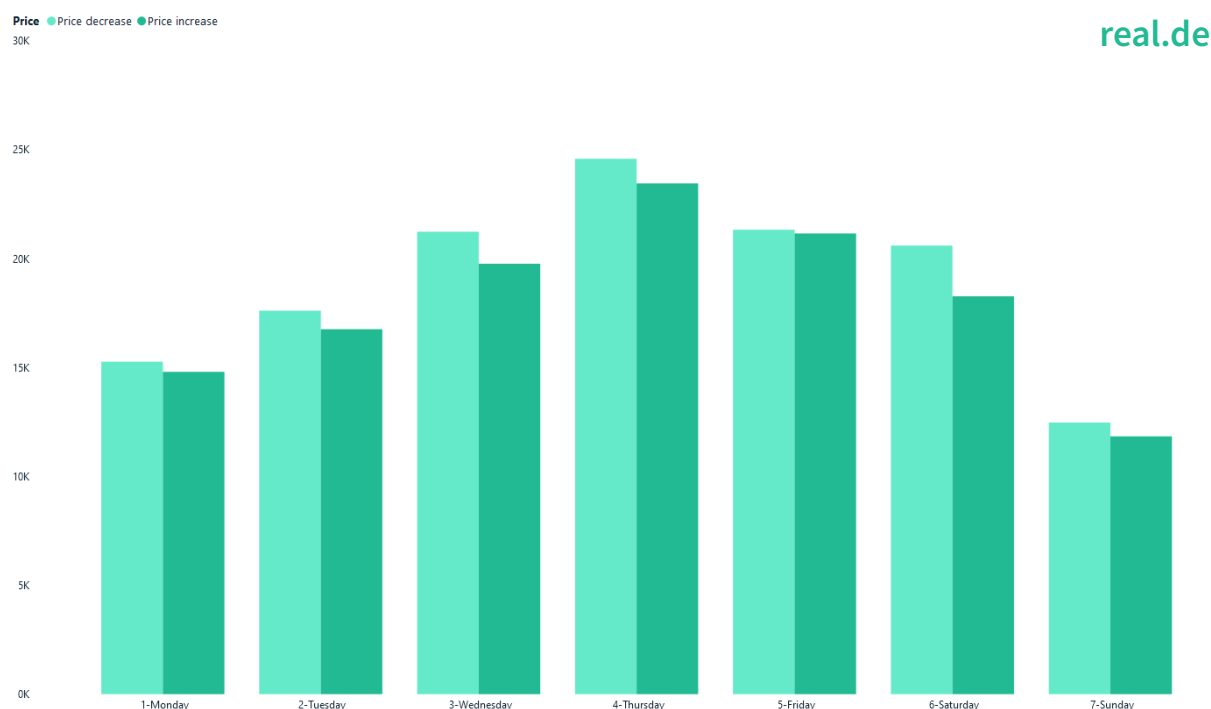


Figure 4: Price changes in real.de throughout the week. Source: Netrivals Big Data

In this graph for real.de we can observe how the activity at a price change level follows an increasing trend, resulting in Thursdays being the days that are the most active in that respect. Sundays, on the other hand, are the days with the least activity.

Price reductions are the price change activity that is the most predominant, but the difference is not that remarkable as in the cases of other stores.

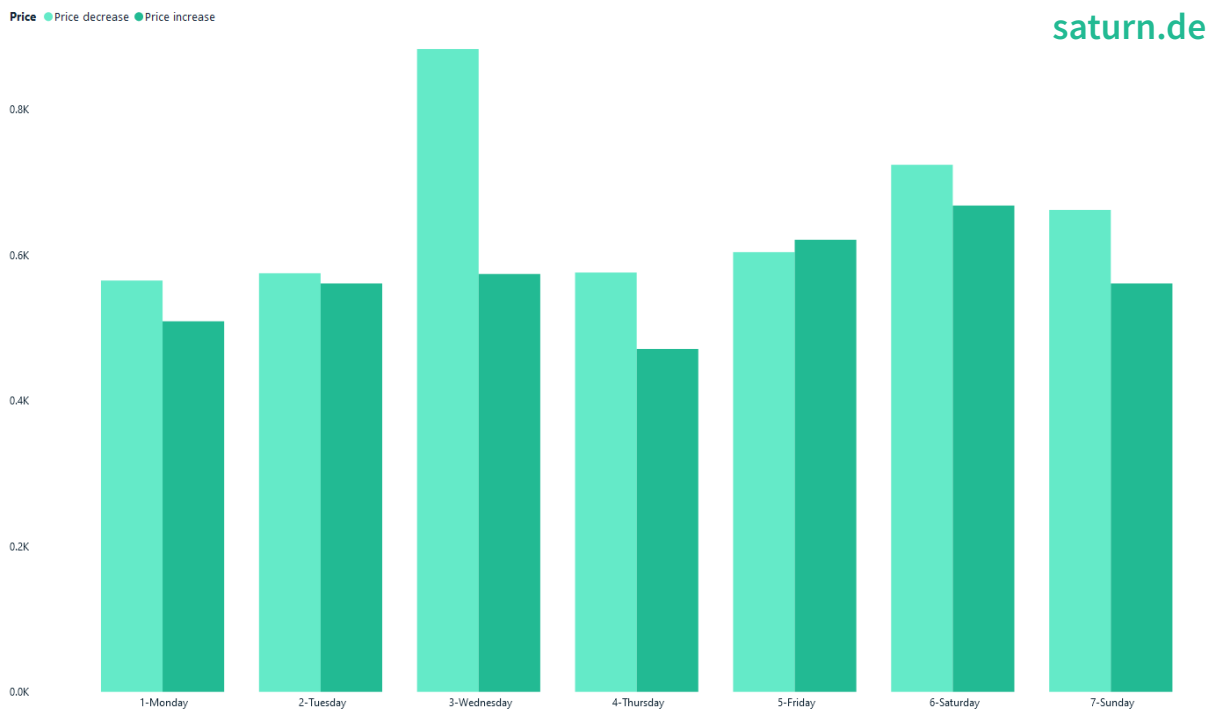


Figure 5: Price changes in saturn.de throughout the week. Source: Netrivals Big Data

Again, Wednesdays are the most active days. But, as opposed to previous cases, Saturn.de shows a greater activity concerning price changes on the weekend. While the rest of days of the week show a more stable trend in that respect.

As in the previous cases, the price-reduction type of change is always more predominant than the case of price increments.

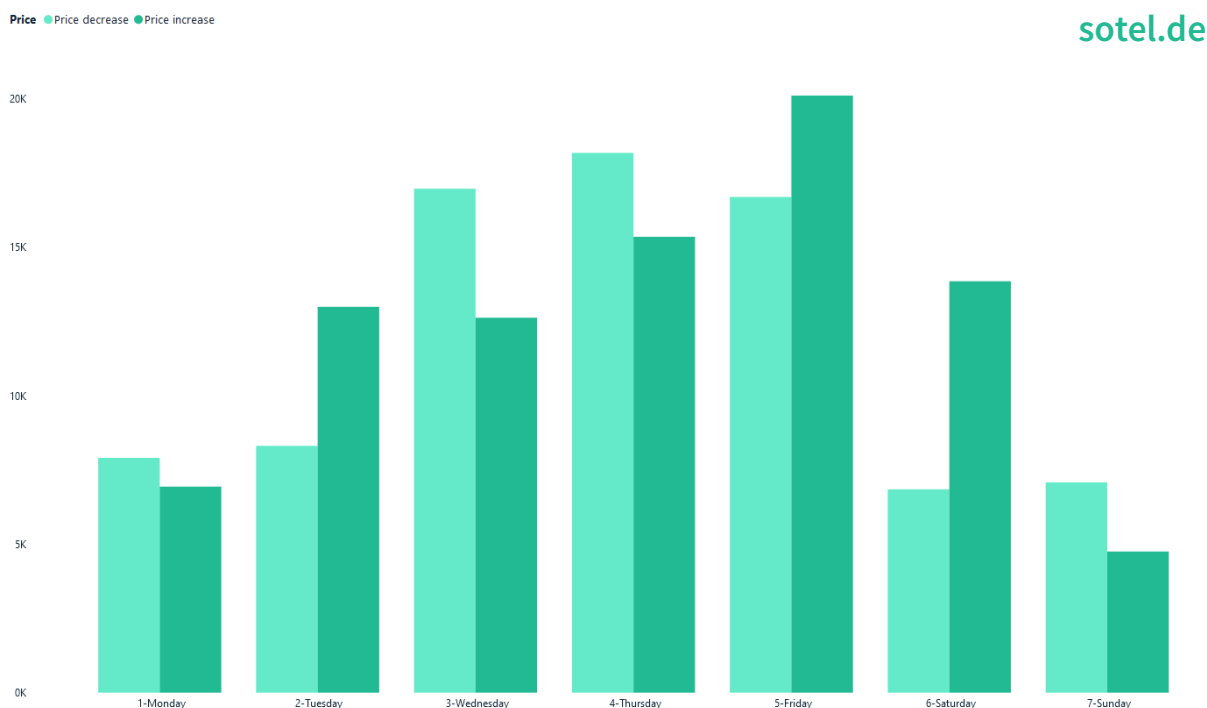


Figure 6: Price changes in sotel.de throughout the week. Source: Netrivals Big Data

The most active days in this case are Wednesdays, Thursdays and Fridays. Specifically, Thursdays and Fridays are the most notable days. Thursdays, on the one hand, are remarkable due to the level of price reductions. Fridays, on the other hand, are remarkable for quite the opposite reason, though, since a lot of price increments take place those days.

What really acts as a differentiating factor, in comparison to all previous cases, is the fact that in this case price increments are really notable. While in the previous cases, reductions were always predominant, this online store makes a lot of incremental-type price changes on Tuesdays, Fridays and Saturdays. Particularly, Saturdays show the greatest and most notable difference between increments and reductions.

View of average price changes per online store throughout the week

This graph shows, on average, the changes in prices in percentage terms. When talking about percentage terms we refer to the extent or magnitude of such price changes (either reductions or increments).



Figure 7: Price change in percentage terms on analyzed online stores throughout the week.
Source: Netrivals Big Data

By analyzing all the stores included in this analysis, we can see clearly how price increments are always greater than price reductions in percentage terms. It is true that following the previous analysis of activity per store, we have noticed how price reductions were always predominant. Nevertheless, it is also true that even if price increments are less predominant at an activity level, in the case of intensity of such price changes, what we can confirm is that price increases are always stronger at a percentage level in comparison to price reductions.

For instance, from the graph above we can see how Mondays and Sundays are the days when price increments are the strongest in percentage terms (around 12%). On the other hand, if we have a look at price reductions, we can see how the strongest changes in percentage terms take place on Mondays and Saturdays. Saturdays are the days with the highest intensity (-7,3%). Nevertheless if we compare those 2 percentages (12% vs. -7,3%), we can appreciate how the intensity is much higher in cases of price increments than in the case of price reductions.

We'll now see the case of each one of the stores, separately.



Figure 8: Price change in percentage terms on conrad.de throughout the week. Source: Netrivals Big Data

According to the graphs in the previous section of this report, Wednesdays tend to be the days with the most activity regarding the quantity of price changes. Nevertheless, in this case now, we can appreciate how, in terms of the intensity of such price changes, Mondays and Sundays are the days with the greatest impact in percentage terms. That concerning price increments. On the other hand, regarding price reductions, Mondays are the most remarkable days.



Figure 9: Price change in percentage terms on hood.de throughout the week. Source: Netrivals Big Data

In the case of hood.de, the intensity of price reductions is the highest on Mondays, and that is 14.1%, while the rest of days experience a decreasing trend in that percentage. Again, as in the previous case, we can appreciate how price decreases have a smaller impact than price increases in percentage terms.

Looking at price increments, there are two days, when, clearly, that impact is the greatest. We are talking about Mondays and Tuesdays.



Figure 10: Price change in percentage terms on otto.de throughout the week. Source: Netrivals Big Data

In the case of otto.de, the percentage linked to the impact of the price changes is, as opposite to previous cases, quite similar this time. Price changes in both cases of price reductions and increments go around 5%-7%.

The most remarkable days in the case of price reductions are Mondays and Sundays. Mondays and Wednesdays are the days when price increments are the most remarkable.



Figure 11: Price change in percentage terms on real.de throughout the week. Source: Netrivals Big Data

This case shows, one more time, how price increases are much more superior in percentage terms. While the highest percentage found on price reductions is that of -9.5%, price increments can perform as high as 17.6%. In the last case, such changes take place on Saturdays, followed by Fridays and Sundays. That way, we can conclude that the weekends are the days with a greater impact concerning intensity of price increments.



Figure 12: Price change in percentage terms on saturn.de throughout the week. Source: Netrivals Big Data

In the case of Saturn.de the greatest price reductions in percentage terms occur on Thursdays, Fridays and Saturdays. But again, such changes are greater when it comes to price increments. In the last case, the days with a clearer impact are Mondays (7.5%) and Tuesdays (8.3%).



Figure 13: Price change in percentage terms on sotel.de throughout the week. Source: Netrivals Big Data

Sotel.de shows a certain stability regarding price reductions and all of them are more or less on the same level regarding percentage terms. They tend to fluctuate between the 3% and the 4%.

On the other hand, looking at price increments, Mondays, Thursdays and Sundays are the days with a greater impact on percentage terms. Nevertheless, it is worth noting that such percentages are not as important as some of the price changes we've been analyzing in previous cases. In this case, we talk about percentages that reach, at the most, a 6%.

Prices: magnitude and evolution

It is important to bear in mind that the price evolution discussed below includes the products captured by the Netrivals system until December 2019. Therefore, the price evolution of such products have been analyzed during the 2020 period. This is something relevant to keep in mind when assessing the data below.



Figure 14: 'Price evolution in retailers and brands analyzed'. Source: Netrivals Big Data

As we can appreciate from the history of prices based on the total amount of retailers and brands analyzed: The starting prices from January 2020 experienced continuous ups and downs until the end of March 2020, when the price evolution trend went upwards reaching its highest point in July 2020. After that time point, prices kept decreasing until October, when the upward trend happened again, reaching a high point in the middle of November followed by quite a drop in the price evolution. However, this drop did not last for long and, from there, the pricing trend quickly recovered taking another upward trend by the end of November.

It is important, though, to check the Y axis and notice how every time we talk about price increases and price decreases, the differences may seem very big. Nevertheless in all the cases we are talking about progressive increments and reductions of an 1 EUR value.

Evolution of prices: detailed analysis per store



Figure 15: 'Price evolution on conrad.de'. Source: Netrivals Big Data

In the case of conrad.de, average price points experienced ups and downs with a clear increasing line of evolution until May 2020. We can observe a drop in the average price points in June 2020, followed by a remarkable price increase. At the beginning of July we can check, though, how prices fell for some time until September 2020. Nevertheless, keep in mind again, while looking at the Y axis, that such price changes correspond to small amounts, as in 1 EUR.

From September onwards, prices saw an estable evolution with remarkable peaks occurring throughout the month of November.



Figure 16: 'Price evolution on hood.de'. Source: Netrivals Big Data

First of all, let's make clear that in the case of hood.de, despite seeing lots of price fluctuations, price modifications always correspond to small changes, even more than in the case of the previous store. If we carefully observe the Y axis, we can notice how price increments and reductions correspond to small values corresponding to cents.

Consequently, we can state that average prices in this store did not experience extreme modifications, and in case of seeing a plunge in prices, like in the case of September 2020, those changes may have corresponded to a difference that did not exceed the value of 1 EUR.



Figure 17: 'Price evolution on otto.de'. Source: Netrivals Big Data

In the case of otto.de, if we check the Y axis, we can notice how price modifications may extend to a maximum price difference of 3 EUR. By checking the initial price point, we can see how prices continuously decrease until March 2020. However, it is also true that certain price peaks are experienced at that time. Prices remain stable in a way later on until May 2020. They increase for a while until July 2020, when we notice how prices drop until August 2020. After that, prices increase at the beginning of September and then decrease again until November of 2020. At the very end of November we can see how prices increase remarkably again and then follow another price drop.



Figure 18: 'Price evolution on real.de'. Source: Netrivals Big Data

In the case of real.de, if we have a look at the Y-axis, we can see how price increments and reductions this time are superior to the cases of stores analyzed before. In this particular case, we can appreciate a difference in the range of average prices that may exceed the value of 7 EUR.

Prices experience ups and downs until the beginning of April 2020. From that point onwards, prices increase, reaching the highest point in July 2020. This is one of the most notable price increase trends in this graph, but we need to take into account that the increment in average price from the lowest point to the highest one does not exceed the value of 8 EUR.

From July onwards, average prices never get back to the original price point of January. Prices experience a drop at the beginning of October. A new upward pricing trend starts in November and finds its highest point at the beginning of December.



Figure 19: 'Price evolution on saturn.de'. Source: Netrivals Big Data

This time, increments in average price, as we can notice from the Y-axis, may equal or exceed the value of 15 EUR.

Average prices on Saturn.de at the beginning of 2020 remain quite stable until July 2020. After that time is when we can notice the most remarkable changes. By the end of July/beginning of August 2020 prices plummet reaching the lowest point at the beginning of September 2020. Right after that point, we can see how prices go up and find the highest point right at the beginning of November, when they experience a further set of slight increments and reductions.

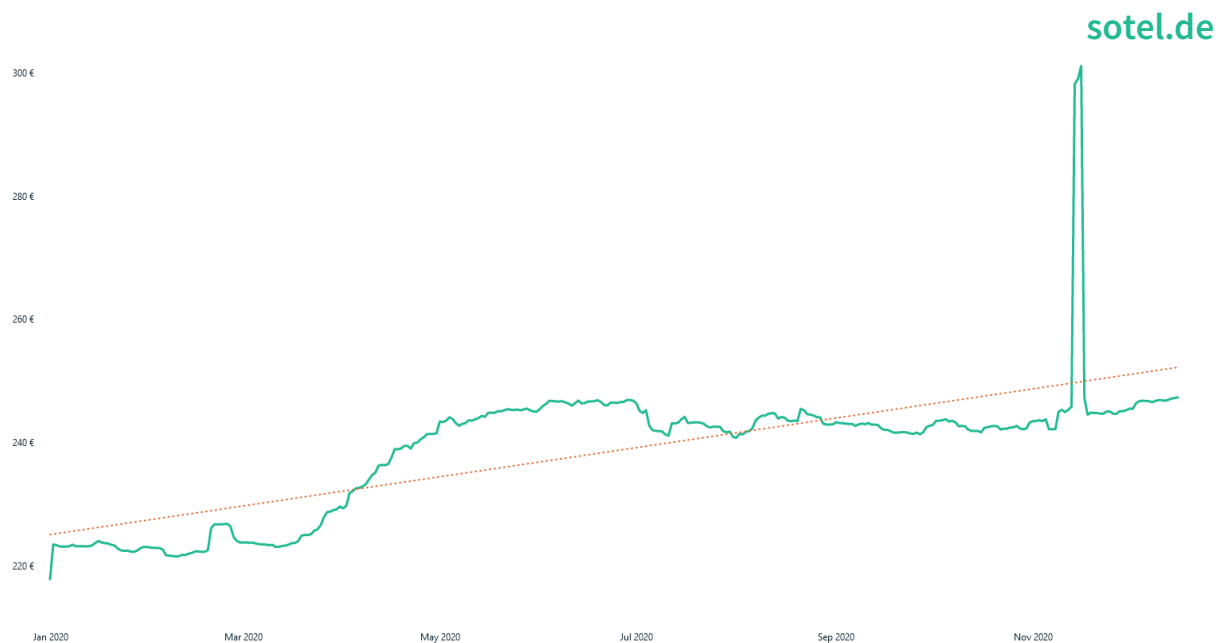


Figure 20: 'Price evolution on sotel.de'. Source: Netrivals Big Data

The case of sotel.de is one of the most remarkable ones across retailers studied so far. Why? While in the previous cases we were able to notice always small price modifications regarding price points in the Y-axis, this time in sotel.de we can see how prices differences may have exceeded the value of 60 EUR.

This last situation is particularly clear in the month of November, when the average price trend soars, finding the highest point in the graph.

Concerning the evolution of prices during the previous period analyzed in 2020, we can see how prices remained quite stable until the beginning of April of this year, and then progressively grew from May 2020 onwards, without experiencing major changes until the month of November.

Takeaways

Out of the data displayed and analyzed throughout the report, and regarding the amount of price changes, we can notice how Wednesdays and Thursdays are the most remarkable days when it comes to price changes, specifically price reductions. Of course, this refers to the general behaviour of prices in stores analyzed, and there may be exceptions to this statement, as in the case of conrad.de, a store in which the majority of price changes (reductions) take place on Sunday. Regarding price increments, Thursdays and Fridays are the most active days on the whole.

Turning now to the quantitative nature of such price changes, we have detected that Mondays, Thursdays and Fridays are the days when price increments are the greatest. In the case of price reductions, Mondays and Saturdays are the days with the greatest price modifications on average price, understanding those modifications as price reductions. Arrived at this point, it is worth mentioning that even though price reductions are the most common type of price modification throughout time, when it comes to the extent of such changes price increments are much more remarkable in that respect in comparison to price decreases.

Coming to the number of price changes performed, we have noticed that sotel.de (168,631) and real.de (259,168) are the most active retailers. From the stores analyzed, the least active one is hood.de (4783). The total number of price changes per store can be checked at the appendix available at the end of this study.

This report wants to provide a general overview on how price changes behave in each of the stores analyzed. Nevertheless, it is worth noting that this study has been based on the products detected by the systems of NetRivals at a general level, without analyzing special cases or exceptions that may have

occurred in specific stores. Also, we need to keep in mind that we never compare equal products across all stores, but sets of products in existing categories across all stores of the analysis.

In the case of price changes performed by product, the most active stores have been: sotel.de (21) and real.de (12). You can see the detail in the graph below.

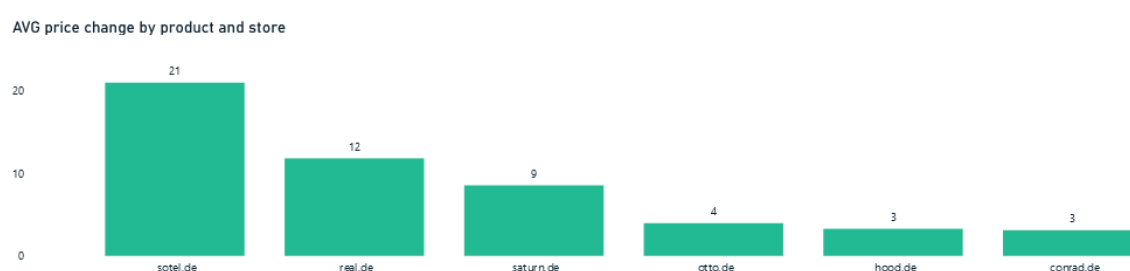


Figure 21: 'Average number of price changes per product, per each store analyzed.'

Source: Netrivals Big Data

Checking the overall price evolution in this category during this year, we can notice how general prices experienced decreases during the most critical months of the pandemic. During the months of summer, when the restrictions were the least severe, we can see how prices rise to their highest level, and later on keep falling during the months of autumn.

Additional Resources

Combine the information collected by Netrivals with data related to any of your business areas or departments (Sales, Finance, CRM and Data Science), and increase the quality and quantity of data metrics you get from your Business Intelligence tool.

Go one step further and make the most of your KPIs by adding data from other actors in the market, and generate dashboards with your own look and feel. Learn more on:

<https://www.netrivals.com/business-intelligence/>

Appendix

The next table contains the number of price changes in products analyzed per each of the brands and stores included in the analysis.

Brand	conrad.de	hood.de	otto.de	real.de	saturn.de	sotel.de	Total
hp	8713	258	3821	65437	832	18502	97563
bosch	894	186	4016	52714	235	13568	71613
canon	3113	1603	2230	26935	1482	28846	64209
asus	4001	217	5261	20480	660	24093	54712
samsung	4416	1057	3258	15753	826	15213	40523
apple	1509	481	1776	14310	1160	13736	32972
philips	2635	86	1294	11424	1247	11274	27960
sony	2382	95	3653	11713	307	8291	26441
logitech	2505	67	457	9709	624	7536	20898
braun	761	356	780	5795	209	5380	13281
kyocera	1518	187	230	4847		6069	12851
msi	426	23	702	5793	270	5157	12371
huawei	1032	60	792	4207	289	4923	11303
nintendo	442	12	76	4689	107	2275	7601
lg		51	1125	1884	156	1439	4655
sennheiser	1285	5	214	705	15	583	2807
motorola	140	21	151	1770	25	487	2594
beko		13	357	445	95	222	1132
pocketbook	94	5	78	41		708	926
hori	3		31	221	13	329	597
karcher	91		130	296	2		519
Total	35960	4783	30432	259168	8554	168631	507528

Figure 22: 'Number of price changes per brand and store'. Source: Netrivals Big Data

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