

# Market Landscape: RAN Vendors 2024

Rémy Pascal

Senior Research Manager, Mobile Infrastructure

[askananalyst@omdia.com](mailto:askananalyst@omdia.com)

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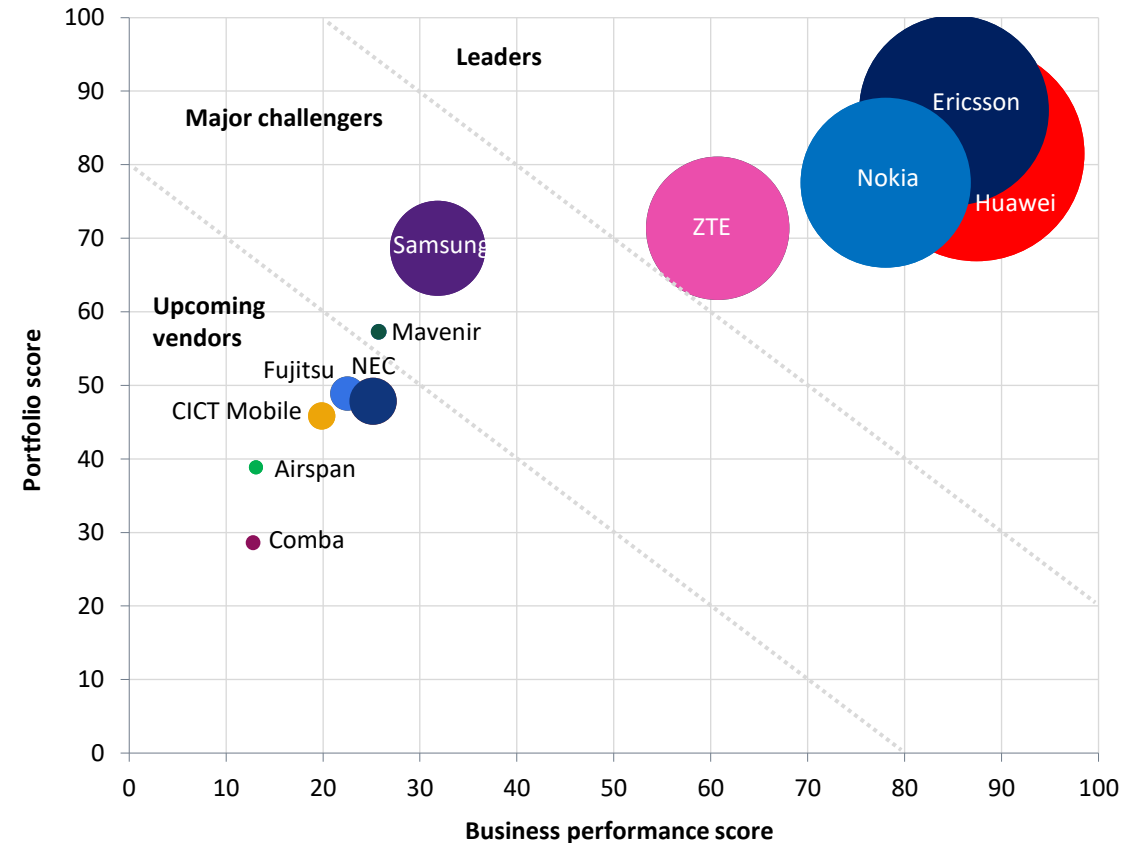


# Summary

# Summary (1/5)

- Five vendors essentially control the radio access network (RAN) equipment market, with a combined market share of 95.1% in 2023, a slight increase from 94.6% in 2022. The top three vendors captured 75.1% of the market revenue (versus 74.9% in 2022). With so much share concentrated among so few vendors, each vendor works to be perceived as a market leader. However, measuring leadership in this market has its challenges.
- Considering two dimensions, which are business performance and portfolio, Omdia categorized 11 RAN vendors into three groups: leaders, major challengers, and upcoming vendors.
- All vendors belong to the same group as in the 2023 edition, with two new entrants that did not participate last year: Mavenir in the major challenger group and Comba in the upcoming vendor group.
- There are four leaders: Ericsson, Huawei, Nokia, and ZTE. Ericsson ranked first in portfolio and second in business performance; Huawei ranked first in the business performance and second in the portfolio; Nokia was third in both dimensions.
- The scores indicate each vendor's relative position in comparison with the others. For example, if a vendor has a lower portfolio score in the 2024 edition than in the 2023 edition, it does not mean that its offering is weaker in 2024 than in 2023 but that its portfolio has not improved at the same pace as other vendors.
- There were also slight changes in the weighting of a few metrics that affected the scores (see methodology section).

## Overall RAN vendor positioning



Notes: The size of the bubble corresponds to the 2023 RAN revenue for each vendor.  
Source: Omdia

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## Summary (2/5)

### Summary of categories, score weight, and top three vendors per category

Dimensions and categories	Score weight	#1	#2	#3
<b>Business performance</b>	<b>100</b>	<b>Huawei</b>	<b>Ericsson</b>	<b>Nokia</b>
Total RAN revenue market share	40	Huawei	Ericsson	Nokia
5G share of total RAN revenue	20	Fujitsu	NEC	ZTE
5G deals with CSP	30	Huawei	Ericsson, Nokia	ZTE
New logos	10	Ericsson	Nokia	Mavenir
<b>Portfolio breadth and competitiveness</b>	<b>100</b>	<b>Ericsson</b>	<b>Huawei</b>	<b>Nokia</b>
Radio portfolio	55	Ericsson	Huawei	Nokia
Baseband portfolio	40	Ericsson	Nokia	Huawei
Partner ecosystem	5	Mavenir	Samsung, Fujitsu, Nokia	Ericsson

Source: Omdia

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# Summary (3/5)

## Summary by vendor: Leaders

Vendor	Analysis
<b>Ericsson</b>	Ericsson is the leader in the portfolio dimension and second to Huawei in business performance. Ericsson is strong across all categories, and its key strengths include its radio portfolio breadth, massive MIMO (mMIMO) products, and baseband units' power efficiency.
<b>Huawei</b>	Huawei is the leader in business performance thanks to its high revenue market share and number of deals, and it is the runner-up in the portfolio dimension. Huawei's strengths include its radio portfolio breadth, massive MIMO products, and baseband units' capacity.
<b>Nokia</b>	Nokia ranks third in the two dimensions, with notable improvements in business performance compared with the previous edition of the report thanks to market share gains and a growing number of deals and new logos. Nokia's portfolio of RAN solutions has no weaknesses, but it is less extensive than the portfolios of the other two leaders. Baseband is one of the vendor's key strengths.
<b>ZTE</b>	ZTE entered the leaders' territory in 2023 and continued strengthening its position, particularly on the business performance dimension, thanks to market share gains and new deals in 2023. However, its portfolio of products is still a notch under the leading trio.

Source: Omdia

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# Summary (4/5)

## Summary by vendor: Major challengers

Vendor	Analysis
<b>Samsung</b>	Samsung improved its portfolio score. Although it is very strong in some segments, its portfolio is less extensive than the leaders'. Samsung generally achieves higher scores on the radio portfolio metrics than baseband portfolio metrics, but it is also improving in the latter. Samsung is also the leader in open vRAN. Higher market shares and a number of deals are lacking for the vendor to reach the leaders' territory. Samsung focuses on a few key strategic deals, which automatically reduces its addressable market in terms of revenue and the number of deals.
<b>Mavenir</b>	Mavenir did not participate in the 2023 market landscape report but entered as a major challenger in 2024. Though it is smaller than many other vendors covered in this report, it has a competitive portfolio centered on O-RAN solutions and the richest partner ecosystem.

Source: Omdia

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# Summary (5/5)

## Summary by vendor: Upcoming vendors

Vendor	Analysis
<b>NEC</b>	NEC is the co-leader of the upcoming vendors group. Although its portfolio of solutions continues to improve, it is not as extensive as the portfolio of larger vendors. NEC is particularly well-positioned to target open vRAN projects and is moving close to major challengers' territory, but it will need a higher RAN revenue and/or number of deals and/or a broader radio portfolio.
<b>Fujitsu</b>	Fujitsu is the co-leader of the upcoming vendors group and has improved its portfolio. It is currently dependent on a small number of clients, but its capabilities with Tier 1 operators in Japan, the US (now also including AT&T), and Europe give it strong credentials to win new business in other parts of the world, particularly by targeting open vRAN projects.
<b>CICT Mobile</b>	CICT Mobile Communication Technology was formed by the merger and reorganization of Datang Mobile Communications Equipment and Wuhan Hongxin Telecommunication Technologies in 2020. CICT Mobile has a competitive baseband and radio portfolio built for the demanding domestic market. However, it is behind some competitors in business performance owing to a lack of business outside China. It is essentially maintaining a stable position in the 2024 edition.
<b>Airspan</b>	Airspan is one of the smallest players covered in this report in terms of revenue, but nonetheless, it continuously expands its competitive portfolio, particularly of radios. Airspan sells to Tier 1 operators around the world, including in Japan, India, and the US, which validates the vendor's capabilities but struggles to scale in the very competitive and mature RAN market.
<b>Comba</b>	Comba is a new entrant and challenger with a competitive radio portfolio, but its lack of massive MIMO active antenna units in its portfolio is an important limitation in this assessment. Like CICT Mobile, its relative lack of business outside China is another limiting factor.

Source: Omdia

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# Methodology

# Methodology (1/2)

- The RAN, as covered by Omdia in this report, includes hardware and software for macro base stations and small cells. Services and solutions belonging to other network domains, such as transport and core networks, are not included.
- Making head-to-head comparisons can be difficult. To overcome this difficulty, this report focuses as much as possible on measurable and comparable metrics using the information provided by vendors themselves rather than the analyst's perceptions and opinions. Omdia also underlines some key caveats associated with the metrics used so that the reader is aware of limitations where they exist.
- Omdia selected two main dimensions for this evaluation: RAN business performance and RAN portfolio breadth and competitiveness. Each dimension is assessed by looking at different categories and metrics. Metrics mean different things to different vendors; what one vendor perceives as important (a specific technology or type of product) may not be as important to other vendors.
- For business performance, the categories are the global RAN revenue market share, the 5G share of each vendor's total RAN revenue, the number of 5G RAN commercial deals with communications service providers (CSPs), and the number of new logos.
- For the portfolio dimension, Omdia looks separately at the radio and baseband portfolios, with several sub-categories considered for each. Omdia takes into consideration the portfolio breadth (the number and variety of radios and massive MIMO products, frequency bands supported, O-RAN compliant products, etc.) and competitiveness (by comparing product specifications including capacity, power consumption, and physical footprint of products with comparable configurations). Details for each category and their weighting in the total score are introduced in relevant sections of the report.
- Omdia only considers products that are available or will be available before the end of 2024. There is always a possibility that vendors may not meet all of their roadmap commitments; some of the products that are expected to become available before the end of the year could ultimately reach the market later than expected or even be canceled. The same is true when vendors present their respective roadmaps to operators.

# Methodology (2/2)

- In this 2024 report, Omdia made little changes in the methodology and only slightly modified the weighting for some subcategories to reflect market trends and operators' priorities. A new category was added to assess each vendor's ecosystem of partners. It accounts for 5% of the RAN portfolio breadth and competitiveness score. See page 27 for more details about this category.
- To make room for the new ecosystem and partnerships category, the weight of the radio portfolio breadth subcategory was reduced from 20 points to 15 points. Nevertheless, total radio remains the most important category, representing 55% of the total portfolio dimension score (versus 60% in the 2023 edition).
- Omdia does not suggest that open RAN or vRAN solutions are better or worse than integrated purpose-built RAN solutions; they are alternatives and included as such. Operators value choice, and because operators' interest in open RAN and vRAN is undeniable, these trends cannot be ignored.
- Open RAN and vRAN are considered under the portfolio dimension, but they have no impact on the business performance dimension. When measuring a vendor's business performance, a dollar from a "traditional" integrated RAN contract is worth the same as a dollar from an open RAN or vRAN contract.
- Other aspects would ideally be considered but effectively are not. Price competitiveness is critical when an operator selects a vendor, but pricing information is highly confidential and specific to each client and each project. The actual performance of solutions in real life or demonstrated during trials is another critical point of differentiation, but Omdia does not have the tools and resources to conduct lab or field tests.
- Patents portfolios and contributions to standards are other interesting metrics, but claims from different vendors tend to be contradictory, and comparisons are difficult. Omdia also believes that these criteria are not as important as the ones included in this assessment. Patents matter, but Omdia argues that they are important for other reasons, not so much when assessing a vendor's position and competitiveness.
- Mavenir and Comba are new additions to this 2024 report. Omdia also contacted other RAN vendors that have chosen not to participate or have not provided sufficient information. More vendors could be included in future editions of this report, and the door is open for their participation.



# Business performance

# Business performance

## Summary of categories, score weight, and top three vendors per category

Categories	Score weight	#1	#2	#3
Total RAN revenue market share (2023)	40	Huawei	Ericsson	Nokia
5G share of total RAN revenue (2023)	20	Fujitsu	NEC	ZTE
5G RAN deals with CSP	30	Huawei	Ericsson, Nokia	ZTE
New logos	10	Ericsson	Nokia	Mavenir
<b>Total business performance</b>	<b>100</b>	<b>Huawei 87/100</b>	<b>Ericsson 85/100</b>	<b>Nokia 78/100</b>

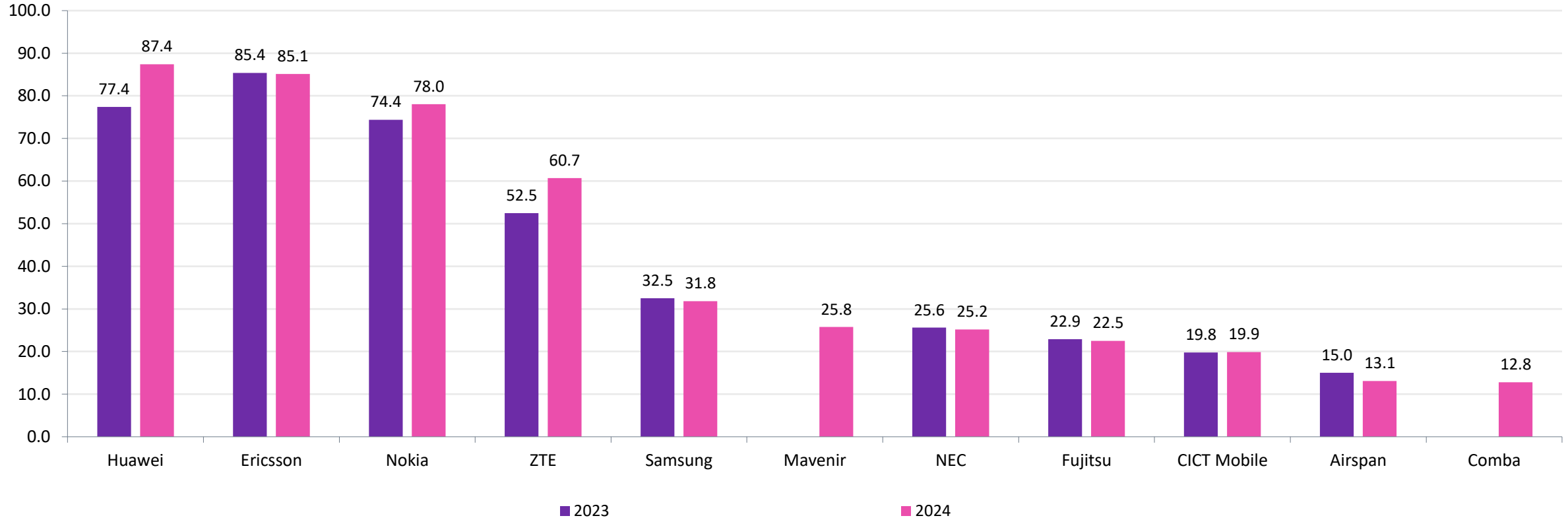
Source: Omdia

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- There are some caveats to basing leadership completely on market share, but market shares are important and a generally accepted way of measuring market leadership. Of all categories across the two dimensions considered in this report, market shares carry the largest weight (40% of the business performance score and 20% of the grand total).
- Omdia prefers to use revenue rather than units for market shares because revenue is the most common indicator of business performance, and revenue data tends to be more reliable. The revenue market share shows a company's scale, business momentum, and ability to win new business.
- Omdia also looks at the number of commercial 5G RAN deals with CSPs (excluding free trials, non-revenue-generating activities, and non-CSP deals). If a vendor has several 5G contracts with the same operator in the same country, it is counted only once, but for multi-country deals with one telecom group (e.g., Vodafone UK and Vodafone Germany), each country counts for one deal.
- Omdia considers the number of deals to be less important than revenue in assessing leadership and, therefore, applies a smaller weighting to deals when calculating scores. Not all deals are equal. A deal with a Tier 1 operator in a big country tends to be worth more in monetary value than multiple deals with Tier 2 and Tier 3 operators in smaller countries.
- Nonetheless, deals indicate a vendor's reach and capacity to win requests for proposals (RFPs) and, more broadly, its business momentum, so deals are worth looking at.
- Huawei is the leader in business performance in 2024 with a score of 87/100, followed by Ericsson (85/100) and Nokia (78/100).

# Business performance scores, 2023 and 2024

Business performance scores (maximum 100 points)



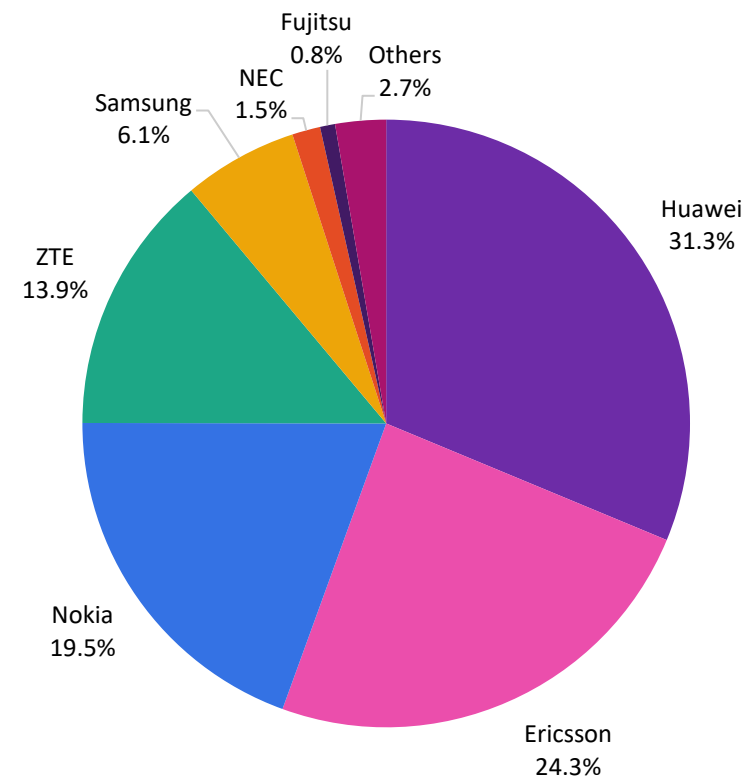
Notes: Scores are relative. If a vendor has a lower score than in the previous edition, it does not mean that this vendor's performance was necessarily weaker than before but that the status of each vendor relative to the others has changed.  
 Source: Omdia

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# Revenue market share

- In 2023, Huawei remained the RAN revenue market leader, followed by Ericsson, Nokia, ZTE, and Samsung Electronics.
- Combined, Huawei, Ericsson, and Nokia captured 75.1% of the global RAN revenue in 2023 compared with 74.9% in 2022. When adding ZTE and Samsung Electronics, the top five companies generated 95.1% of total RAN revenue in 2023 compared with 94.6% in 2022.
- Compared with 2022, Nokia, ZTE, and NEC gained market shares. Nokia benefited mostly from market share gains in India, ZTE from robust spending in domestic and emerging markets in Asia & Oceania and EMEA, and NEC from Japan and its new business in Europe.
- The share of challengers (beyond the top five) was higher for the global market excluding China (7.1%) than for the global market including China (5.0%). However, those challengers have collectively lost market shares compared with 2022 (7.3% and 5.4%, respectively).
- One thing to keep in mind is how market share fits into a vendor's strategy. Some vendors are willing to sacrifice short-term margins to gain shares, winning business thanks to lower prices. Conversely, other vendors are willing to sacrifice shares and their top line to protect their margins. A single vendor may even use both strategies depending on the geography, project, or time.
- Omdia provides extensive market share data and analysis on a quarterly basis in its *RAN Market Tracker* report series.

RAN revenue market share, 2023



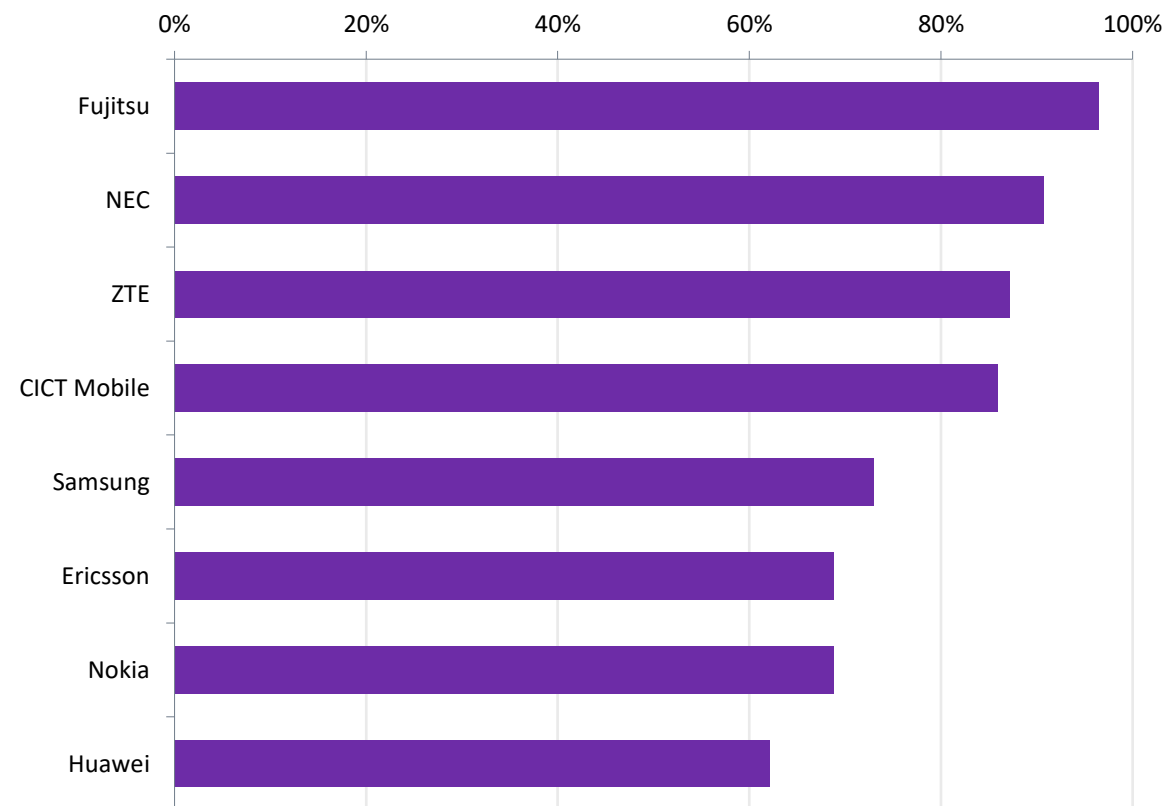
Source: Omdia

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## 5G share of total RAN revenue

- To complement the overall RAN revenue market share analysis, Omdia also considers the share of 5G as a percentage of each vendor's total RAN revenue in 2023.
- A dollar or yuan from 2G, 3G, or 4G equipment sales holds the same value as a dollar or yuan from 5G equipment sales. Nonetheless, Omdia and our readers consider the 5G revenue to be a relevant indicator of a vendor's commercial momentum and how fast it is able to shift its revenue mix toward the only growing segment of the RAN market (i.e., 5G). It is worth noting that products initially deployed for 4G can often be upgraded to 5G via software if they support the same frequency. Revenue allocation may vary from one vendor to another.
- For all vendors, the 5G share was higher in 2023 than in 2022 because the transition to 5G is advancing. All vendors generated more than 50% of their revenue from 5G in 2023, with the highest percentages from Fujitsu and NEC (>90%), followed by ZTE and CICT Mobile.
- This metric largely depends on each vendor's revenue geographical mix. NEC and Fujitsu benefitted from their strong 5G business in their domestic market, Japan, while ZTE and CICT Mobile similarly benefitted from 5G deployments in China—both early 5G-adopting countries where most investment has already shifted from 4G to 5G.
- Inversely, Huawei, Ericsson, and Nokia are global vendors with a more diversified client base and revenue mix, including some advanced and some less advanced markets (those that are late 5G adopters), which drags the percentage down. On the other hand, for these larger global vendors, their presence in both developed and developing markets benefits them on other metrics, including the total RAN revenue and the number of 5G deals. One vendor cannot win in all categories.

5G share of each vendor's RAN revenue, 2023



Source: Omdia

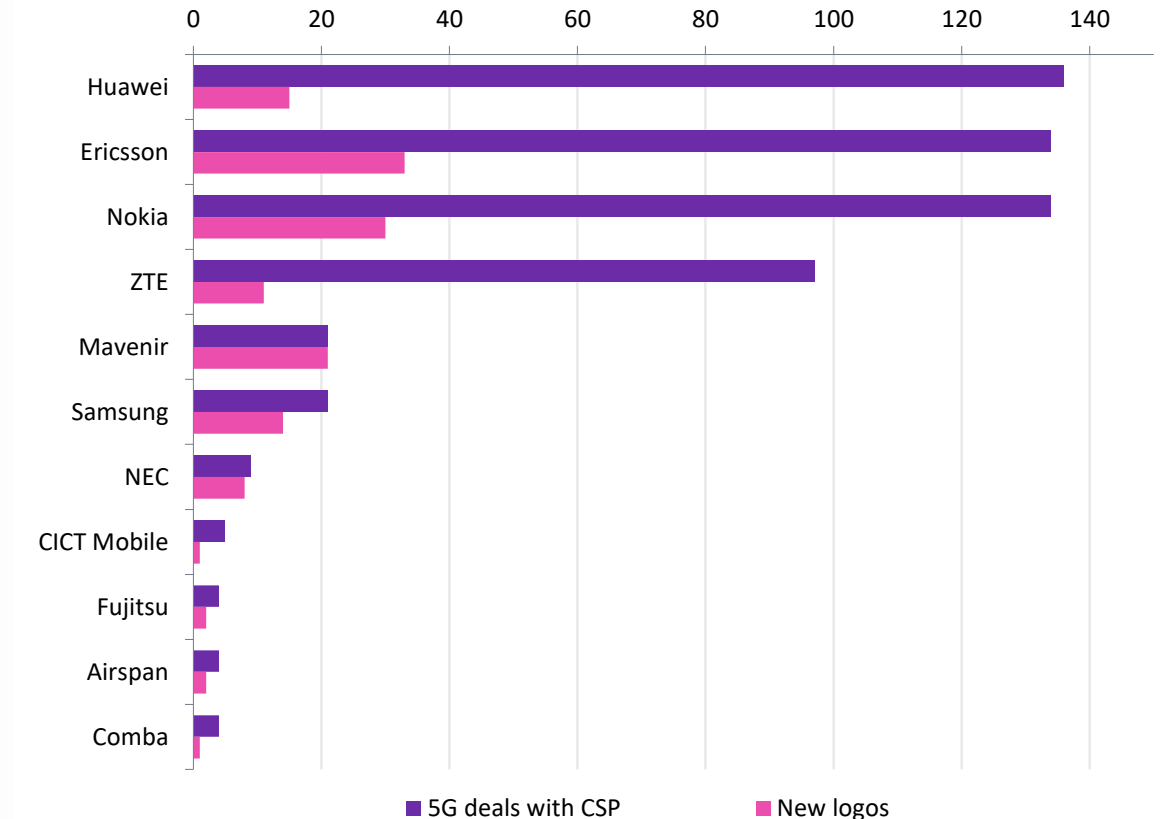
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# 5G deals with CSPs and new logos

- Huawei, Ericsson, and Nokia are vendors with over 100 5G CSP deals each. Nokia and Ericsson have a strong presence in the fragmented European market; the high number of operators means many deals are up for grabs. Huawei has a particularly strong presence in Asia & Oceania, the Middle East & Africa, and Latin America & the Caribbean.
- The new logo metric indicates whether a vendor has gained 5G business at the expense of a competitor or with a greenfield operator. With non-standalone (NSA) 5G, most operators use their existing LTE vendors to supply 5G new radio (NR), but there are exceptions. Given the tight relationship between LTE and 5G in NSA, winning 5G contracts where a vendor did not already provide LTE is a strong endorsement of its solutions. This shows that an operator is willing to rip and replace an incumbent LTE vendor or go through the challenges of interoperability between two vendors to use a different vendor's 5G kit.
- Three vendors—Ericsson, Nokia, and Mavenir—have more than 20 new logos each. Samsung has also enjoyed strong commercial momentum in the past couple of years, notably in the Five Eyes countries (Australia, Canada, New Zealand, the UK, and the US).
- Western vendors have, in some cases, benefitted from policies against Chinese vendors, especially in the Five Eyes countries and Europe. However, in other cases, new logo deals counted here have no link with Chinese vendors (for example, one European vendor swapping another European vendor). In the meantime, Chinese vendors also secured new logos, sometimes at the expense of Western vendors, especially in emerging markets.

Number of 5G deals with CSPs and new logos (as of March 2024)



Source: Omdia

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# Portfolio assessment

# Radio portfolio

- For the portfolio breadth and competitiveness dimension, Omdia allocates 55% weight to the radio portfolio, 40% to the baseband portfolio, and 5% to the technology partner ecosystem. The latter is new to this 2024 report. To maintain a total of 100 points, the radio portfolio category score was lowered from 60 to 55 points.
- Radio portfolios encompass a much higher number of unique products and contribute a larger portion of total RAN revenue compared with the baseband portfolio at the industry level and for most vendors.
- As stated previously, these rankings are based on portfolio offerings and product specifications but not on actual performance in the field. This is because Omdia lacks the means to test the performance of vendors' gear.
- For this report, Omdia collected information on approximately 2,000 radio products from 11 vendors, of which more than 500 were massive MIMO radio products and over 250 were O-RAN-compliant radios. The wealth and variety of equipment are impressive, and the high number of new products added by most vendors since last year's edition testifies to this industry's continuous innovation.
- Ericsson remained the industry leader for the radio portfolio with a score of 48/55, followed by Huawei (47/55) and Nokia (40/55).

## Summary of categories, score weight, and top three vendors per category

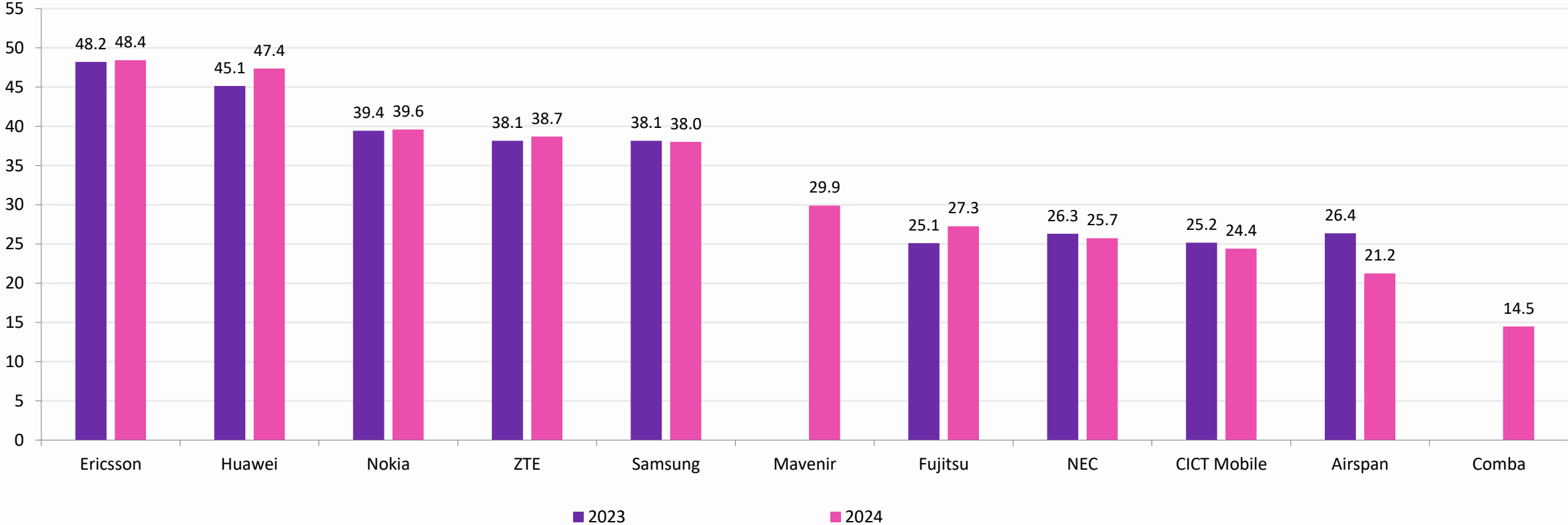
Categories	Score weight	#1	#2	#3
Radio portfolio basics	5	More than five vendors with maximum score		
Combined radio portfolio breadth metrics	15	Huawei	Ericsson	ZTE
Massive MIMO portfolio breadth and competitiveness	15	Ericsson, Huawei	ZTE	Nokia
Massive MIMO power consumption	10	Ericsson	Huawei	Nokia, ZTE
mmWave portfolio	5	Ericsson, Huawei	Samsung	Nokia
Open RAN portfolio	5	Samsung	NEC	Mavenir
<b>Total radio portfolio</b>	<b>55</b>	<b>Ericsson 48/55</b>	<b>Huawei 47/55</b>	<b>Nokia 40/55</b>

Source: Omdia

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# Radio portfolio scores, 2023 and 2024

Radio portfolio overall scores (maximum 55 points)



Notes: Scores are relative. If a vendor has a lower score than in the previous edition, it does not mean that this vendor’s portfolio is weaker in 2023 than in 2022 but that the status of each vendor relative to the others has changed. The weighting was also slightly changed, which affects the total score. The 2023 score was converted from the 60-point scale in 2023 to the new 55-point scale for comparison with the 2024 score.

Source: Omdia

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## Radio portfolio basics

- The radio portfolio basics category considers the availability of 4G and 5G solutions, the variety of product types available (macro and small cells, outdoor and indoor), and the variety of radio units in terms of transceiver and receiver configurations, including the availability of 2T2R, 4T4R, and 8T8R radios for various frequency bands.
- 2T2R and 4T4R make up the bulk of all radio unit products and constitute the foundation of a competitive radio portfolio. There is an immense variety of products supporting one or several technologies, single- or multiple-frequency bands, different bandwidths and output power, and so on.
- These products are essential but generally insufficient in establishing a clear competitive advantage. Price is a key element of differentiation in this segment, but as mentioned earlier, it is not considered here.
- One area of interest is the 8T8R radio unit segment. 8T8R radios fill the gap between 4T4R radio units and massive MIMO active antennas. In the coming years, these solutions will be increasingly used for suburban and rural areas and in specific scenarios such as roads, tunnels, and rails. They are also useful for operators that want to boost capacity but may not have the financial resources to deploy massive MIMO widely, typically in emerging markets.

## Radio portfolio breadth

- The radio portfolio breadth category combines several metrics, including the number of unique radio products, the range of frequency bands supported by at least one product, and the availability and variety of multi-band (dual-band and tri-band) radios.
- Huawei has the highest number of unique radio products (over 500) and supports the highest number of frequency bands (over 40) despite being prevented from accessing some markets. Ericsson is the only vendor that comes close to matching these numbers.
- Nokia, Samsung, ZTE, and Airspan also support a wide range of frequency bands albeit not with the same variety of configurations.
- ZTE stands out with its range of multi-band and multi-sector solutions, but they are increasingly common at all vendors.
- This category is not just about the sheer number of radios; the extent and variety of solutions mean that Huawei and Ericsson can address the needs of any operator with any spectrum assets anywhere in the world. The ability to serve niche scenarios and less common frequency bands enhances a vendor's competitiveness; it translates into winning more deals and capturing a bigger share of the global market.
- However, Omdia does not suggest that other vendors should follow the same path. Developing more radios means higher R&D costs and more difficulty achieving a return on investment. Smaller vendors act rationally by not trying to develop every imaginable solution; targeting niche markets will not make economic sense for all.
- This year, new innovative configurations are introduced, such as Ericsson's 4T8R triple-band FDD radio or Huawei's 4T4R hepta-band RRU.

# Massive MIMO portfolio breadth, competitiveness and power consumption

- **Portfolio breadth**

- The industry considers massive MIMO the flagship segment of the radio portfolio. Most vendors have multiple massive MIMO products, but Ericsson and Huawei have more than others, with over 100 unique products each. Comba has no mMIMO active antenna unit (AAU) product but designs the antenna element used in mMIMO.

- **Weight**

- Omdia benchmarks products on weight and power consumption at comparable configurations. For this benchmark, Omdia selected 10 different massive MIMO products that are the most relevant for a fair comparison. Products benchmarked are active antenna units in various transceiver-receiver (32TR, 64TR), power, and band configurations. Products compared should have the same number of antenna elements and bandwidth supported, with a few minor differences between vendors in some cases. Not all vendors have all the configurations considered in the benchmark, and challengers are assessed based on their available portfolio.
- Weight comparisons come with some caveats, but weight is more than just a marketing claim. While a few hundred grams difference between two vendors' antennas with comparable specifications may not matter much, a difference of several kilograms indicates that the vendor offering the lighter product generally uses more advanced chipsets and components and can claim superiority in product design and, most likely, performance. Also, some operators rent tower space by weight; therefore, lighter products directly affect their tower rental costs. No single vendor consistently has the lightest active antennas in the industry; it depends on the configuration.

- **Power consumption**

- Using the same selection of products, Omdia compared power consumption based on vendor data for both maximum and typical power consumption as defined by the ETSI 202 706 standard. Although many factors influence radio power consumption and comparisons are imperfect, this is a key consideration for operators that cannot be ignored. Significant differences were observed, particularly between leaders and challengers.

- **Conclusion**

- For combined mMIMO categories, including portfolio breadth, weight, and power consumption, Ericsson was leading ahead of Huawei, ZTE, Nokia, and Samsung.

## mmWave portfolio and frequency bands supported

- Vendors should not neglect mmWave even though it makes up a relatively small segment of the 5G market, especially if they operate in countries where the mmWave spectrum has been or is about to be allocated. As mentioned previously, operators value a vendor's ability to serve niche scenarios in their vendor selection process.
- At the moment, the US and Japan are the two main destinations for mmWave product shipments, but other countries such as Australia, Italy, South Korea, Singapore, and Thailand have started to deploy mmWave, and the list is growing over time.
- The weighting for the mmWave category is relatively small. Omdia considers both portfolio breadth and frequency bands supported.
- Ericsson and Samsung Electronics have traditionally been the market leaders in this segment, followed closely by Nokia.
- Chinese vendors, especially Huawei, have significantly improved their mmWave portfolio in recent years and are now ready for when the mmWave will be allocated in their domestic market.
- Among the challengers, Airspan is recognized for its expertise in this market segment.

## Open RAN support

- Open RAN support has been factored into scoring since 2022; it refers to compliance with the O-RAN Alliance's open fronthaul specifications.
- Despite a relatively limited take-up, operators continue to show an appetite for open RAN. When selecting suppliers, they will generally value the possibility of mixing and matching their vendors more easily.
- Omdia forecasts that the open vRAN market will represent almost 20% of total RAN spending by 2028, which means vendors rejecting the concept will bar themselves from a substantial portion of the total addressable market.
- One of the major differences this year compared with last year is that Ericsson has committed to supporting open interfaces and open RAN architecture in general. The vendor said that 1 million of its radios already deployed worldwide are hardware-prepared for open RAN fronthaul.
- The total number of radios that vendors claim to be O-RAN compliant has considerably increased in the past year. The number is now over 250 compared with approximately 150 in last year's edition.
- Samsung, Nokia, NEC, and Mavenir have the widest portfolio of O-RAN-compliant radios. Fujitsu's radio portfolio is less extensive but fully O-RAN compliant.

# Baseband portfolio

- While breadth is very important for the radio portfolio, it is somewhat less relevant for the baseband portfolio. Indeed, although some vendors have more products (Ericsson, Samsung), others have a modular platform approach (Huawei, Nokia). Both approaches have their pros and cons. Some operators may prefer one approach to the other, but it is difficult to generalize at a global market level, so breadth is not one of the criteria here.
- The baseband portfolio basics category considers the support (or lack thereof) of all radio access technologies (from 2G to 5G) and the range of options available, including dedicated solutions for outdoor deployments.
- In portfolio basics, five vendors obtained the maximum score; there is no differentiation between them in that category. Other vendors scored lower on the basics because they did not support all radio access technologies or offer the same range of options.
- As for open RAN, taking the vRAN portfolio into consideration is not an endorsement of the approach by Omdia but the valorization of increased choice and options given to operators.
- For the overall baseband portfolio, Ericsson leads with a 35/40 score, followed by Nokia (34/40) and Huawei (33/40).
- It is noticeable that all leading vendors have introduced new baseband units (BBUs) since last year.

## Summary of categories, score weight, and top three vendors per category

Categories	Score weight	#1	#2	#3
Baseband portfolio basics	5	More than five vendors with maximum score		
Combined capacity metrics	20	Huawei	ZTE	Ericsson
Combined power consumption metrics	10	Ericsson	Huawei	Nokia
vRAN portfolio	5	More than five vendors with maximum score		
<b>Total baseband portfolio</b>	<b>40</b>	<b>Ericsson 35/40</b>	<b>Nokia 34/40</b>	<b>Huawei 33/40</b>

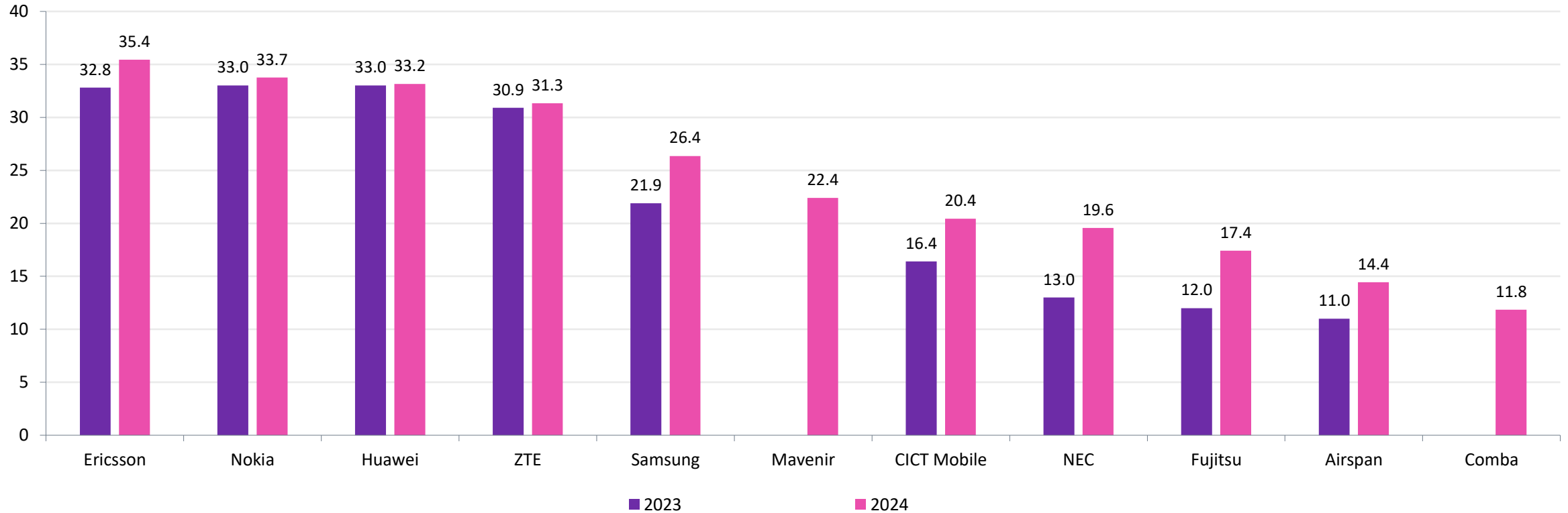
Source: Omdia

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# Baseband portfolio scores, 2023 and 2024

Baseband portfolio overall scores (maximum 40 points)



Notes: Scores are relative. If a vendor has a lower score than in the previous edition, it does not mean that this vendor's portfolio is weaker in 2023 than in 2022 but that the status of each vendor relative to the others has changed.

Source: Omdia

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# Baseband categories

- **Baseband capacity**

- Omdia compares the capacity of flagship baseband products by measuring both the number of LTE and 5G NR cells and the number of LTE and 5G NR users that can be supported at an equivalent volume of equipment. Equal weight is given to both technologies (LTE and 5G NR). However, instead of giving cell and user capacity the same importance as in previous reports, cell capacity is now weighted higher.
- Assessing capacity, even at a comparable footprint, has its limits. The capacity offered by each vendor's flagship product is more than enough to cover the demand at a vast majority of sites. Deployed capacity should be adjusted to each site's needs and scaled up if and when needed.
- This is why some vendors are prioritizing total cost of ownership (TCO) optimization (rather than maximizing capacity) and offering lower capacity but smaller footprints and more energy-efficient baseband solutions. This is taken into consideration by comparing not just high-capacity baseband units but also standard-capacity products.
- Another difficulty is comparing purpose-built baseband unit capacity with vRAN solutions capacity. For vRAN solutions, capacity depends on the commercial off-the-shelf (COTS) server configuration, which varies between partners and hardware configurations. This comparison was easier to make in 2024 than in 2023 because more vRAN solutions capacity and power consumption data points are now available to Omdia.

- **Power consumption and efficiency**

- Power consumption and efficiency are difficult to compare based only on theoretical product specifications and owing to various factors. Nonetheless, Omdia believes that it is useful to consider all the available (even imperfect) data because this topic is a growing priority.
- Even if the level of detail varies, Omdia recognizes and appreciates the efforts of most vendors that provide information about the power consumption of their products and the increasing level of detail available year after year. It is also encouraging to see that all vendors now recognize the importance of this topic and are considering power efficiency a priority and a source of potential differentiation.
- For this metric, Omdia compares the power consumption of flagship high- and standard-capacity baseband products normalized per cell. Similar to the approach adopted in the radio section, both typical and maximum power consumption are now being used.
- Even if the methodology and measurements vary between vendors, the differences are significant enough to identify leaders and the differences between products. In this category, Ericsson is slightly ahead of Huawei, Nokia, and ZTE.

- **vRAN support**

- The score depends on the vendors' offerings, including virtualized central unit (vCU) and virtualized distributed unit (vDU) software that can run on a third-party server or cloud infrastructure.
- Five vendors obtained the maximum score.

# Partner ecosystem

## Why the new category?

- Omdia introduced this new category in 2024 to reflect the growing importance of RAN vendors' assembling and fostering an ecosystem of technology partners.
- There are several reasons why having a strong partner ecosystem is key to vendor competitiveness:
  - Expansion of offerings: Partnerships enable a vendor to expand their offerings with complementary solutions. Typically, a software specialist can work with a hardware specialist, a radio specialist can work with a baseband specialist, and so on. This also applies to services and support, which is why partnerships with system integrators and test companies are also considered in this category.
  - Innovation: Even if leading vendors have sufficient resources to invest heavily in their own R&D, there is no single company that can alone do everything that the industry can do collectively. Partnerships enable the combination of resources and expertise from various parties.
  - Operators are asking for it: While some operators are still happy to buy most of their RAN from a single vendor, there is a clear movement toward supply chain diversification. This is often associated with open RAN, but supply chain diversification can also take other forms.
  - Risk management: By diversifying its partners, a vendor can reduce its dependence on any single partner/supplier and mitigate risks associated with changes in technology, market conditions, or regulations.

## Assessment

- For this category, Omdia considers partnerships in the following areas: radio units, CU/DU software, servers and cloud infrastructure, semiconductors, systems integration, test and measurement and SMO, RIC, and x/rApps. A company can have its own solution in a given category and still have one or several partners for that same category.
- Omdia considers the variety of partnerships (zero, one, or several partners in each area) and the nature of these partnerships. For example, when two vendors have completed interoperability between their solutions or are jointly deployed in a live commercial network, this is regarded higher than signing a memorandum of understanding (MOU) or announcing a partnership between two vendors without any concrete activities. Naturally, today's MOUs can become tomorrow's live deployments; therefore, they are not disregarded, just not given the same weighting.
- While vendors involved in open RAN tend to have a higher number of partners, other vendors also have their own partners and scores in this metric. In this category, Mavenir emerged as the leader, followed by Samsung, Fujitsu, and Nokia.

	Tier 1 group (4–5 points)	Tier 2 group (2–4 points)	Tier 3 group (1–2 points)
Vendors	Mavenir, Nokia, Samsung, Fujitsu	Airspan, Comba, Ericsson, NEC	CICT Mobile, Huawei, ZTE

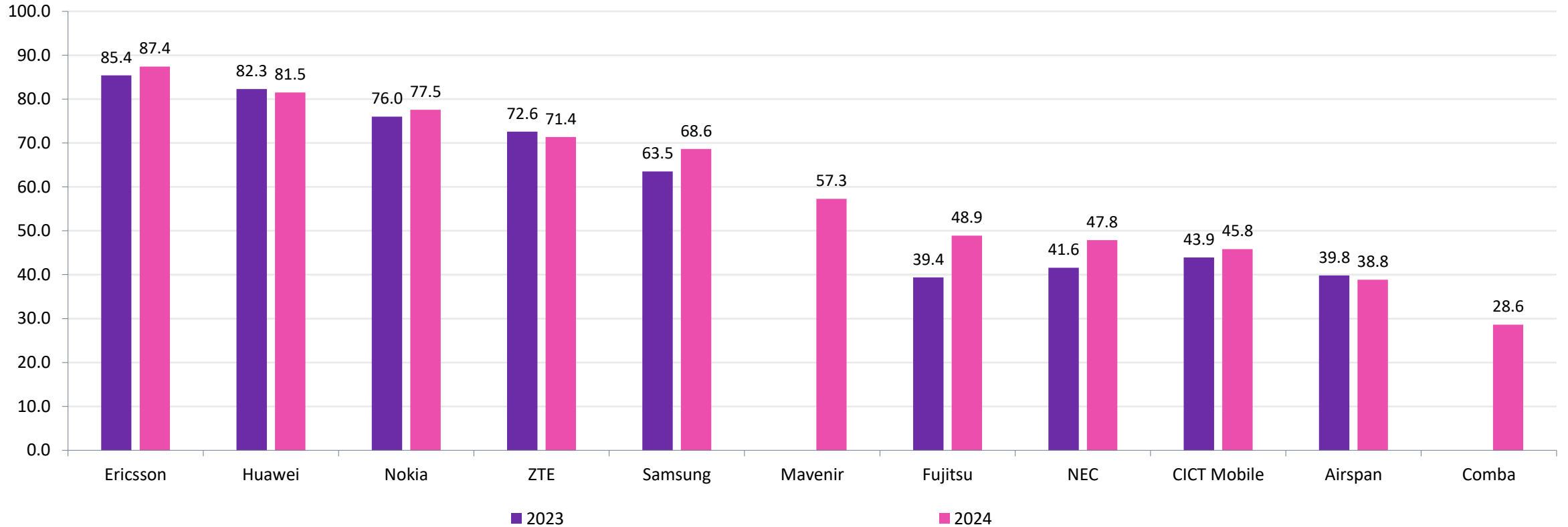
Source: Omdia

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# Conclusion

# Total portfolio scores, 2023 and 2024

Total portfolio scores (maximum 100 points): Sum of radio, baseband, and partner ecosystem scores



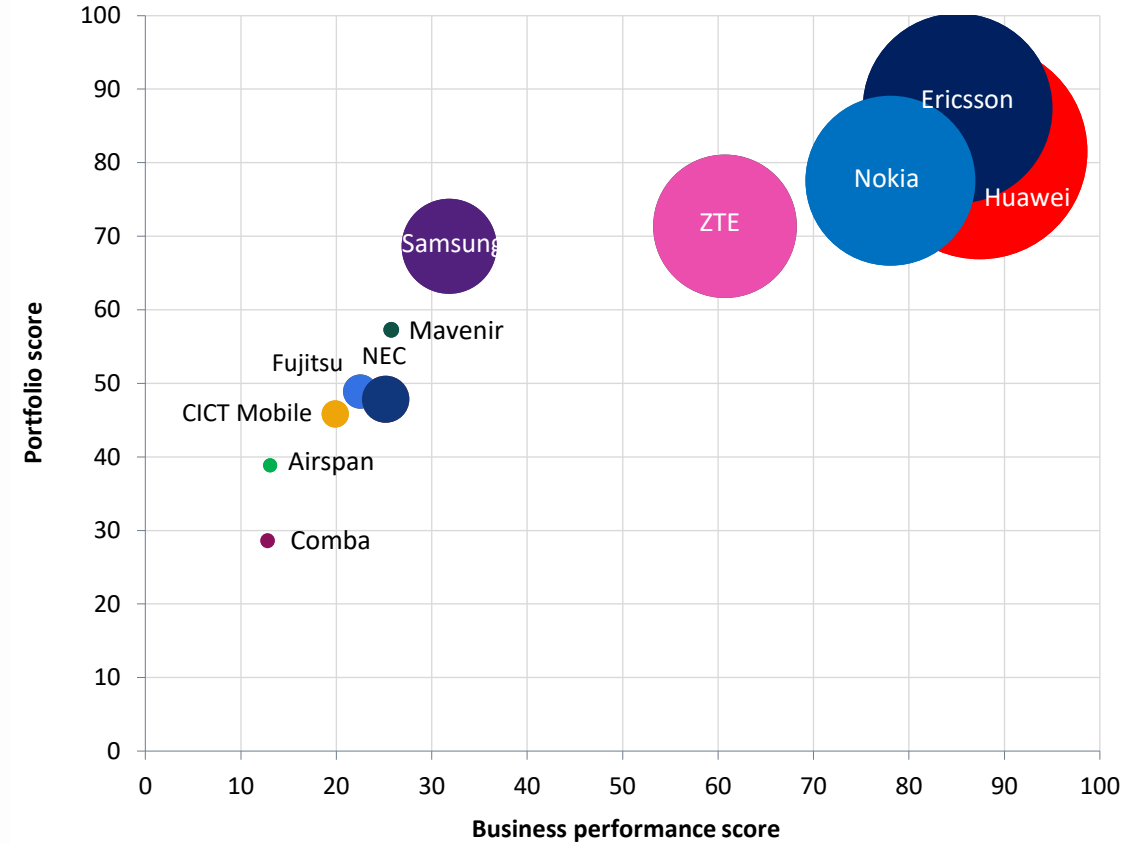
Notes: Scores are relative. If a vendor has a lower score than in the previous edition, it does not mean that this vendor's portfolio is weaker in 2023 than in 2022 but that the status of each vendor relative to the others has changed.

Source: Omdia

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# Conclusion

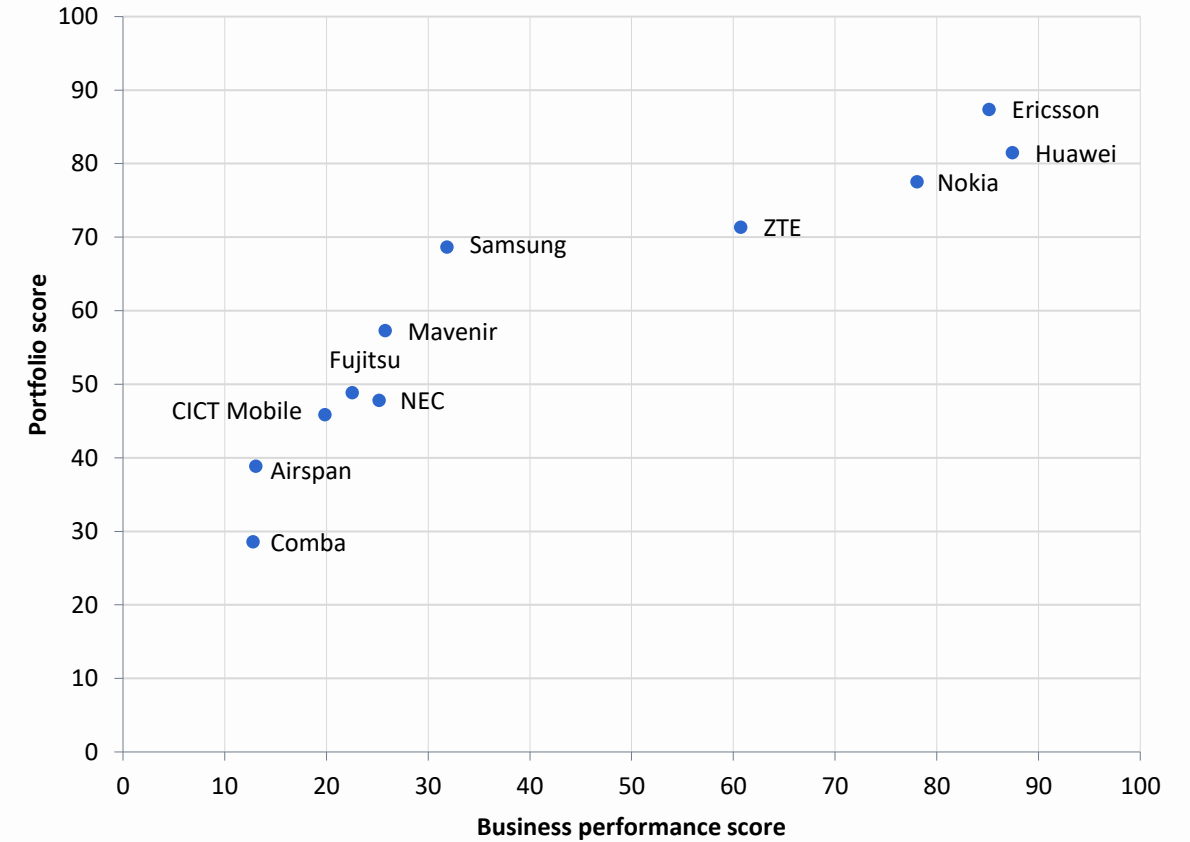
Overall RAN vendor positioning



Notes: Size of the bubble corresponds to the 2023 RAN revenue for each vendor.  
Source: Omdia

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Overall RAN vendor positioning (with same-sized bubbles)



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# Appendix

# Appendix

## Further reading

[Open vRAN and vRAN Market Tracker – 1H24 Data](#) (April 2024)

[RAN Market Tracker – 4Q23 and FY23 Data](#) (February 2024)

## Author

Rémy Pascal, Senior Research Manager, Mobile Infrastructure

[askananalyst@omdia.com](mailto:askananalyst@omdia.com)

## Omdia Consulting

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## Get in touch

Americas

[customersuccess@omdia.com](mailto:customersuccess@omdia.com)

08:00 – 18:00 GMT -5

Europe, Middle East & Africa

[customersuccess@omdia.com](mailto:customersuccess@omdia.com)

8:00 – 18:00 GMT

Asia Pacific

[customersuccess@omdia.com](mailto:customersuccess@omdia.com)

08:00 – 18:00 GMT + 8