

Operating and Financial Review

The following discussion should be considered together with our unaudited financial information included with this review and the periodic reports we file with the Securities and Exchange Commission, including the section contained in our Annual Report on Form 20-F for the fiscal year ended December 31, 2018, "Item 5. Operating and Financial Review and Prospects." Certain information and disclosures normally included in consolidated financial statements prepared in accordance with U.S. Generally Accepted Accounting Principles ("U.S. GAAP") have been omitted from this review.

As used herein, references to "we," "us," the "company," or "trivago," or similar terms shall mean trivago N.V. and, as the context requires, its subsidiaries.

Overview

trivago is a global hotel and accommodation search platform. We are focused on reshaping the way travelers search for and compare different types of accommodations, such as hotels, vacation rentals and apartments, while enabling our advertisers to grow their businesses by providing them with access to a broad audience of travelers via our websites and apps. Our platform allows travelers to make informed decisions by personalizing their search for accommodations and providing them with access to a deep supply of relevant information and prices. As of December 31, 2019, we offered access to more than 4.5 million hotels and other types of accommodation in over 190 countries, including over 3.3 million units of alternative accommodation, such as vacation rentals and apartments.

Our search platform forms the core of our user experience and can be accessed globally via 54 localized websites and apps available in 32 languages. Our users initially search via a text-based search function, which supports searches across a broad range of criteria. This leads through to a listings page that displays search results and allows for further refinement based on more nuanced filters. Additionally, we enhance our users' experience by giving them the option to display their search results in listing or map formats. Users can search our platform on desktop and mobile devices, and benefit from a familiar user interface, resulting in a consistent user experience. In the fourth quarter of 2019, our revenue share from mobile websites and apps continued to exceed 60%.

Highlights

- Referral Revenue in Americas increased by 4% in the fourth quarter of 2019, while it declined by 11% and 13% in Developed Europe and Rest of World ("RoW"), respectively, compared to the same period in 2018.
- Consolidated Revenue per Qualified Referral ("RPQR") increased by 6% and by 17% in the fourth quarter of 2019 and in full year 2019, respectively, compared to the same periods in 2018.
- For the full year 2019, Consolidated Return on Advertising Spend ("ROAS") increased to 133.6% compared to 122.8% in 2018.
- For the full year 2019, net income increased by €38.7 million to €17.2 million and Adjusted EBITDA increased by €55.4 million to €70.0 million, compared to 2018.

Axel Hefer, CEO, said, "I am excited to see how trivago is adapting to a rapidly changing market, and I am confident we are on the right track. In 2020, we are focusing on building the most transparent and usable meta-search product in the market and integrating apartments and restricted rates into the platform. We have accelerated our pace of innovation jointly with our key partners and plan to use that momentum in 2020 to substantially improve our product."

Matthias Tillmann, CFO, said, "We are pleased to see our sixth-consecutive quarter of profitability and our Adjusted EBITDA grow significantly from €14.6 million in 2018 to €70.0 million in 2019. In the first half of 2020, we are planning to significantly invest into testing new concepts and approaches and we will leverage the derived insights in the second half of 2020 and beyond."

Financial Summary & Operating Metrics (€ millions, unless otherwise stated)

	Three months ended December 31,			Twelve months ended December 31,		
	2019	2018	Δ Y/Y	2019	2018	Δ Y/Y
Total revenue	155.5	166.8	(7)%	838.6	914.8	(8)%
Qualified Referrals (in millions)	99.4	112.6	(12)%	522.0	668.3	(22)%
Revenue per Qualified Referral (in €)	1.52	1.44	6%	1.58	1.35	17%
Operating income/(loss)	11.0	18.8	(41)%	38.2	(19.2)	n.m.
Net income/(loss)	3.1	10.9	(72)%	17.2	(21.5)	n.m.
Return on Advertising Spend	158.4%	161.0%	(2.6) pts	133.6%	122.8%	10.8 pts
Adjusted EBITDA ⁽¹⁾	18.4	27.6	(33)%	70.0	14.6	n.m.

n.m. not meaningful

⁽¹⁾ "Adjusted EBITDA" (Adjusted Earnings Before Interest, Taxes, Depreciation, Amortization and Share Based Compensation) is a non-GAAP measure. Please see "Definitions of Non-GAAP Measures" and "Tabular Reconciliations for Non-GAAP Measures" on pages 23 to 24 herein for explanations and reconciliations of non-GAAP measures used throughout this review.

Business Overview

Marketing

We believe that building and maintaining our brand and clearly articulating our role in travelers' hotel and other accommodation discovery journey will continue to drive both travelers and advertisers to our platform to connect in a mutually beneficial way. We focus the efforts of our marketing teams and Advertising Spend towards building effective and efficient messaging for a broad audience. The amount and nature of our Advertising Spend varies across our geographic markets, depending on multiple factors including the emphasis we wish to place on profitability versus traffic growth, cost efficiency, marginal effectiveness of our Advertising Spend, local media dynamics, the size of the market and our existing brand presence in that market. We continue to optimize our Advertising Spend by tracking how likely a user that comes to us from a channel is to book a hotel with an advertiser and thereby focusing on traffic quality instead of volume.

Brand marketing

To grow brand awareness and increase the likelihood that users will visit our websites and use our apps, we invest in brand marketing globally across a broad range of media channels, including TV marketing and online video advertising.

We also generate travel content as a means of engaging with travelers, which is distributed online via social media and our online magazine. Mobile app marketing remains important given the high usage of that device type.

Performance marketing

We market our services and directly acquire traffic for our websites by purchasing travel and hotel-related keywords from general search engines and through advertisements on other online marketing channels. These activities include advertisements through search engines, such as Bing, Google, Naver and Yahoo! (commonly referred to as Search Engine Marketing, or SEM), and through display advertising campaigns on advertising networks, affiliate websites, social media sites and email marketing (commonly referred to as Display, Email and Affiliate Advertising, or DEA).

Advertiser relations

Our advertiser relations team seeks to provide tailored advice to each of our existing and prospective online travel agencies ("OTAs"), providers of alternative accommodation, hotel chains and independent hotel advertisers. We have dedicated sales teams that manage the process of onboarding advertisers, maintain ongoing relationships with advertisers, work with advertisers to help them optimize their outcomes from the trivago platform and provide guidance on additional tools and features that could further enhance advertisers' experience. We aim to remain in close dialogue with OTAs and hotel chains to better understand each advertiser's specific needs and objectives in order to offer optimal solutions through our marketplace.

Our advertisers include:

- OTAs, including large international players, such as brands affiliated with Expedia Group, Inc. ("Expedia Group") and Booking Holdings, Inc. ("Booking Holdings"), as well as smaller, regional and local OTAs;
- Hotel chains, including large multi-national hotel chains and smaller regional chains;
- Individual hotels; and
- Providers of alternative accommodation, such as vacation rental or apartments.

We generate the large majority of our revenue from OTAs. For brands affiliated with Expedia Group, including Brand Expedia, Hotels.com, HomeAway, Orbitz, Travelocity, Hotwire, Wotif and ebookers, the share of our total revenue was 31% and 34% in the fourth quarter of 2019 and in the twelve months ended December 31, 2019, respectively, compared to 37% and 36% in the same periods in 2018. For brands affiliated with Booking Holdings, including Booking.com and Agoda, the share of our total revenue was 40% and 40% in the fourth quarter of 2019 and in the twelve months ended December 31, 2019, respectively, compared to 34% and 39% in the same periods in 2018.

Marketplace

We design our algorithm to showcase the hotel room and other accommodation rate offers that we believe will be of most interest to our users, emphasizing those offers that are more likely to be clicked and ultimately booked on our advertisers' websites. We consider booking conversion, which we describe in more detail below, to be a key indicator of user satisfaction on our website. At the core of our ability to match our users' searches with large numbers of hotel and other accommodation offers is our auction platform, which we call our marketplace. With our marketplace, we provide advertisers a competitive forum to access user traffic by facilitating a vast quantity of auctions on any particular day. Advertisers do this by submitting hotel room and other accommodation rates on our marketplace and cost-per-click, or CPC, bids for each user click on an advertised rate for a hotel or other accommodation. By clicking on a given rate, an individual user is referred to that advertiser's website where the user can complete the booking. Advertisers can submit and adjust CPC bids on our marketplace frequently - as often as daily - on a property-by-property and market-by-market basis, and provide us with information on hotel room and other accommodation rates and availability on a near real-time basis. In addition, we provide more granular bidding parameters which we refer to as "bid modifiers".

In determining the prominence given to offers and their placement in our search results, including in comparison search results for a given location and on detail pages for a given property, our proprietary algorithm considers a number of factors in a dynamic, self-learning process. These include (but are not limited to) the advertiser's offered rate for the hotel room or other accommodation, the likelihood the offer will match the user's accommodation search criteria, data we have collected on likely booking conversion and the CPC bids submitted by our advertisers. In addition, we continue to roll out a rate accuracy score, which is based on a check of the accuracy of hotel and accommodation rates delivered to us compared to those displayed on our advertisers' platforms and which operates as an upward or downward adjustment of advertisers' CPCs in our algorithm.

We believe the most influential factors impacting bidding behavior for our largest advertisers is the rate at which our Qualified Referrals result in bookings on their websites, or booking conversion, and the amount our advertisers obtain from Qualified Referrals as a result of hotels and other accommodation booked on their sites, or booking value. We refer to the degree to which we are able to capture our share in the overall estimated booking revenues generated by our advertisers from our referrals as "commercialization". The quality of the traffic we generate for our advertisers increases when aggregate booking conversion and/or aggregate booking value increases. We estimate overall booking conversion and booking value from data voluntarily provided to us by certain advertisers to better understand the drivers in our marketplace, and in particular, to gain insight into how our advertisers manage their advertising campaigns. The information we used as the basis for our analysis of the quality of the traffic we referred to our advertisers is subject to a number of uncertainties, including those related to the accuracy of the information we receive from certain of our advertisers and the methodologies we and our advertisers use to track and analyze whether a user ultimately completes a booking. Additional uncertainty may arise when the relative revenue share of advertisers providing this information changes compared to those that do not.

Assuming unchanged dynamics in the market beyond our marketplace, we would expect that the higher the potential booking value or conversion generated by a Qualified Referral and the more competitive the bidding, the more an advertiser is willing to bid for a hotel advertisement on our marketplace. This means

that the levels of advertisers' CPC bids generally reflect their view of the likelihood that each click on an offer will result in a booking by a user. We believe our product optimization measures have contributed to continuous improvement in our referred traffic quality, which has had a positive effect on our Revenue per Qualified Referral, or "RPQR" in the fourth quarter of 2019. However, the dynamics in the market beyond our marketplace are not static, and we believe that our advertisers continuously review their Advertising Spend on our platform and on other advertising channels, and continuously seek to optimize the allocation of their spend among us and our competitors.

In addition, changes in foreign exchange rates can amplify or mute changes in these underlying trends in our revenues and RPQR. Although we largely denominate our CPCs in euro and have relatively little direct foreign currency translation with respect to our revenue, we believe that our advertisers' decisions on the share of their booking revenues they are willing to pay to us are based on the currency in which the hotels being booked are priced. Accordingly, we have observed that advertisers tend to adjust their CPC bidding based on the relative strengthening or weakening of the euro as compared to the local functional currency in which the booking with our advertisers is denominated.

Search platform

We believe that we are reshaping hotel and accommodation discovery for our users, while changing the way advertisers identify, engage with and acquire travelers. Our search platform provides a globally standardized product for users in all segments and forms the core of our user experience. As we provide a search website, users do not book directly on our platform. When they click on an offer for a hotel room or other accommodation at a certain price, they are referred to our advertisers' websites where they can complete their booking.

Our users initially search via a text-based search function, which supports searches across a broad range of criteria. This leads through to a listings page that displays search results and allows for further refinement based on more nuanced filters. Our platform organizes a large amount of information from multiple sources and gives each user what we believe to be the optimal basis to make a decision. We help users to convert initial interest into a clear and specific booking intention.

With the intention of increasing user retention and booking conversion, while reducing the number of click-outs required to ultimately make a booking, we continue to implement measures aimed at optimizing our platforms and product. We believe these relatively small, incremental changes to our product have resulted, when considered together, in improvements to our product and platforms that continue to positively impact our advertisers' CPC bids on our marketplace. Since we make these changes by optimizing for traffic quality instead of volume, these changes could have had a negative impact on Qualified Referrals (in addition to the effect of reduced Advertising Spend), but we believe they have had a positive impact on RPQR.

Recent trends

In the fourth quarter of 2019, Referral Revenue and profitability declined compared to the same period in 2018. Referral Revenue decreased in Developed Europe and RoW while it increased in Americas compared to the same period in 2018. Our Return on Advertising Spend ("ROAS") declined compared to the same period in 2018. This decline was driven by the decline in RoW which was partly offset by the increasing ROAS in Americas and Developed Europe. Despite the decline in Referral Revenue in Developed Europe and RoW, we also observed the fifth consecutive quarter with period-over-period improvement in RPQR, which reflected the continued improvement in the traffic quality we referred to our advertisers, particularly in Americas.

In Americas, we increased our Advertising Spend as we observed evidence of attractive marginal returns from our marketing activities which led to a significant increase in RPQR and a slight increase in Referral Revenue in the fourth quarter of 2019 compared to the same period in 2018. In Developed Europe and RoW, traffic volume levels were subdued, resulting in a decline in Referral Revenue in these segments. We believe our performance in RoW was also negatively impacted by our relatively shorter operational history, which in turn amplified the effect of year-on-year reductions in Advertising Spend on ROAS.

The advertising bidding dynamics on our marketplace in the fourth quarter of 2019 were impacted by continued increased volatility in our marketplace as advertisers needed to adjust their CPC bids to the more granular bidding parameters which were introduced in the second quarter of 2019.

Operating Metrics

We earn substantially all of our revenue when users of our websites and apps click on hotel offers or advertisements in our search results and are referred to one of our advertisers. We call this our Referral Revenue. We also earn subscription fees for certain services we provide to advertisers, such as Hotel Manager Pro, although such subscription fees do not represent a significant portion of our revenue.

Referral Revenue, Other Revenue, Qualified Referrals & RPQR

Referral Revenue by Segment & Other Revenue (€ millions)

Management has identified three reportable segments, which correspond to our three operating segments: the Americas, Developed Europe and RoW. Our Americas segment is comprised of Argentina, Barbados, Brazil, Canada, Chile, Colombia, Costa Rica, Ecuador, Mexico, Panama, Peru, Puerto Rico, the United States and Uruguay. Our Developed Europe segment is comprised of Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, Malta, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. Our RoW segment is comprised of all other countries, the most significant by revenue of which are Australia, Japan, India, Malaysia and Israel.

	Three months ended December 31,				Twelve months ended December 31,			
	2019	2018	Δ €	Δ %	2019	2018	Δ €	Δ % Y/Y
Americas	€ 55.9	€ 53.9	2.0	4%	€ 305.1	€ 316.0	(10.9)	(3)%
Developed Europe	59.6	67.2	(7.6)	(11)%	347.1	378.9	(31.8)	(8)%
Rest of World	36.1	41.3	(5.2)	(13)%	171.5	204.9	(33.4)	(16)%
Total Referral Revenue	€ 151.5	€ 162.4	(10.9)	(7)%	€ 823.6	€ 899.8	(76.2)	(8)%
Other revenue	3.9	4.4	(0.5)	(11)%	15.0	15.0	0.0	0%
Total revenue	€ 155.5	€ 166.8	(11.3)	(7)%	€ 838.6	€ 914.8	(76.2)	(8)%

Note: Some figures may not add due to rounding.

Total revenue decreased by €11.3 million, or by 7%, during the fourth quarter of 2019, compared to the same period in 2018. Total revenue decreased by €76.2 million, or by 8%, during the twelve months ended December 31, 2019, compared to the same period in 2018. In the fourth quarter of 2019 and the twelve months ended December 31, 2019, Referral Revenue continued to be negatively impacted by a decline in Qualified Referrals, which was partly offset by an increase in RPQR.

Referral Revenue in the fourth quarter of 2019 increased to €55.9 million, or by 4% in Americas, while Referral Revenue decreased to €59.6 million and to €36.1 million, or by 11% and 13% in Developed Europe and RoW, respectively, compared to the same period in 2018.

In Americas, we observed a significant improvement in RPQR and a decline in Qualified Referrals. The growth in Referral Revenue in Americas was driven by an increase in Advertising Spend in this segment and improved RPQR. In Developed Europe, Referral Revenue growth was negatively impacted by a decrease in Qualified Referrals, reflecting subdued traffic volumes in this segment, and by a decrease in Advertising Spend compared to the same period in 2018. In RoW, we believe our performance was negatively impacted by our relatively shorter operational history and younger brand, which in turn amplified the effect of year-on-year reductions in Advertising Spend on ROAS. We also observed softer advertiser bidding dynamics in certain geographic markets in this segment.

Referral Revenue in the twelve months ended December 31, 2019, decreased to €305.1 million, €347.1 million and €171.5 million, or by 3%, 8% and 16%, in Americas, Developed Europe and RoW, respectively, compared to the same period in 2018. In each of our segments, Referral Revenue was negatively impacted by a decline in Qualified Referrals, which was partly offset by an increase in RPQR.

In the twelve months ended December 31, 2019, the decline in Referral Revenue in Americas was the least pronounced among our segments due to the growth in the third and in the fourth quarters of 2019 compared to the same periods in 2018.

Throughout the year, the decline in Qualified Referrals was partly offset by a continued year-over-year increase in RPQR in this segment. The decrease in Referral Revenue in Developed Europe and RoW was driven by a significant decline in Qualified Referrals, reflecting subdued traffic volumes in those segments, partly offset by an increase in RPQR, particularly in the first half of 2019. The RPQR increase was less pronounced in RoW due to a lower increase in traffic quality compared to Developed Europe.

Other revenue decreased by 11% to €3.9 million in the fourth quarter of 2019, compared to €4.4 million in the same period in 2018, mainly driven by a decrease in subscription revenue. In the twelve months ended December 31, 2019, other revenue remained stable at €15.0 million, compared to the same period in 2018.

Qualified Referrals by Segment (in millions)

	Three months ended December 31,				Twelve months ended December 31,			
	2019	2018	Δ	Δ %	2019	2018	Δ	Δ % Y/Y
Americas	29.1	31.3	(2.2)	(7)%	146.1	182.3	(36.2)	(20)%
Developed Europe	33.1	37.3	(4.2)	(11)%	195.4	246.7	(51.3)	(21)%
Rest of World	37.2	44.0	(6.8)	(15)%	180.5	239.3	(58.8)	(25)%
Total	99.4	112.6	(13.2)	(12)%	522.0	668.3	(146.3)	(22)%

Note: Some figures may not add due to rounding.

In the fourth quarter of 2019, total Qualified Referrals decreased by 12% as Qualified Referrals decreased by 7%, 11% and 15% in Americas, Developed Europe and RoW, respectively, compared to the same period in 2018. The period-over-period declines in Qualified Referrals were primarily driven by ongoing marketing and product optimizations, as we focused on traffic quality instead of volume, as well as by subdued traffic volumes in Developed Europe and RoW. In Americas, the impact of ongoing marketing and product optimizations was partly offset by the impact of increased Advertising Spend.

In the twelve months ended December 31, 2019, Qualified Referrals decreased by 22% as Qualified Referrals decreased by 20%, 21% and 25% in Americas, Developed Europe and RoW, respectively, compared to the same period in 2018. The period-over-period decline in Qualified Referrals was broadly similar among all segments. The decline in Americas was primarily driven by our ongoing marketing and products optimizations, while the decline in Developed Europe and RoW was negatively impacted by reductions in Advertising Spend and subdued traffic volumes towards the end of the year.

Revenue Per Qualified Referral (RPQR)

We use RPQR to measure how effectively we convert Qualified Referrals to revenue. RPQR is calculated as Referral Revenue divided by the total number of Qualified Referrals in a given period. Alternatively, RPQR can be separated into its price and volume components and calculated as follows:

$$\text{RPQR} = \text{RPR} \times \text{click-out rate}$$

where

$$\text{RPR} = \text{revenue per referral}$$

$$\text{click-out rate} = \text{referrals} / \text{Qualified Referrals}$$

RPQR is a key financial metric that describes the quality of our referrals, the efficiency of our marketplace and, as a consequence, how effectively we monetize the referrals we provide our advertisers. Furthermore, we use RPQR to help us detect and analyze changes in market dynamics.

The following table sets forth the RPQR for our reportable segments for the periods indicated (based on Referral Revenue):

RPQR by Segment (in €)

	Three months ended December 31,			Twelve months ended December 31,		
	2019	2018	Δ %	2019	2018	Δ % Y/Y
Americas	€ 1.92	€ 1.72	12%	€ 2.09	€ 1.73	21%
Developed Europe	1.80	1.80	0%	1.78	1.54	16%
Rest of World	0.97	0.94	3%	0.95	0.86	10%
Consolidated RPQR	€ 1.52	€ 1.44	6%	€ 1.58	€ 1.35	17%

The following tables set forth the percentage change year-over-year in each of the components of RPQR for our reportable segments for the periods indicated (other than Qualified Referrals which are discussed above). Percentages calculated below are based on the unrounded amounts and therefore may not recalculate on a rounded basis.

% increase/(decrease) in RPR

	Three months ended December 31,		Twelve months ended December 31,	
	2019 vs 2018	2018 vs 2017	2019 vs 2018	2018 vs 2017
Americas	22.5%	17.6%	32.1%	2.6%
Developed Europe	15.0%	35.6%	26.9%	19.6%
Rest of World	17.9%	18.2%	23.5%	6.3%
Consolidated increase in RPR	20.6%	21.2%	29.8%	5.6%

% increase/(decrease) in number of referrals

	Three months ended December 31,		Twelve months ended December 31,	
	2019 vs 2018	2018 vs 2017	2019 vs 2018	2018 vs 2017
Americas	(15.5)%	(29.8)%	(26.4)%	(21.2)%
Developed Europe	(22.9)%	(29.9)%	(28.2)%	(24.7)%
Rest of World	(25.3)%	(15.5)%	(31.0)%	(5.2)%
Consolidated decrease in number of referrals	(21.9)%	(24.6)%	(28.8)%	(17.3)%

% increase/(decrease) in click-out rate referrals

	Three months ended December 31,		Twelve months ended December 31,	
	2019 vs 2018	2018 vs 2017	2019 vs 2018	2018 vs 2017
Americas	(9.4)%	(6.7)%	(8.2)%	(12.1)%
Developed Europe	(13.0)%	(6.6)%	(9.4)%	(9.8)%
Rest of World	(11.5)%	(7.8)%	(8.5)%	(9.6)%
Consolidated decrease in click-out rate referrals	(11.5)%	(6.7)%	(8.8)%	(10.0)%

In the fourth quarter of 2019, Consolidated RPQR increased by 6% as RPQR increased by 12% and 3% in Americas and RoW, respectively, and remained stable in Developed Europe compared to the same period in 2018. The increase in Americas was mainly driven by improved traffic quality. In RoW, higher traffic quality and a shift towards higher RPQR countries led to improved RPQR, partly offset by softer advertiser bidding dynamics.

In the twelve months ended December 31, 2019, Consolidated RPQR increased by 17% as RPQR increased by 21%, 16% and 10% in Americas, Developed Europe and RoW, respectively, compared to the same period in 2018. The increase was primarily driven by improved traffic quality in all segments, especially in Americas and Developed Europe.

Return on Advertising Spend

We track the ratio of our Referral Revenue to our Advertising Spend, or ROAS. We believe that ROAS is an indicator of the efficiency of our advertising and it is our primary operating metric.

The following table sets forth the ROAS for our reportable segments for the periods indicated:

	Three months ended December 31,			Twelve months ended December 31,		
	2019	2018	Δ ppts	2019	2018	Δ ppts
ROAS by segment						
Americas	161.9%	158.8%	3.1 ppts	130.4%	120.8%	9.6 ppts
Developed Europe	197.7%	196.0%	1.7 ppts	150.7%	143.0%	7.7 ppts
Rest of World	116.3%	126.5%	(10.2) ppts	112.5%	99.6%	12.9 ppts
Consolidated ROAS	158.4%	161.0%	(2.6) ppts	133.6%	122.8%	10.8 ppts

In the fourth quarter of 2019, Consolidated ROAS decreased to 158.4%, compared to 161.0% in the same period in 2018. ROAS decreased by 10.2 ppts in RoW while it increased by 3.1 ppts and 1.7 ppts, in Americas and Developed Europe, respectively, compared to the same period in 2018. The decrease in ROAS in RoW was primarily driven by subdued traffic volumes and softer advertiser bidding dynamics in certain geographic markets. The increase in ROAS in Americas was mainly driven by the increase in Referral Revenue while in Developed Europe, the ROAS increased due to our Advertising Spend optimization.

In the twelve months ended December 31, 2019, Consolidated ROAS improved to 133.6%, compared to 122.8% in the same period in 2018. ROAS improved by 9.6 ppts, 7.7 ppts and 12.9 ppts in Americas, Developed Europe and RoW, respectively, compared to the same period in 2018. As we continued to optimize our Advertising Spend, we observed positive period-over-period improvement in ROAS across all segments. The increase in ROAS was primarily driven by significant period-over-period improvement in ROAS in the first half of 2019, while it was partly offset by a period-over-period decline in ROAS in the second half of 2019. The significant improvement in ROAS in the first half of 2019 was driven by a significant period-over-period reduction in Advertising Spend across all segments compared to the first half of 2018 as our optimization of Advertising Spend only began to have an impact starting late in the second quarter of 2018.

Expenses (€ millions)

	Costs and Expenses			As a % of Revenue		
	Three months ended December 31,			Three months ended December 31,		
	2019	2018	Δ %	2019	2018	Δ in ppts
Cost of revenue	€ 2.6	€ 1.0	160%	2 %	1 %	1 %
of which share-based compensation	0.1	0.0	<i>n.m.</i>			
Selling and marketing	107.1	117.7	(9)%	69 %	71 %	(2)%
of which share-based compensation	0.5	0.7	(29)%			
Technology and content	16.7	17.3	(3)%	11 %	10 %	1 %
of which share-based compensation	1.2	1.7	(29)%			
General and administrative	17.7	11.5	54%	11 %	7 %	4 %
of which share-based compensation	2.5	3.1	(19)%			
Amortization of intangible assets	0.4	0.4	—%	0 %	0 %	— %
Total costs and expenses	€ 144.5	€ 148.0	(2)%	93 %	89 %	4 %

n.m. not meaningful

Note: Some figures may not add due to rounding.

	Costs and Expenses			As a % of Revenue		
	Twelve months ended December 31,			Twelve months ended December 31,		
	2019	2018	Δ % Y/Y	2019	2018	Δ in ppts
Cost of revenue	€ 9.2	€ 5.4	70%	1%	1%	—%
of which share-based compensation	0.3	0.2	50%			
Selling and marketing	664.2	805.6	(18)%	79%	88%	(9)%
of which share-based compensation	2.4	3.3	(27)%			
Technology and content	69.9	66.9	4%	8%	7%	1%
of which share-based compensation	6.0	5.3	13%			
General and administrative	55.5	54.3	2%	7%	6%	1%
of which share-based compensation	11.3	12.0	(6)%			
Amortization of intangible assets	1.7	1.7	—%	0%	0%	—%
Total costs and expenses	€ 800.5	€ 934.0	(14)%	95%	102%	(7)%

Note: Some figures may not add due to rounding.

Cost of revenue

In the fourth quarter of 2019, cost of revenue increased by €1.6 million to €2.6 million, or 160%, period-over-period, and in the twelve months ended December 31, 2019, increased by €3.8 million to €9.2 million, or 70%, period-over-period, mainly due to an increase in costs for third-party cloud-related service providers.

Selling and marketing

Selling and marketing expense was 69% of total revenue in the fourth quarter of 2019, compared to 71% in the same period in 2018.

In the fourth quarter of 2019, selling and marketing expense decreased by €10.6 million, or by 9%, period-over-period to €107.1 million, of which €95.7 million, or 89%, was Advertising Spend.

Advertising Spend in Developed Europe and RoW decreased to €30.2 million and €31.0 million respectively, compared to €34.3 million and €32.6 million in the same period in 2018. In Americas, Advertising Spend increased to €34.5 million, compared to €33.9 million in the same period in 2018. In the fourth quarter of 2019, we increased our Advertising Spend in Americas by 2% as we observed evidence of attractive marginal returns from our investment in marketing activities in that segment. For certain locales in Developed Europe and RoW, we decreased our Advertising Spend to maintain profitability targets.

In the twelve months ended December 31, 2019, selling and marketing expense decreased by €141.4 million, or by 18%, period-over-period to €664.2 million, of which €616.7 million, or 93%, was Advertising Spend. The decrease was driven by reductions in Advertising Spend to €233.9 million, €230.3 million and €152.5 million in Americas, Developed Europe and RoW, respectively, compared to €261.6 million, €265.0 million and €205.8 million, respectively, in the same period in 2018.

We continued to optimize our Advertising Spend across all segments and all marketing channels in order to improve our ROAS, primarily in the first half of 2019. In the twelve months ended December 31, 2019, the decrease in Americas was due to a significant reduction in Advertising Spend in the first half of 2019 which was partly offset by an increase in the second half of 2019, especially in the third quarter of 2019. The decrease in Developed Europe was due to a reduction in Advertising Spend in the first half of 2019 and in the fourth quarter of 2019. In RoW, where the decrease in 2019 was the most pronounced among our segments compared to the same period in 2018, we observed a continued reduction in Advertising Spend throughout the year.

In the fourth quarter of 2019, other selling and marketing expense excluding share-based compensation decreased by €5.2 million to €10.9 million, or 32%, period-over-period, and in the twelve months ended December 31, 2019, it decreased by €24.8 million to €45.1 million, or 35%, period-over-period. The decrease was primarily driven by a reduction in personnel costs of €3.1 million during the fourth quarter of 2019 and €13.1 million during the twelve months ended December 31, 2019 mostly due to lower headcount compared to the same periods in 2018. Also, our social security expense was higher in the fourth quarter of 2018 resulting from an audit assessment by the German Social Security authorities. The decrease was also driven by lower investments in the production of television advertisements and in the development of new creative concepts of €2.0 million and €10.2 million in the fourth quarter of 2019 and the twelve months ended December 31, 2019, respectively. The decrease in the twelve months ended December 31, 2019 also resulted from lower telecommunication and service fees compared to the same period in 2018 and higher depreciation in 2018, which was partly offset by additional advertising taxes in certain geographic markets in 2019. Share-based compensation decreased by €0.2 million to €0.5 million in the fourth quarter of 2019 and decreased by €0.9 million to €2.4 million in the twelve months ended December 31, 2019, compared to the same periods in 2018.

Technology and content

For the fourth quarter of 2019, technology and content expense decreased by €0.6 million to €16.7 million, or 3%, period-over-period, and for the twelve months ended December 31, 2019, it increased by €3.0 million to €69.9 million, or 4%, period-over-period.

The decrease in the fourth quarter of 2019 was driven by a reduction in personnel costs of €0.6 million, mostly due to higher social security expense in the fourth quarter of 2018 resulting from an audit assessment by the German Social Security authorities. Share-based compensation decreased by €0.5 million to €1.2 million in the fourth quarter of 2019, which was fully offset by higher third-party IT service provider costs mostly due to increased data center expense.

For the twelve months ended December 31, 2019, the increase in technology and content expense was driven by higher third-party IT service provider costs mostly due to increased data center expense, as well as higher office expenses as we moved into our new campus in June 2018. The depreciation of capitalized software increased compared to the same period in 2018 due to a larger underlying asset, which was partly offset by a decrease in our external content development costs in the twelve months ended December 31, 2019. Personnel costs increased by €0.9 million in the twelve months ended December 31, 2019, mainly due to higher compensation expense and related social security amounts, as well as lower capitalization of our developers' salaries in the first half of the year 2019, compared to the same period in 2018. This was slightly offset by higher social security expense in the fourth quarter of 2018 resulting from an audit assessment by the German Social Security authorities. Share-based compensation increased by €0.7 million to €6.0 million in the twelve months ended December 31, 2019.

General and administrative

For the fourth quarter of 2019, general and administrative expense increased by €6.2 million to €17.7 million, or 54%, period-over-period, and for the twelve months ended December 31, 2019, increased by €1.2 million to €55.5 million, or 2%, period-over-period. The increase was driven by an increase in professional fees and other expenses of €6.7 million and €2.4 million during the fourth quarter of 2019 and twelve months ended December 31, 2019, compared to the same periods in 2018. In the fourth quarter of 2019, the increase was mostly driven by a provision recognized as a result of the recent judgment in Australia. In the twelve months ended December 31, 2019, the increase in professional fees and other expenses was mostly driven by a provision recognized in the fourth quarter of 2019 resulting from the recent judgment in Australia, as well as higher charitable contributions and insurance expense compared to the same period in 2018. These were partly offset by a reduction in professional legal fees, consulting and audit expenses compared to the same period in 2018, as well as the impairment of internal-use software in the second quarter of 2018. Share-based compensation decreased by €0.6 million to €2.5 million in the fourth quarter of 2019 and by €0.7 million to €11.3 million in the twelve months ended December 31, 2019. Personnel costs remained stable in the fourth quarter of 2019 and decreased by €0.5 million in the twelve months ended December 31, 2019, compared to the same periods in 2018. Social security expense was higher in the fourth quarter of 2018 due to an audit assessment by the German Social Security authorities. This was partly offset by higher compensation and related social security amounts in the fourth quarter of 2019 compared to the same period in 2018.

trivago Campus

We moved into our new campus in Düsseldorf in June 2018. The contractual lease agreements triggered build-to-suit treatment under U.S. GAAP, and the move-in triggered a sale and subsequent leaseback transaction. Upon adoption of the new leasing standard, ASC 842, on January 1, 2019, the contractual lease obligation was transitioned to being accounted for as an operating lease.

Prior to 2019, our lease payments relating to the premises were bifurcated into a portion allocated to the building (a reduction of the financing obligation) and a portion allocated to the land on which the building was constructed, which was treated as an operating lease that commenced in July 2015. Under ASC 842, a right-of-use asset and related operating lease liability are recorded on our balance sheet at December 31, 2019. Our associated lease expense is allocated across our operating cost categories.

Amortization of intangible assets

Amortization of intangible assets remained unchanged at €0.4 million during the fourth quarter of 2019, compared to the same period in 2018. These amortization costs relate predominantly to intangible assets recognized by Expedia Group upon the acquisition of a majority stake in trivago in 2013, which were allocated to trivago.

Share-based compensation

Share-based compensation decreased by €1.3 million to €4.2 million in the fourth quarter of 2019 and decreased by €0.8 million to €19.9 million in the twelve months ended December 31, 2019, compared to the same periods in 2018.

Net income/(loss) and Adjusted EBITDA⁽¹⁾ (€ millions)

	Three months ended December 31,			Twelve months ended December 31,		
	2019	2018	Δ €	2019	2018	Δ €
Operating income/(loss)	€ 11.0	€ 18.8	(7.8)	€ 38.1	€ (19.2)	57.3
Other income/(expense)						
Interest expense	(0.0)	(0.8)	0.8	(0.0)	(1.8)	1.8
Other, net	(0.0)	0.9	(0.9)	(0.4)	0.5	(0.9)
Total other income/(expense), net	€ 0.0	€ 0.1	(0.1)	€ (0.4)	€ (1.3)	0.9
Income/(loss) before income taxes	11.0	18.9	(7.9)	37.7	(20.5)	58.2
Expense for income taxes	8.1	8.0	0.1	21.0	1.1	19.9
Income/(loss) before equity method investment	€ 2.9	€ 10.9	(8.0)	€ 16.7	€ (21.6)	38.3
Income from equity method investment	0.2	0.0	0.2	0.5	0.1	0.4
Net income/(loss)	€ 3.1	€ 10.9	(7.8)	€ 17.2	€ (21.5)	38.7
Adjusted EBITDA⁽¹⁾	€ 18.4	€ 27.6	(9.2)	€ 70.0	€ 14.6	55.4

Note: Some figures may not add due to rounding. We have reclassified certain amounts related to our prior period results to conform to our current period presentation.

⁽¹⁾ "Adjusted EBITDA" (Adjusted Earnings Before Interest, Taxes, Depreciation, Amortization and Share Based Compensation) is a non-GAAP measure. Please see "Definitions of Non-GAAP Measures" and "Tabular Reconciliations for Non-GAAP Measures" on pages 23 to 24 herein for explanations and reconciliations of non-GAAP measures used throughout this review.

Net income decreased by €7.8 million to €3.1 million in the fourth quarter of 2019 and increased by €38.7 million to €17.2 million in the twelve months ended December 31, 2019, compared to the same periods in 2018. In the fourth quarter of 2019, a provision was recognized as a result of the recent judgment in Australia. We also observed a decrease in our profitability due to a lower level of Advertising Spend that we invested at a lower ROAS compared to the same period in 2018.

The increase in profitability in the twelve months ended December 31, 2019, compared to the same period in 2018, reflects a significant increase in our ROAS as we reduced our Advertising Spend to adapt to the changing dynamics on our marketplace, especially in the first half of 2019.

Adjusted EBITDA decreased by €9.2 million to €18.4 million in the fourth quarter of 2019 mostly due to a provision recognized as a result of the recent judgment in Australia. In the twelve months ended December 31, 2019, Adjusted EBITDA increased by €55.4 million to €70.0 million compared to the same periods in 2018.

Income taxes

Income tax expense was €8.1 million in the fourth quarter of 2019, compared to €8.0 million in the same period in 2018. The total weighted average tax rate was 30%, which was mainly driven by the German statutory rate of approximately 31%. Our effective tax rate was 73.7% compared to 41.9% in the fourth quarter in 2018. Of the 73.7% effective tax rate in the fourth quarter of 2019, 11.6% was attributable to the impact of share-based compensation expense, which is non-deductible for tax purposes.

In the twelve months ended December 31, 2019, income tax expense was €21.0 million compared to €1.1 million in the same period in 2018. Our effective tax rate was 55.7% compared to a negative 5.3% in the same period in 2018. The effective tax rates for the twelve months ended December 31, 2019 and 2018 were mainly due to the effect of share-based compensation expenses.

An uncertain tax position in connection with unrecognized tax benefits relating to the deductibility of expenses amounted to €2.9 million as of December 31, 2019. A liability for these tax benefits was included under other long-term liabilities in the consolidated financial statements. If recognized in 2019, these tax benefits would affect our effective tax rate for the fourth quarter of 2019 by a negative 50.1% (i.e., a tax benefit).

Balance sheet and cash flows

Total cash, cash equivalents and restricted cash were €220.5 million as of December 31, 2019, of which €218.2 million were included in current assets and €2.3 million of long-term restricted cash were included in other long-term assets in the balance sheet primarily relating to the new campus building, compared to total cash, cash equivalents and restricted cash of €164.3 million as of December 31, 2018. The increase of €56.2 million was mainly driven by €74.2 million of positive cash flows from operating activities, which were mainly due to positive effects from net income. The positive development of net cash provided by operating activities was driven by net income of €17.2 million including non-cash expenses for share-based compensation of €19.9 million and depreciation of €10.3 million.

Changes in operating assets and liabilities further contributed to an increase in cash and cash equivalents of €22.7 million primarily due to decreasing Accounts receivable. Accounts receivable decreased by €25.8 million to €68.9 million as of December 31, 2019. Accounts payable decreased by €0.3 million to €33.4 million as of December 31, 2019 compared to December 31, 2018.

Negative cash flows from investing activities were €18.0 million, which primarily related to a short-term investment of €10.0 million and capital expenditures including internal-use software and website development.

Our current ratio increased from 4.4 as of December 31, 2018 to 4.9 as of December 31, 2019 as our current assets increased, mainly driven by the increase in Cash and cash equivalents, and our current liabilities decreased mainly due to the decrease in payroll liabilities compared to December 31, 2018.

Update on legal proceedings

On August 23, 2018, the Australian Competition and Consumer Commission, or ACCC, instituted proceedings in the Australian Federal Court against us. The ACCC alleged a number of breaches of the Australian Consumer Law, or ACL, relating to certain advertisements in Australia concerning the hotel prices available on our Australian site, our Australian strike-through pricing practice and other aspects of the way offers for accommodation were displayed on our Australian website. The matter went to trial in September 2019 and, on January 20, 2020, the Australian Federal Court issued a judgment finding that we had engaged in conduct in breach of the ACL. The court will set a date for a separate hearing regarding penalties and other orders. Management has established a provision in respect of this matter.

The outcome of this matter could have a material adverse effect on our business, financial condition or results of operations.

A consolidated class action was filed in the United States District Court for the Southern District of New York against us and other defendants, alleging securities law violations in our IPO registration statement and certain later disclosures. On February 26, 2019, the district court granted the motion to dismiss as to all defendants, without granting plaintiffs leave to further amend the complaint. On December 16, 2019, the United States Court of Appeals for the Second Circuit issued a summary order affirming the dismissal of the action.

trivago N.V. Condensed consolidated balance sheets

(€ thousands, except per share amounts) (unaudited)

ASSETS	As of December 31, 2019	As of December 31, 2018
Current assets:		
Cash and cash equivalents	€ 218,106	€ 161,871
Restricted cash	122	122
Accounts receivable, less allowance of €74 and €250 at December 31, 2019 and December 31, 2018, respectively	37,747	54,981
Accounts receivable, related party	31,139	39,655
Short-term investments	10,000	—
Tax receivable	8,565	281
Prepaid expenses and other current assets	4,607	8,346
Total current assets	310,286	265,256
Property and equipment, net	33,172	162,001
Operating lease right-of-use assets	96,030	—
Deferred income taxes	735	—
Other long-term assets	7,274	6,148
Intangible assets, net	169,924	171,609
Goodwill	490,590	490,529
TOTAL ASSETS	€ 1,108,011	€ 1,095,543
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	€ 33,391	€ 33,656
Income taxes payable	549	1,221
Deferred revenue	5,553	7,863
Payroll liabilities	4,055	8,531
Accrued expenses and other current liabilities	14,763	9,650
Operating lease liability	5,037	—
Total current liabilities	63,348	60,921
Operating lease liability	94,660	—
Financing obligations	—	127,705
Deferred income taxes	50,927	46,550
Other long-term liabilities	4,289	6,784
Stockholders' equity:		
Class A common stock, €0.06 par value - 700,000,000 shares authorized, 50,816,706 and 42,559,884 shares issued and outstanding as of December 31, 2019 and December 31, 2018, respectively	3,049	2,554
Class B common stock, €0.60 par value - 320,000,000 shares authorized, 301,687,967 and 308,687,967 shares issued and outstanding as of December 31, 2019 and December 31, 2018, respectively	181,013	185,213
Reserves	781,060	757,262
Contribution from parent	122,307	122,307
Accumulated other comprehensive income/(loss)	62	(89)
Accumulated deficit	(192,704)	(213,664)
Total stockholders' equity	894,787	853,583
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	€ 1,108,011	€ 1,095,543

trivago N.V. Condensed consolidated statements of operations

(€ thousands, except per share amounts) (unaudited)

	Three months ended December 31,		Twelve months ended December 31,	
	2019	2018	2019	2018
Revenue	€ 105,835	€ 105,198	€ 554,046	€ 583,395
Revenue from related party	49,632	61,580	284,571	331,421
Total revenue	155,467	166,778	838,617	914,816
Costs and expenses:				
Cost of revenue, including related party, excluding amortization ⁽¹⁾⁽³⁾	2,621	1,001	9,159	5,435
Selling and marketing ⁽¹⁾⁽²⁾⁽³⁾	107,124	117,718	664,155	805,633
Technology and content, including related party ⁽¹⁾⁽²⁾⁽³⁾	16,660	17,273	69,924	66,904
General and administrative, including related party ⁽¹⁾⁽²⁾⁽³⁾	17,652	11,549	55,543	54,326
Amortization of intangible assets ⁽²⁾	422	421	1,685	1,684
Operating income/(loss)	10,988	18,816	38,151	(19,166)
Other income/(expense)				
Interest expense	(7)	(842)	(33)	(1,839)
Other, net	(15)	907	(428)	539
Total other income/(expense), net	(22)	65	(461)	(1,300)
Income/(loss) before income taxes	10,966	18,881	37,690	(20,466)
Expense for income taxes	8,080	7,914	20,982	1,086
Income/(loss) before equity method investment	2,886	10,967	16,708	(21,552)
Income from equity method investment	245	22	453	63
Net income/(loss)	3,131	10,989	17,161	(21,489)
Earnings per share available to common stockholders ⁽⁴⁾:				
Basic	€ 0.01	€ 0.03	€ 0.05	€ (0.06)
Diluted	0.01	0.03	0.05	(0.06)
Shares used in computing earnings per share:				
Basic	352,389	351,043	351,991	350,852
Diluted	356,740	356,192	356,738	350,852

	Three months ended December 31,		Twelve months ended December 31,	
	2019	2018	2019	2018
(1) Includes share-based compensation as follows:				
Cost of revenue	€ 65	€ 46	€ 269	€ 184
Selling and marketing	495	701	2,359	3,273
Technology and content	1,195	1,676	5,978	5,260
General and administrative	2,480	3,065	11,285	11,985
(2) Includes amortization as follows:				
Amortization of internal use software costs included in selling and marketing	€ 80	€ —	€ 360	€ —
Amortization of internal use software and website development costs included in technology and content	894	649	3,239	2,214
Amortization of internal use software costs included in general and administrative	188	223	656	785
Amortization of acquired technology included in amortization of intangible assets	36	96	143	278
(3) Includes related party expense as follows:				
Cost of revenue	€ 11	€ 15	€ 44	€ 59
Selling and marketing	65	37	263	42
Technology and content	80	225	465	700
General and administrative	—	6	43	9
(4) Represents basic and diluted earnings per share of Class A and Class B common stock and weighted-average shares of Class A and Class B common stock outstanding for the period from January 1 through December 31 for the respective years.				

We have reclassified certain amounts related to our prior period results to conform to our current period presentation.

trivago N.V. Condensed consolidated statements of cash flows

(€ thousands) (unaudited)

	Three months ended December 31,		Twelve months ended December 31,	
	2019	2018	2019	2018
Operating activities:				
Net income/(loss)	€ 3,131	€ 10,989	€ 17,161	€ (21,489)
Adjustments to reconcile net income/(loss) to net cash provided by/(used in):				
Depreciation (property and equipment and internal-use software and website development)	2,767	2,880	10,298	11,370
Amortization of intangible assets	422	421	1,685	1,684
Impairment of internal-use software and website development	—	292	96	1,437
Share-based compensation	4,235	5,488	19,891	20,702
Deferred income taxes	(82)	5,515	1,904	(1,755)
Foreign exchange loss	28	247	429	587
Bad debt expense	216	310	754	630
Loss on disposal of fixed assets	1	215	2	605
(Gain)/loss from settlement of asset retirement obligation	—	—	(209)	—
(Gain)/loss from equity method investment	(245)	22	(453)	(19)
Changes in operating assets and liabilities:				
Accounts receivable, including related party	27,785	5,565	24,926	(13,432)
Prepaid expense and other assets	1,182	2,827	3,696	11,127
Accounts payable	(15,566)	(16,192)	(665)	(18,012)
Payroll liabilities	(53)	3,018	(4,476)	2,951
Accrued expenses and other liabilities	5,610	(3,287)	7,591	199
Deferred revenue	(1,241)	(1,454)	(2,310)	(773)
Taxes payable/receivable, net	(3,806)	1,844	(6,099)	(396)
Net cash provided by/(used in) operating activities	€ 24,384	€ 18,700	€ 74,221	€ (4,584)
Investing activities:				
Purchase of investments	—	—	(10,000)	—
Capital expenditures, including internal-use software and website development	(1,727)	(2,603)	(8,017)	(24,779)
Proceeds from sale of fixed assets	6	549	36	634
Net cash used in investing activities	€ (1,721)	€ (2,054)	€ (17,981)	€ (24,145)
Financing activities:				
Proceeds from exercise of option awards	9	150	202	161
Repayment of other non-current liabilities	(67)	—	(301)	—
Net cash provided by/(used in) financing activities	€ (58)	€ 150	€ (99)	€ 161
Effect of exchange rate changes on cash	(169)	43	94	(24)
Net increase/(decrease) in cash, cash equivalents and restricted cash	€ 22,436	€ 16,839	€ 56,235	€ (28,592)
Cash, cash equivalents and restricted cash at beginning of the period	198,107	147,469	164,308	192,900
Cash, cash equivalents and restricted cash at end of the period	€ 220,543	€ 164,308	€ 220,543	€ 164,308
Supplemental cash flow information:				
Cash paid for interest	€ 4	€ —	€ 51	€ 223
Cash paid for taxes, net of (refunds)	11,956	25	25,171	3,325
Non-cash investing and financing activities:				
Fixed assets-related payable	202	992	202	992
Capitalization of construction in process related to build-to-suit lease	—	7,571	—	36,979

Earnings per Share and Ownership of the Company

Basic and diluted earnings per share of common stock is computed by dividing net income by the weighted average number of Class A and Class B shares outstanding during the period.

The following table presents our basic and diluted earnings per share:

	Three months ended December 31,		Twelve months ended December 31,	
	2019	2018	2019	2018
Numerator (€ thousands)				
Net income/(loss)	€ 3,131	€ 10,989	€ 17,161	€ (21,489)
Denominator (in thousands)				
Weighted average number of common shares:				
Basic	352,389	351,043	351,991	350,852
Diluted	356,740	356,192	356,738	350,852
Net income/(loss) per share:				
Basic ⁽¹⁾	€ 0.01	€ 0.03	€ 0.05	€ (0.06)
Diluted ⁽²⁾	€ 0.01	€ 0.03	€ 0.05	€ (0.06)

(1) Basic net income (loss) per common share is computed by dividing (A) net income (loss) by (B) basic weighted average common shares outstanding.

(2) Diluted net income (loss) per common share is computed by dividing (A) net income (loss) (B) the diluted weighted average common shares outstanding, which has been adjusted to include potentially dilutive securities. Diluted net income (loss) per common share for the comparative period ended December 31, 2018 does not include the effects of the exercise of then-outstanding stock options as the inclusion of these instruments would have been anti-dilutive.

The split between Class A and Class B shares of trivago N.V. as of December 31, 2019, is as follows:

	Class A shares	Class B shares	Total
Number of Shares	50,816,706	301,687,967	352,504,673
Shares in %	14 %	86 %	100 %

trivago N.V. Key Metrics

- The following metrics are intended as a supplement to the financial information found in this review and the financial statements included in our filings with the Securities and Exchange Commission ("SEC"). In the event of discrepancies between amounts in these tables and our historical financial statements, readers should rely on our filings with the SEC and our most recent financial statements filed with the SEC.
- We intend to periodically review and refine the definition, methodology and appropriateness of each of our supplemental metrics. As a result, metrics are subject to removal and/or change, and such changes could be material.
- These metrics do not include adjustments for one-time items, acquisitions, foreign exchange or other adjustments.
- Some numbers may not add due to rounding.

	Three months ended December 31,		Twelve months ended December 31,	
	2019	2018	2019	2018
ROAS by segment				
Americas	161.9%	158.8%	130.4%	120.8%
Developed Europe	197.7%	196.0%	150.7%	143.0%
Rest of World	116.3%	126.5%	112.5%	99.6%
Consolidated ROAS	158.4%	161.0%	133.6%	122.8%

Qualified Referrals by segment (in millions)				
Americas	29.1	31.3	146.1	182.3
Developed Europe	33.1	37.3	195.4	246.7
Rest of World	37.2	44.0	180.5	239.3
Consolidated Qualified Referrals	99.4	112.6	522.0	668.3

RPQR by segment				
Americas	€1.92	€1.72	€2.09	€1.73
Developed Europe	1.80	1.80	1.78	1.54
Rest of World	0.97	0.94	0.95	0.86
Consolidated RPQR	€1.52	€1.44	€1.58	€1.35

Notes & Definitions:

Current Ratio: The current ratio is used to measure the company's ability to pay off its short-term liabilities with its current assets and is an important measure of liquidity. The current ratio is calculated by dividing the company's total current assets by the company's total current liabilities.

Referral Revenue: We use the term "referral" to describe each time a visitor to one of our websites or apps clicks on a hotel offer or advertisement in our search results and is referred to one of our advertisers. We charge our advertisers for each referral on a cost-per-click (CPC) basis.

ROAS: The ratio of our Referral Revenue to our Advertising Spend in a given period, or **return on Advertising Spend**. We invest in multiple marketing channels, such as: TV; out-of-home advertising; search engine marketing; display advertising campaigns on advertising networks, affiliate websites, social networking sites and email marketing; online video; mobile app marketing and content marketing.

RPQR: We use average **revenue per Qualified Referral**, to measure how effectively we convert Qualified Referrals to revenue. RPQR is calculated as Referral Revenue divided by the total number of Qualified Referrals in a given period.

Qualified Referral: We define a **Qualified Referral** as a unique visitor per day that generates at least one referral. For example, if a single visitor clicks on multiple hotel offers in our search results in a given day, they count as multiple referrals, but as only one Qualified Referral.

Definitions of Non-GAAP Measures

Adjusted EBITDA:

We define Adjusted EBITDA as net income (loss):

1. Less: income/(loss) from equity method investment
2. Plus: expense/(benefit) for income taxes,
3. Plus: total other (income)/expense, net,
4. Plus: depreciation of property and equipment, including amortization of internal use software and website development
5. Plus: amortization of intangible assets and
6. Plus: share-based compensation

Adjusted EBITDA is a non-GAAP financial measure. A "non-GAAP financial measure" refers to a numerical measure of a company's historical or future financial performance, financial position, or cash flows that excludes (or includes) amounts that are included in (or excluded from) the most directly comparable measure calculated and presented in accordance with U.S. GAAP in such company's financial statements. We present this non-GAAP financial measure because it is used by management to evaluate our operating performance, formulate business plans, and make strategic decisions on capital allocation. We also believe that this non-GAAP financial measure provides useful information to investors and others in understanding and evaluating our operating performance and consolidated results of operations in the same manner as our management and in comparing financial results across accounting periods.

Our use of Adjusted EBITDA has limitations as an analytical tool, and you should not consider it in isolation or as a substitute for analysis of our results reported in accordance with U.S. GAAP, including net loss. Some of these limitations are:

- Adjusted EBITDA does not reflect our cash expenditures or future requirements for capital expenditures or contractual commitments;
- Adjusted EBITDA does not reflect changes in, or cash requirements for, our working capital needs;
- Although depreciation and amortization are non-cash charges, the assets being depreciated and amortized may have to be replaced in the future, and Adjusted EBITDA does not reflect cash capital expenditure requirements for such replacements or for new capital expenditure requirements; and
- Other companies, including companies in our own industry, may calculate Adjusted EBITDA differently than we do, limiting its usefulness as a comparative measure.

Tabular Reconciliations for Non-GAAP Measures

Adjusted EBITDA (Adjusted Earnings Before Interest, Taxes, Depreciation & Amortization and Share-Based Compensation) (€ millions)

	Three months ended December 31,		Twelve months ended December 31,	
	2019	2018	2019	2018
Net income/(loss)	€ 3.1	€ 10.9	€ 17.2	€ (21.5)
Income from equity method investment	0.2	0.0	0.5	0.1
Income/(loss) before equity method investment	€ 2.9	€ 10.9	€ 16.7	€ (21.6)
Expense for income taxes	8.1	8.0	21.0	1.1
Income/(loss) before income taxes	€ 11.0	€ 18.9	€ 37.7	€ (20.5)
Add/(less):				
Interest expense	0.0	0.8	0.0	1.8
Other, net	0.0	(0.9)	0.4	(0.5)
Operating income/(loss)	€ 11.0	€ 18.8	€ 38.1	€ (19.2)
Depreciation	2.8	2.9	10.3	11.4
Amortization of intangible assets	0.4	0.4	1.7	1.7
EBITDA	€ 14.2	€ 22.1	€ 50.1	€ (6.1)
Share-based compensation	4.2	5.5	19.9	20.7
Adjusted EBITDA	€ 18.4	€ 27.6	€ 70.0	€ 14.6

Note: Some figures may not add due to rounding.

Safe Harbor Statement Under the Private Securities Litigation Reform Act of 1995

This review contains “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. These statements are not guarantees of future performance. These forward-looking statements are based on management’s expectations as of the date of this review and assumptions which are inherently subject to uncertainties, risks and changes in circumstances that are difficult to predict. The use of words such as “intend” and “expect,” among others, generally identify forward-looking statements. However, these words are not the exclusive means of identifying such statements. In addition, any statements that refer to expectations, projections or other characterizations of future events or circumstances are forward-looking statements and may include statements relating to future revenue, expenses, margins, profitability, net income / (loss), earnings per share and other measures of results of operations and the prospects for future growth of trivago N.V.’s business.

Actual results and the timing and outcome of events may differ materially from those expressed or implied in the forward-looking statements for a variety of reasons, including, among others:

- our ability to grow our revenue in future periods, or at rates deemed sufficient by the market without reducing our profits or incurring losses;
- our dependence on a relatively small number of advertisers for our revenue and adverse impacts that could result from their reduced spending or changes in their bidding strategy;
- factors that contribute to our period-over-period volatility in our financial condition and result of operations, and how they may negatively impact our ability to meet the financial guidance that we communicate to the market;
- our dependence on general economic conditions and adverse impacts that could result from declines in travel or discretionary spending;
- the effectiveness of our Advertising Spend, including as a result of increased competition or inadequate or ineffective innovation in or execution of our advertising;
- the effectiveness of our measures to increase advertiser diversity on our marketplace;
- increasing competition and consolidation in our industry;
- our focus on hotel and other accommodations if users expect other services;
- our ability to innovate and provide tools and services that are useful to our users and advertisers;
- our dependence on relationships with third parties to provide us consumer reviews;
- our reliance on search engines, which may change their business models or algorithms;
- any inaccuracies in, or misinterpretation of, the assumptions and estimates and data we use to make decisions about our business;
- changes to and our compliance with applicable laws, rules and regulations;
- the impact of any legal and regulatory proceedings to which we are or may become subject;
- potential disruptions in the operation of our systems, security breaches and data protection;
- impacts from our operating globally;

as well as other risks and uncertainties detailed in our public filings with the SEC, including trivago’s Annual Report on Form 20-F for the fiscal year ended December 31, 2018 as such risks and uncertainties may be updated from time to time. Except as required by law, we undertake no obligation to update any forward-looking or other statements in this review, whether as a result of new information, future events or otherwise.