GERMAN COUNCIL OF SHOPPING PLACES // DATED: FEBRUARY 2020

EXPERT REPORT
ON THE METHODOLOGY OF THE 2018 SHOPPING CENTER PERFORMANCE REPORT FOR GERMANY
(ECOSTRA GMBH)

Prof. Dr. Björn Christensen and **Prof. Dr. Manuel Stegemann**
(Kiel University of Applied Sciences) on behalf of the
German Council of Shopping Centers e. V.

GERMAN COUNCIL OF SHOPPING PLACES

WHY HAS THIS EXPERT REPORT BEEN ISSUED?

Dr. Joachim Will, along with his management consultancy firm ecostra, has conducted a market survey over the past few years, through which a ranking to determine the best shopping center in Germany has been established. Media coverage actually makes reference to the "Best Shopping Centers in Germany". In accordance with the opinions of many real estate experts, the research method on which the ranking is based and the number of participating respondents do not support this statement, nor do they, in any way, justify the title of the study, "Shopping Center Performance Report", given that, on the one hand, only a few authorized tenants participate in the survey and, on the other hand, the "performance" of a shopping center cannot be measured by a single question. Consequently, this ranking has resulted in increasing irritation in both domestic and international market environments, as it does not reflect the actual situation.

We felt it was our responsibility and obligation, as the mouthpiece of the retail property and shopping center industry, to draw attention to this deplorable state of affairs and, through dialog, including with Dr. Will, to emphasize the absolutely necessary relativization of what it is – a tenant survey.

It should also be noted here that there is no comparable international effort to produce such a significant survey, as domestic and international experts consider the complexity of data and the methodology required to measure the performance of shopping centers to be unattainable, and the theoretical effort required to do so cannot be justifiably considered a benefit. As an association, we lack neutrality, which is both absolutely essential as well as a fundamental requirement for the preparation of such a complex study.

A tenant survey, generated on the basis of whatever type of methodological approach, but clearly positioned as such, will certainly bear a meaningful informational character and, as such, will undoubtedly attract the interest of experts in the real estate industry. However, should such positioning fail to take place, doubt regarding the integrity of the work and the parties involved will continue to grow.

In an effort to have our position reviewed by a neutral and scientifically recognized body, we asked Prof. Dr. Björn Christensen, Professor of Statistics and Mathematics, and Prof. Dr. Manuel Stegemann, Professor of Marketing and Statistics, both from the Kiel University of Applied Sciences, to review the 2018 Shopping Center Performance Report that was available to us at the time.

We are publishing this report, along with this short dossier, in order to show all of those who are interested in measuring and comparing the performance of shopping centers in an unmistakable and scientifically comprehensible manner that the work done by Dr. Will and the management consultancy firm ecostra does not constitute a shopping center performance report, but a tenant survey.

Ingmar Behrens

›The ranking has resulted in increasing irritation in both domestic and international market environments, as it does not reflect the actual situation.‹

Ingmar Behrens,
Authorized Representative of the Board of the GCSC e. V.

GERMAN COUNCIL OF SHOPPING PLACES

Expert Report on the Methodology of the 2018 Shopping Center Performance Report for Germany

The methodology used in the 2018 Shopping Center Performance Report (SCPR) by the consultancy firm ecostra GmbH is to be scientifically evaluated within the scope of this report with regard to the underlying methodology. This is to be done, in particular, with regard to the claim made by the editors that the SCPR represents a valid ranking of the economic performances of 400 German shopping centers, from the tenants' perspectives (see pg. 2 of the Preliminary Remarks of the 2018 SCPR).

BRIEF DESCRIPTION OF THE 2018 SHOPPING CENTER PERFORMANCE REPORT FOR GERMANY

The report, the main component of which consists of a ranking of 400 shopping centers in Germany, has been annually produced and distributed, for a fee, by ecostra GmbH, a business, location, and strategy consultancy firm, since 2011.

ecostra GmbH states that the aim of the report is to provide market participants with information and usage options regarding the economic performances of shopping centers from the perspectives of the tenants in a systematic overview (see pg. 2 of the Preliminary Remarks of the 2018 Shopping Center Performance Report for Germany). The report is based on data collected from an online survey of contact people who work for companies that operate stores, as tenants, at German shopping centers. The survey was conducted by ecostra during the period between 28 June 2018 and 2 September 2018.

METHODOLOGY FOR MEASURING THE PERFORMANCE OF SHOPPING CENTERS

In the given case of the SCPR, the performance of a store within a shopping center was measured by means of a single question (pg. 14 of the 2018 SCPR). In scientific literature, a so-called single-item measurement is only supported in exceptional cases if the characteristic to be measured is highly specific and homogeneous, i.e., has few facets (see Kuß et al. 2018, pg. 99 et seq.; Diamantopoulos et al. 2012). However, the performance of a shopping center is, unquestionably, a very heterogeneous, complex factor comprised of various facets. Based on scientific quality criteria, measurement of this factor by means of a single question is, therefore, not advisable. Numerous studies have shown that in such cases both the reliability and the validity of a measurement are limited and, therefore, results should only be interpreted with extreme caution (see, for example, Diamantopoulos et al. 2012; Sarstedt, M. and Wilczynski, P. 2009).

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Accordingly, it can be assumed that the reliability and validity of performance measurements in the case of shopping centers are relatively low. This significantly limits the informative value of the survey. To ensure the validity of the survey, a higher measurement quality and, thus, a more comprehensive survey of performance based on several carefully developed elements is appropriate.

Moreover, the question used to measure performance is formulated in a complicated way and requires a complex evaluation of various factors by the participants: For example, the sales performance of an individual store should be set in relation to the location costs as well as in a manner that is relative to other stores belonging to the company that are located within shopping centers.

Such a complex question, which interlinks various factors, is likely to be understood differently by participants, which, in turn, results in intersubjectively divergent evaluation dimensions for participants.

The unambiguous nature of a question is necessary in order to create an intersubjectively common basis of understanding and to make the results comparable (see, e.g., Moosbrugger, H. and Kelava, A. 2012, pg. 65 et seq.).

In addition, the question includes a relative comparison to the other stores of the respective company. This is to be regarded as methodologically problematic, as each participating company has a different basis for comparison, especially with respect to individual location costs, which considerably reduces the comparability of the evaluations. However, a high level of comparability is particularly important for the report, as the shopping centers are ranked on the basis of the average evaluation using two decimal places.

The scale used for the evaluation is based on a school grading system (1 = excellent to 5 = poor), but the content of the question refers to the monetary situation of the individual stores relative to the stores in shopping centers that are comparable within the company. While the adoption of a school grading system is not unusual in surveys, this type of evaluation is subject to the influence of the "individual strictness of a participant". Information concerning the average evaluations of a participant as an indicator of the "degree of rigor in grading" of a participant is not reported. When considering the individual stores within the company in relative terms, the mean values of the participants' evaluations should be similar. Without a corresponding statement, evaluation of this aspect is not possible.

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With regard to the formulation and complexity of the questions, the above comments lead to the assumption that the reliability and validity of the evaluations are low and that they are still not very comparable.

THE SELECTION OF SAMPLES[1]

Participants are recruited by the study directors of ecostra GmbH via the company's internal contact database, which contains the email addresses of representatives of chain stores that are rented at German shopping centers.

The database has been in existence since 2011. In support of this effort, media is used to encourage participation in the survey. In order to participate, registration in the ecostra GmbH contact database is required.

Despite efforts by ecostra GmbH to create a comprehensive database, a systematic sample bias in the recruitment of survey participants cannot be ruled out in this case. The active readership of the two media partners as well as the business contacts of ecostra GmbH could, for example, be over-represented, while smaller chain stores could be under-represented due to their difficult accessibility. However, these and other possible sample distortions cannot be determined in detail without more in-depth knowledge of the database and the population of potential contact people / companies.

A further methodological problem lies in the fact that the contact people in the database remain the same over a number of years. Even though the database is regularly updated by ecostra GmbH when there is a change of personnel, the evaluations of the stores within the shopping centers over a period of years are not independent. This can lead to an overestimation of the supposed consistency of content in the evaluations, which may be due more to the personal opinions of the respondents about the stores (and, therefore, about the centers) than to objective assessments.

For the 2018 SCPR, approximately 800 people were contacted via email, of which, according to ecostra GmbH, roughly 600 to 650 email addresses are valid. The analysis included 95 complete questionnaires submitted by participants (pg. 1 of the 2018 SCPR); a total of 3,653 store locations were evaluated. This amounts to an average of 38.5 store evaluations per participant. According to estimates by ecostra GmbH, the proportion of aborted surveys is around 20%. In consultation with ecostra GmbH, it is quite possible, due to the large number of store evaluations required, that chain stores with a large number of stores will cancel the survey with disproportionately high frequency or will refrain from evaluating all stores located within shopping centers. This, in turn, could distort the representativeness of the sample.

The effectiveness of excluding participants on the grounds that they have fewer than three stores within German shopping centers is quite limited, as this only involves a maximum of five cases per year. ecostra GmbH has also taken steps to ensure that there are two contact persons per company, which means that no further significant distortion of the sample is assumed.

THE SAMPLE SIZE PER SHOPPING CENTER

›For the majority of the 400 centers, the number of evaluations per shopping center is clearly too low to produce meaningful statistics.‹

For the majority of the 400 centers, the number of evaluations per shopping center is clearly too low to produce meaningful statistics, and it is frequently in the single-digit range (from pg. 15 in the 2018 SCPR). The average number of evaluations per center is nine. As a common rule of thumb with regard to sample size, scientific literature often cites around 30 data points (i.e., individuals, evaluations, etc.) per subgroup (see Kuß et al. 2018, pg. 204; Koschate-Fischer und Schandelmeier 2014). [2] In nearly every case, this number proves unattainable even for large shopping centers that have numerous tenants. Due to a limited number of tenants per center, statistically expressed due to a small population size, it can be argued that usable results can also be achieved using a smaller sample. However, from a statistical point of view, the minimum number of five evaluations per center defined by the study directors, regardless of population size, is, in any case, clearly too low for a well-founded statement on performance.

Furthermore, with regard to the sample size per center, it must be critically noted that the total number of evaluations for centers of very different sizes (from 10,000 to 120,000 sq m of space) is not a good measure of the representativeness of tenants. A very large center that has many tenants can be assessed even less validly on the basis of a number of five or more evaluations than a small center.

Accordingly, it would make more sense from a methodological point of view to report the proportion of participating tenants per center and, on this basis, to also defi-

ne the minimum proportion for an evaluation. A second alternative would be to determine the share of sales space of the tenants participating in the survey and use this as a criterion for the evaluability of a center. It should be noted, however, that neither of these proposals changes the problem with regard to a possible systematic sample bias.

Moreover, the variance of responses per center (scale 1 to 5) is not given in the report; only the generally rather meaningless range on the 5-point scale used is reported per center (from pg. 15 in the 2018 SCPR). In contrast to the variance, the range only takes into account the two most extreme evaluations and leaves all other evaluations out of a consideration. It is, therefore, not a recommendable measure to illustrate the dispersion of evaluations.

As a result of the lack of variance data per center, it is not possible, for example, to calculate confidence intervals for the estimation of the accuracy of a performance evaluation.[3] Test procedures for the statistical significance of mean value differences are also unfeasible for the same reason. With the aid of a few assumptions, however, it can be shown by way of example that in the case of small sample sizes in the single-digit range, the mean values of, for example, 3.0 and 2.5 cannot be statistically distinguished with sufficient certainty.[4] However, such inaccuracies in the measurement have an enormous influence on a shopping center's ranking in the 2018 report. For example, 98 rankings fall between the 2.5 and 3.0 evaluation levels (including the interval limits) and 56 rankings fall between the 3.0 and 3.5 evaluation levels (including the interval limits).

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Accordingly, it can be assumed that the ranking is strongly influenced by confounding variables and pure coincidence due to the usual fluctuations in small sample sizes. This is also clearly shown in Table 5 of the report (from pg. 37), in which one can see that large differences of 0.5 to 1.0 rating points have arisen at the centers compared with the previous year, especially in cases in which the sample size is small.[5] A valid ranking for a center is, therefore, not possible from a scientific and methodological point of view.

The study directors seem to have, to some extent, recognized the problem themselves: In the report (pg. 26 of the 2018 SCPR), a considerably broad range of performance evaluations, both for very well-placed centers and for centers at the lower end of the scale, is described. This range, which is not described in detail, apart from the ranges reported, is an indicator of the inaccuracy of the measurement methodology and, accordingly, of the inaccuracy of the ranking produced. The study directors also correctly admit that in many areas of the ranking, a large number of the rankings are distributed over just a slight difference in the average evaluations (pg. 24 of the 2018 SCPR).

Furthermore, the reporting of two decimal places of the mean for the ranking order suggests an accuracy of measurement that cannot be maintained with this sample. It would be advisable to only include a center in a comparative analysis with a signifi-

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[1] Most of the information on sample selection reported below is not included in the 2018 SCPR, but it was kindly provided by ecostra GmbH upon request via email on 28 October 2019.

[2] This merely serves as a very rough rule of thumb. The calculation of a recommended sample size depends on a variety of factors and assumptions, which vary from case to case. However, the experts are not aware of any scientific study on survey results in which a sample size in the single-digit range was considered sufficient for reliable statements.

[3] Confidence intervals, also known as trust intervals, indicate the precision of a position estimate of a parameter based on a sample. For example, for a shopping center, an interval can be calculated around the mean value (as a performance estimate) of the evaluations, which covers the "true" parameter (in this case, the true performance score) with a predefined probability. A confidence interval per center would also be criticizable in the case of the ordinal scaling for performance used in the SCPR, but it would still be a useful indicator of the accuracy of the performance estimate.

[4] Exemplary assumptions: Sample size of n=9 per center, mean values of 2.5 and 3.0, and a variance of 0.75 each, significance level of 10%. This is a rather conservative estimate.

cantly larger number of evaluations and to continue to carry out a rough classification of the performance of the centers instead of a ranking. This would address the inaccuracy of the current measurement procedure and increase the informative value.

THE INTERPRETATION OF THE RESULTS

At various points in the report (e.g., from pg. 24 of the 2018 SCPR onwards), the study directors emphasize that the results are highly consistent with previous years in various respects. This can – as previously explained in the section on sample selection – also be a consequence of the methodology and less of the consistency of the measurement in terms of content, if examined more closely: Given the fact that most of the answers to the survey were provided by the same contact people at each company over the past few years, consistency in the ranking may also be due to the personal opinions of the respondents rather than to a valid measurement of content. Differences between the evaluated stores may be explained by interstore-specific differences between the contact people per store with regard to their perception of the question (cf. first aspect) with several dimensions and less with objective differences between the stores. Another question concerning methodology and reporting concerns the degree to which the centers listed in the ranking are comparable. The main focus is placed on the uncategorized ranking of all centers, which is presented at the beginning of the report (from pg. 15 of the 2018 SCPR) and on the basis of which the main conclusions are drawn. The special evaluation for railway stations and airports (from pg. 35 of the 2018 SCPR) appears to make sense, as does the grouping of the centers according to commercial space in three categories (shown in Tables 6 to 8, from pg. 49). However, the impression still remains that a more precise categorization by thematic focus and location (e.g., rural or urban, due to the different location factors) is recommended for better comparability. The main conclusions can then be drawn based on a comparison of more similar centers.[6]

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Ultimately, the description of the study as a performance report is only accurate to a very limited extent. Following on from the problem of recording performance with just a single question, as described above, it also simply reflects the tenants' point of view. In this respect, the title of the study can easily be misinterpreted as a performance report. The study more closely corresponds to the character of a tenant satisfaction survey. It should be noted, however, that the study directors actively address this issue and make it clear at various points (for the first time, on pg. 1 of the preliminary remarks of the 2018 SCPR) that this is an economic evaluation from the tenants' perspective.

›Ultimately, the description of the study as a performance report is only accurate to a very limited extent. Following on from the problem of recording performance with just a single question, as described above, it also simply reflects the tenants' point of view.‹

SUMMARY OF THE METHODOLOGY OF THE 2018 SHOPPING CENTER PERFORMANCE REPORT FOR GERMANY

The validity and reliability of the 2018 SCRP can be assessed as relatively low from a scientific and methodological perspective. This is primarily due to the measurement of performance and the sample size. It cannot be ruled out that biases in terms of representativeness may exist as a result of the sample selection.

The single-item approach to measuring performance is not recommended. The ambiguity of the question and the high level of complexity make the evaluations difficult to compare intersubjectively.

The predominantly very small sample sizes per shopping center ensure an unavoidable dispersion of the performance evaluations per center, even if the performance survey is of excellent quality. Such (random) dispersion has a significant influence on the ranking, thereby making the ranking appear statistically meaningless.

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[5] In ascending order for 2018: Chemnitz – Neefepark (n=5), Nordhausen – Südharz Galerie (n=5), Baden-Baden – Shopping Cité (n=6), Stuttgart – Carré Bad Cannstatt (n=5), Berlin – Allee-Center (n=8), Krefeld – Schwanenmarkt (n=9), etc.

[6] The determination of the criteria for categorizing comparable shopping centers requires specialist expert knowledge and will, therefore, not be discussed in greater detail in this report.

Kiel, 31 October 2019 – on behalf of the German Council of Shopping Centers e. V.

Prof. Dr. Björn Christensen,
Professor of Statistics and Mathematics,
Kiel University of Applied Sciences

Prof. Dr. Manuel Stegemann,
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Short CV
Prof. Dr. Björn Christensen

Since 2018: *Dean of the Department of Economics at Kiel University of Applied Sciences*
Since 2017: *Second Member of the European University of Flensburg*
2016 – 2018: *Vice Dean of Research and Teaching in the Department of Economics at Kiel University of Applied Sciences*
Since 2013: *Professor of Statistics and Mathematics in the Department of Economics at Kiel University of Applied Sciences*
2009 – 2013: *Founder and Managing Director of meteolytix GmbH*
2005 – 2013: *Founder and Managing Director of analytix GmbH*
2004: *Doctorate (Dr. sc. pol.) with Prof. Dr. Dr. h.c. Horst Siebert*
2000 – 2005: *Research Assistant at the Kiel Institute for the World Economy (focus on the statistical analysis of individual data)*
1995 – 2000: *Studied economics with a quantitative focus at the CAU in Kiel; graduated with a degree in economics*

Short CV
Prof. Dr. Manuel Stegemann

Since 2018: *Professor of Marketing and Statistics in the Department of Economics at Kiel University of Applied Sciences*
2014 – 2018: *Management Consultant and Partner at Kappes & Partner; focal points: HR and marketing in the healthcare sector*
2011 – 2014: *Research Associate at the Institute of Marketing at the University of Münster (Prof. Dr. M. Krafft), cumulative doctorate on the subject of: Success Factors of Pay What You Want Pricing*
2010 – 2011: *Management Consultant with the Boston Consulting Group; focus on Marketing & Sales, HR*
2004 – 2009: *Studied psychology at the Westphalian Wilhelms University of Münster, specializing in psychology: statistics and methodology, industrial and organizational psychology*

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Three questions to:

Ralf-Peter Koschny on the Results of the Shopping Center Performance Report

Ralf-Peter Koschny, Spokesman of the Management Board of bulwiengesa AG and responsible manager for the retail and leisure sectors, regarding his personal assessment of the methodology and results of the Shopping Center Performance Report (SCPR).

›The SCPR is not sufficient to reflect the actual (sales) performance of a center and, accordingly, the quality of a center.‹

›The ranking is of no value to market participants who have only partially applied the methodology.‹

Ralf-Peter Koschny CRE FRICS, bulwiengesa AG

1. An internationally active investor is interested in buying a shopping center in Germany and plans to refer to the Shopping Center Performance Report. In your opinion, what decision-making assistance does the SCPR offer investors?

When buying a shopping center, international investors carry out commercial and technical due diligence in order to analyze the opportunities and risks associated with the property. The SCPR serves as a reflection of the sentiment of a few tenants and is certainly not taken seriously by investors who have examined the SCPR method. As a result, the SCPR does not offer any decision-making guidance. On the contrary, due to the fact that the ranking is not methodologically sound, the report is likely to raise more questions than it provides answers.

The sentiment is shaped by only a fraction of the tenants. Experience has shown that tenants with the highest level of dissatisfaction as well as those with the highest level of satisfaction tend to respond, while those who fall somewhere in the middle do not. Therefore, the SCPR is not sufficient to reflect the actual (sales) performance of a center and, accordingly, the quality of a center

2. What significance does the ranking have?

The ranking is of no value to market participants who are, if only vaguely, familiar with the methodology. For the sake of clarity: The number of cases is not representative, which applies to both the overall survey as well as the results that are broken down to individual centers.

3. What sample size and what analytical method would result in truly robust results?

As usual, it depends on the type, size, and competitive situation of the respective centers. It is important that sufficient and qualified answers are provided by the respective centers.From our point of view, it would be satisfactory to good if 25 percent of the tenants were to respond. In addition, the quality of the answers is also important when it comes to evaluating performance, i.e., it is important to ensure that the major tenants, in other words, the anchor tenants, respond.

To date, the following methods have proven effective in providing reliable performance results for a particular shopping center:

- Footfall monitoring at the center (door counting systems) over a period of time ("longitudinal analysis", i.e., tracking over several years).

- Evaluation of the rental revenue burden by tenants and sectors: Taking into account, in particular, the average productivity per unit area of a tenant and compa-

ring it with its average values (above-average / below-average sales) in combination with its actual effort-rate (rent-to-sales ratio) and a comparison with a center-typical RSR, it is possible to determine how the shares in the center present themselves in terms of being either over or under rent. This measure still serves as the measure of all things when determining center performance.

Ralf-Peter Koschny *is the Spokesman of the Board of bulwiengesa AG and is responsible for the retail and leisure sectors.*
He has held leading positions at bulwiengesa since 1995.
Prior to that, he worked as an urban planner for FPB (Freie Planungsgruppe Berlin GmbH) and as a project manager for economic development for the Free and Hanseatic City of Hamburg.
At the GCSC Academy (research / teaching / think tank / questions about the future), he, along with Prof. Dr. Tobias Just (IREBS), is responsible for the Research Department.

Prof. Manfred Güllner: Notes on the 2018 SCPR

One glance at the published results of the 2018 SCPR reveals that the procedure used to collect the SCPR data in no way complies with any rules of empirical research.
The publication reports that 30.4 percent of the participants name Centro Oberhausen, 11.6 percent name Alstertal Shopping Center in Hamburg, and 10.1 percent name Alexa in Berlin as the centers with the highest rents.

Given the fact that there were 95 participants in the "study", 10.1 percent corresponds to 9.6 participants, and 11.6 percent corresponds to 11.0 participants. This demonstrates the absurdity of stating percentages beyond the decimal point. It also shows that there is actually no difference between 11.6 and 10.1 percent (1 participant!) and, therefore, no difference of any kind should be suggested. In general, this objection applies to the entire SCPR; if two decimal places are given here on the basis of, in some cases, only 5 tenants of a center and a difference between a value of 1.56 and a value of 1.57 is assumed, this constitutes a blatantly misleading assumption. In reality, no ranking can be established on this basis.

Reservations also exist with regard to the informative value of the SCPR, because very different evaluation bases are included in the evaluation. In 2018, for example, the number of participants per center varies between 5 and 30, and in 2017, between 5 and 35. Therefore, with a basis of only 5 participants, one participant can influence the result by 20 percent, whereas with 30 participants, one participant has a "statistical value" of only 3 percent.

In general, a figure of 5 tenants per center and a participant base of 95 for 259 centers is far too weak a basis to obtain statistically validated results. Due to the serious shortcomings described above and those previously discussed in other critical articles, the results for the individual centers as reported in the SCPR cannot provide any reliable or realistic results for an individual center. They are – to put it bluntly – artifacts or imaginary figures that ecostra has produced with the aid of non-transparent calculations.

›The procedure used to collect the SCPR data in no way complies with any rules of empirical research.‹

Professor Manfred Güllner, Forsa Institute

GERMAN COUNCIL
OF SHOPPING PLACES

Expert Report on the Methodology of Shopping Center Performance
2018 Report for Germany published by consultancy firm ecostra GmbH

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