State of Wi-Fi

2018 Report

State of Wi-Fi

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Executive Summary

In recent years, the demands on Wi-Fi networks have increased exponentially as Wi-Fi becomes the de-facto carrier for Cloud, IoT, video, and cellular data offloading. But are wireless networks coping with these increasing pressures? And how do organisations go about wireless design, troubleshooting and optimisation?

The State of Wi-Fi Survey, conducted in April 2018 by Open Reality and Ekahau, was developed to examine the day-to-day challenges of maintaining and optimising a Wi-Fi network, as well as the trends and technologies that will shape wireless network management moving forward.

Our results were compiled from online survey responses of 175 respondents, including network engineers, IT managers, and wireless consultants from around the world. See the Research Methodology section at the end of this report for more information.

Key Statistics

The importance of Wi-Fi design, optimisation and troubleshooting in maintaining a reliable wireless network

We surveyed 175 organisations across the world and here is what we found:

98% conduct surveys before and after installation

81% always or mostly before installations

76% always or mostly after installations

91% use Spectrum Analysis; **64%** all or most of the time

Top predicted trends of 2018

- Internet of Things (IoT)
- Cloud Managed Wi-Fi
- Dual 5GHz Radios

Almost half spend <100 hours maintaining Wi-Fi each year

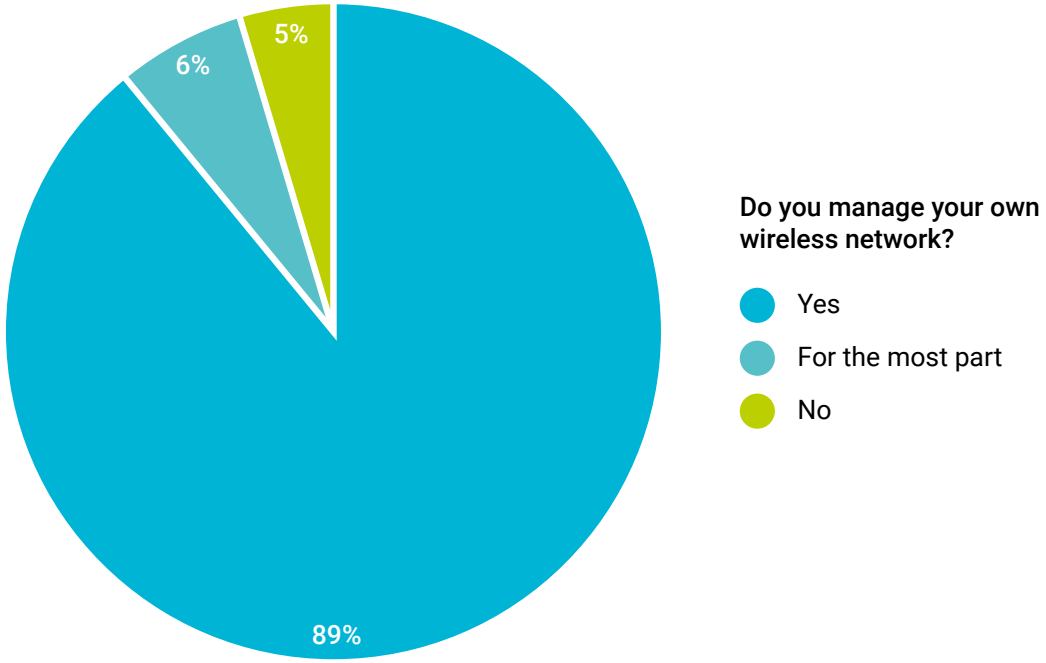
Over half check Wi-Fi network status several times a day

Most commonly encountered Wi-Fi issues

- Interference
- Coverage
- Drop-Outs

Wireless Network Management Ownership

The vast majority of organisations we surveyed manage their own wireless network.When looking at the survey results that follow, these are the people that are, for the most part, managing their Wi-Fi networks on a daily basis. Their responses reflect their own behaviours and routines, instead of a third-party view.



	Yes	For the most part	No
Healthcare	100%	0%	0%
Systems integrator / MSP	94%	2%	4%
Education	93%	7%	0%
Telecom operator	92%	0%	8%
Hospitality	86%	14%	0%
Other	81%	9%	9%
Government	80%	20%	0%

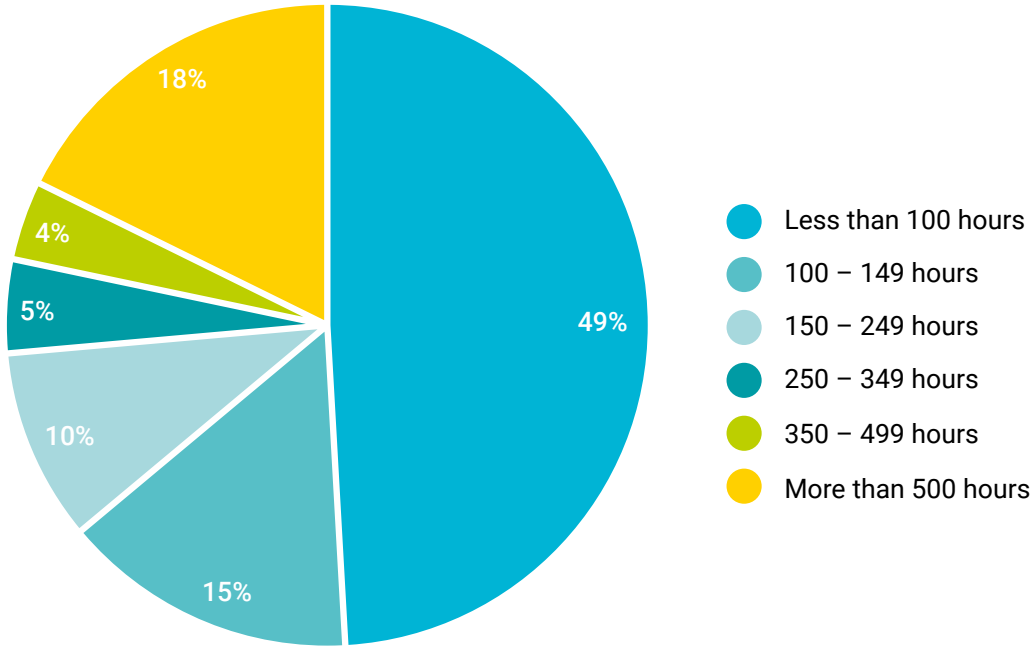
Time Spent Maintaining the Wi-Fi Network

Almost half (49%) of the respondents spend less than 100 hours maintaining their Wi-Fi networks each year.

Interestingly, the Hospitality sector spends the most time maintaining Wi-Fi, possibly due to the nature of the sector. There are multiple sites to manage and Wi-Fi is a key source of income, so making sure it works properly is a key priority.

Education also spends a good amount of time (51% spending more than 350 hours) maintaining their Wi-Fi networks. Again, this is most likely due to the nature of the sector. With hundreds, or even thousands, of classrooms and students, it is extremely important to keep the Wi-Fi running smoothly.

The vast majority of System Integrators and MSP's spend less than 100 hours on their Wi-Fi each year, we assume because their Wi-Fi runs perfectly most of the time!

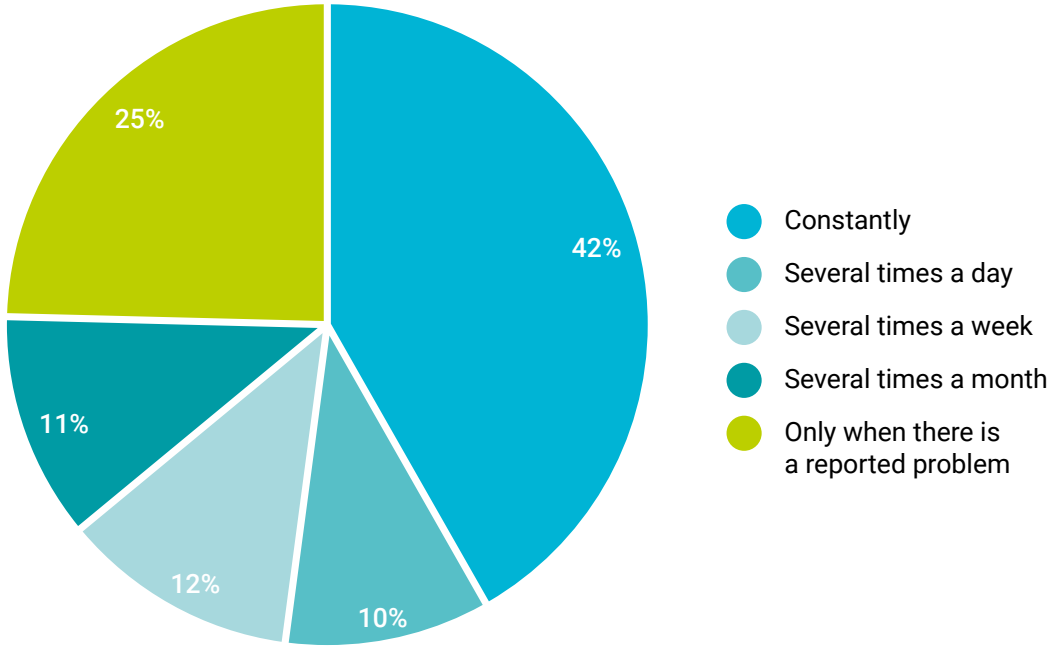


	Less than 100 hours	100 – 149 hours	150 – 249 hours	250 – 349 hours	350 – 499 hours	More than 500 hours
Hospitality	0%	29%	0%	14%	0%	57%
Education	21%	14%	10%	3%	10%	41%
Government	30%	20%	20%	10%	0%	20%
Other	55%	9%	8%	6%	6%	17%
Healthcare	46%	31%	8%	8%	0%	8%
Telecom operator	38%	46%	8%	0%	0%	8%
Systems integrator / MSP	74%	6%	12%	2%	2%	4%

Frequency of Wireless Network Status Checks

On average, over 50% of organisations check the Wi-Fi network status at least several times a day which shows how critical Wi-Fi has become to every day operations.

The Educational and Hospitality sectors complete status checks more often than any other with 79% and 71%, respectively, checking it at least several times a day. These two verticals also spend some of the most time managing their Wi-Fi networks.



	Constantly	Several times a day	Several times a week	Several times a month	Only when there is a reported problem
Government	60%	30%	10%	0%	0%
Education	48%	31%	10%	3%	7%
Other	47%	4%	15%	15%	19%
Telecom operator	46%	0%	23%	8%	23%
Hospitality	43%	29%	14%	0%	14%
Healthcare	38%	0%	8%	0%	54%
Systems integrator / MSP	28%	4%	8%	20%	40%

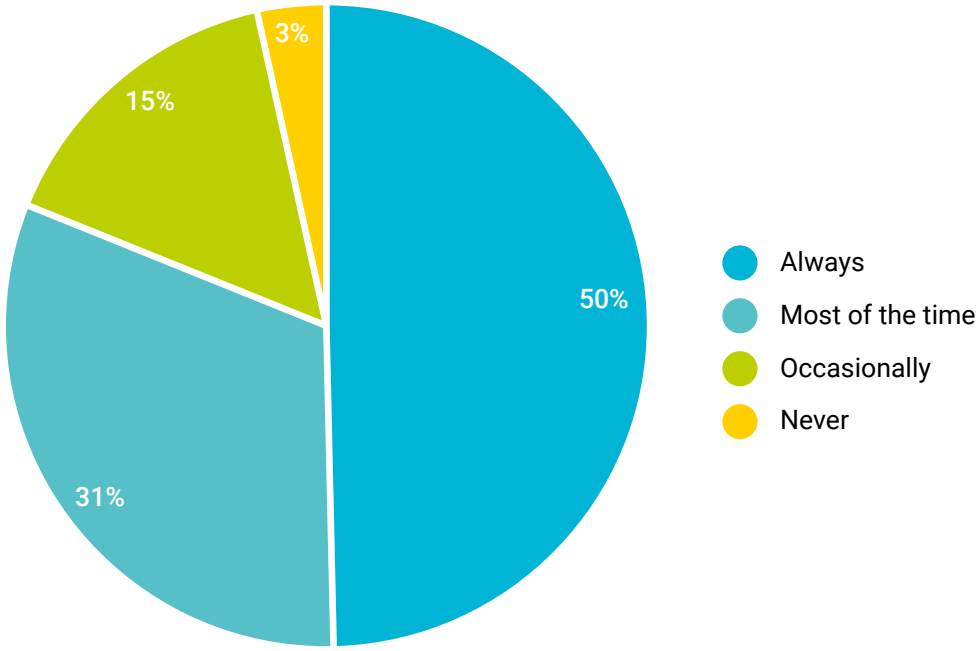
Prevalence of Wireless Site Surveys

Wireless Site Surveys are important both before and after installation. Surveying before installation means you know if your design is going to work. Surveying after validates that the design works in the real world, and if it doesn't you can make adjustments before signing the project off.

The good news is that over three quarters of organisations regularly perform a wireless site survey before installation, with slightly fewer organisations doing a post installation survey. In looking at these two data points together, a third of organizations (34%) that always do a survey before installation also always conduct a survey after installation.

There is a very small percentage (3%) of organisations that never do wireless site surveys, either before or after installation.

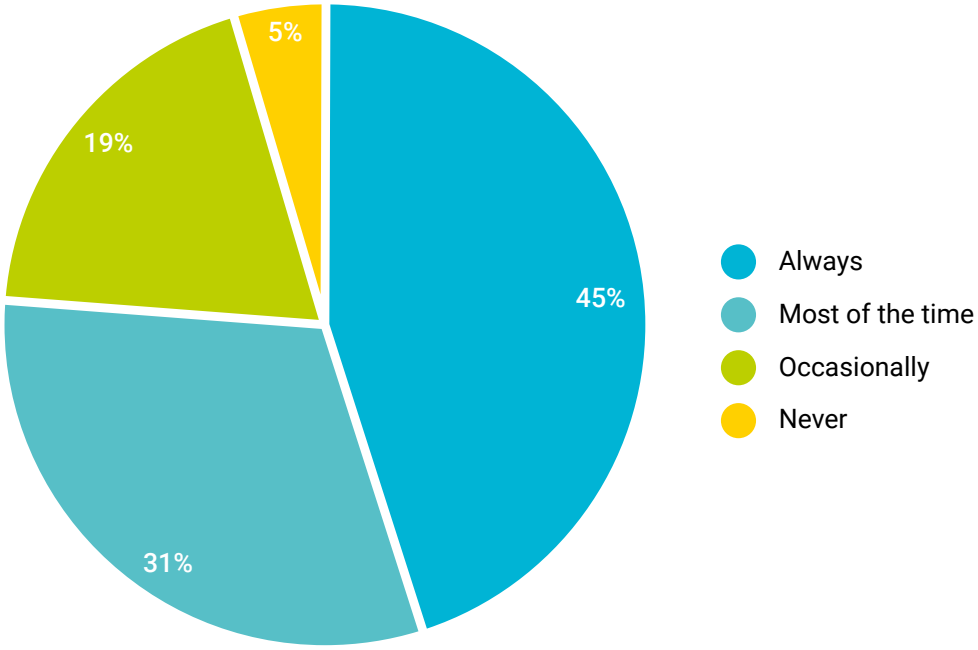
Before Installation



	Always	Most of the time	Occasionally	Never
Education	48%	31%	14%	7%
Government	40%	30%	30%	0%
Healthcare	31%	46%	15%	8%
Hospitality	71%	14%	14%	0%
Systems integrator / MSP	62%	26%	12%	0%
Telecom operator	31%	46%	15%	8%
Other	46%	32%	17%	4%

Prevalence of Wireless Site Surveys

After Installation



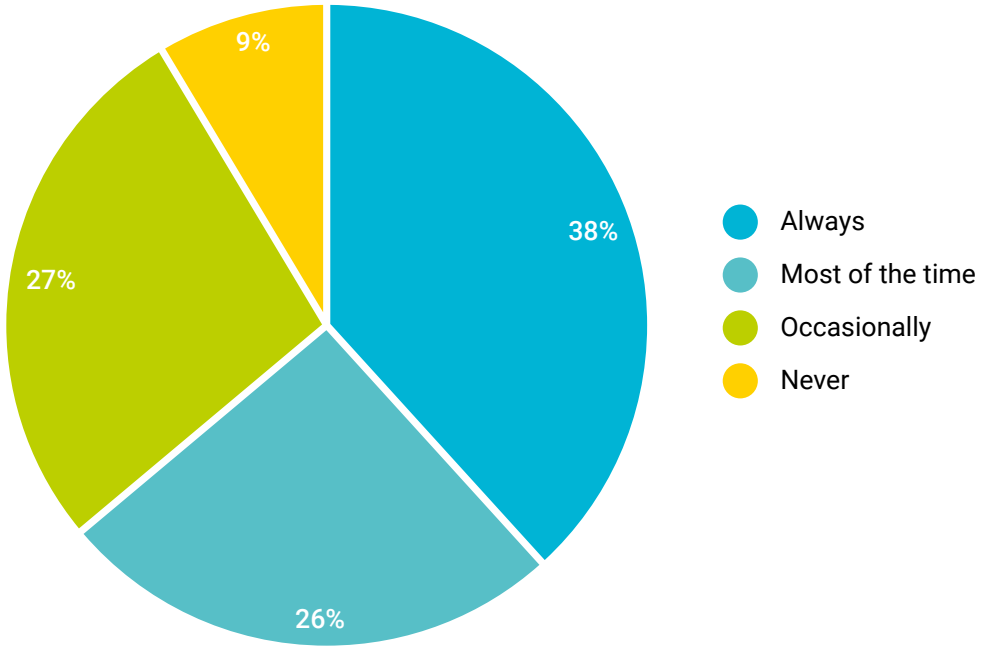
	Always	Most of the time	Occasionally	Never
Education	48%	24%	21%	7%
Government	20%	50%	30%	0%
Healthcare	15%	38%	31%	15%
Hospitality	57%	43%	0%	0%
Systems integrator / MSP	48%	34%	18%	0%
Telecom operator	31%	38%	15%	15%
Other	55%	23%	19%	4%

Use of Spectrum Analysis

Co-Channel Interference (CCI) and interference from non-Wi-Fi sources are primary contributors to degraded Wi-Fi performance and reliability, causing flaky connections, dropped VoIP calls, and grumpy users. Spectrum Analysis tools provide an insight as to where this interference is, so that issues can be identified and resolved effectively.

These tools are clearly valued. An overwhelming majority (91%) of organisations use Spectrum Analysis at least occasionally, with 64% using it most of the time or always.

Whilst interference is becoming increasingly prevalent due to the proliferation of wireless devices, a surprisingly high number (9%) of organisations never use Spectrum Analysis. Healthcare is the worst offender where almost a third (31%) of organisations never use spectrum analysis, despite 85% of them conducting post installation surveys.



	Always	Most of the time	Occasionally	Never
Hospitality	57%	14%	29%	0%
Other	45%	21%	23%	11%
Government	40%	40%	10%	10%
Telecom operator	38%	31%	15%	15%
Systems integrator / MSP	36%	34%	28%	2%
Education	31%	28%	38%	3%
Healthcare	23%	0%	46%	31%

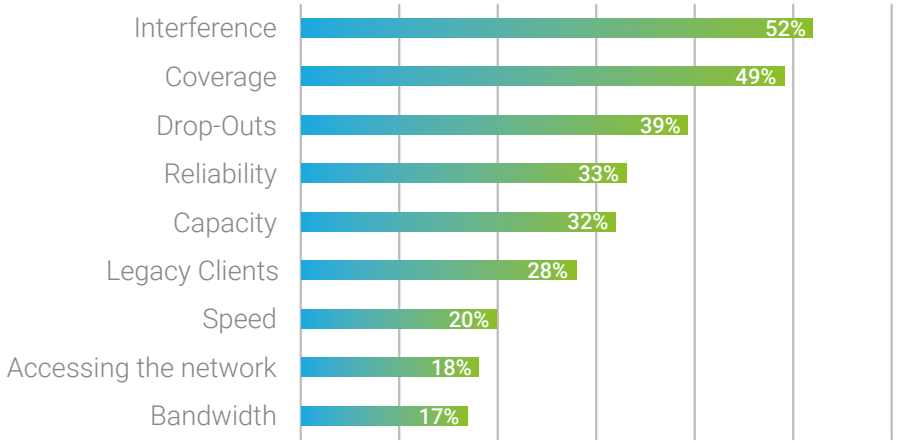
Most Commonly Encountered Wi-Fi Issues

Interference comes in many different forms, most commonly caused by the Access Points of the network, or of neighbouring networks. Co-Channel Interference (CCI) occurs when Access Points are not installed in optimal locations or Wi-Fi radios aren't configured correctly, resulting in overlapping channels and adding additional contention to the medium.
In addition, there are many other forms of non-Wi-Fi interference as well, such as microwave ovens, weather radar, video/audio transmitters, Bluetooth, etc.

Coverage issues are typically the result of poor planning or because the network requirements have changed. For example, the network may have originally been designed for laptops using 2.4 GHz, however today it is supporting smaller and lesser capable mobile devices using 5 GHz.

Drop-Outs can be the result of coverage or interference issues. More commonly though they are caused by client device limitations or driver issues.

Hospitality was the only vertical to rank Speed in their top 3 problem areas, potentially because guests have high expectations of the Wi-Fi speed and complain when they are not met.



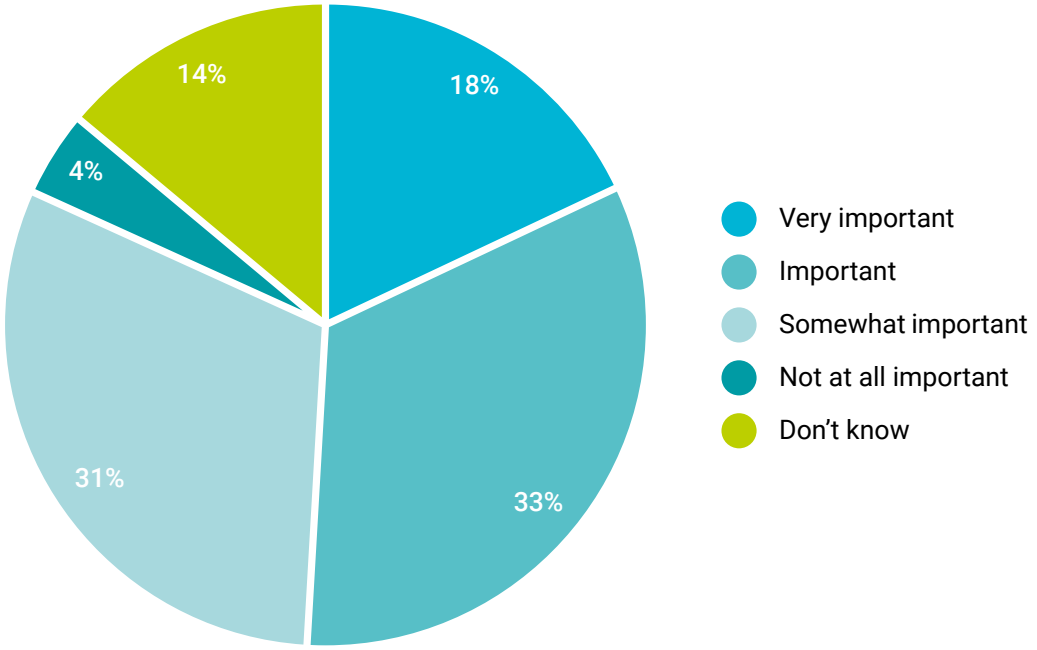
	Interfer-ence	Coverage	Drop-Outs	Reliability	Capacity	Legacy Clients	Speed	Network Access	Bandwidth
Education	17%	21%	8%	7%	18%	13%	1%	6%	8%
Government	7%	21%	7%	21%	25%	11%	0%	4%	4%
Healthcare	13%	26%	15%	15%	3%	10%	8%	8%	3%
Hospitality	10%	20%	20%	10%	10%	0%	20%	5%	5%
Systems integrator / MSP	21%	14%	14%	12%	10%	8%	9%	5%	7%
Telecom operator	24%	26%	11%	11%	11%	3%	5%	3%	8%
Other	19%	11%	17%	11%	8%	13%	8%	9%	5%

Future Trends

Importance of third party Wi-Fi performance monitoring tools in 2018

Over 50% of respondents think that third party Wi-Fi performance monitoring tools are important or very important this year, with only 4% saying they are not important at all.Wi-Fi is no longer a nice to have commodity, it is now a critical medium that businesses rely on daily to run their business. If the Wi-Fi goes down that directly impacts their bottom line, which is driving the need for monitoring solutions to ensure the Wi-Fi is operating at its peak performance.

With Hospitality ranking top for the number of hours spent managing Wi-Fi each year, it follows that 71% of respondents in the sector believe that monitoring tools will become important in 2018. Proactive performance monitoring tools could provide them with much needed intelligence so that they can more efficiently troubleshoot Wi-Fi issues.



	Very important	Important	Somewhat important	Not at all important	Don't know
Hospitality	43%	29%	14%	14%	0%
Other	24%	29%	25%	0%	22%
Government	20%	40%	30%	0%	10%
Education	17%	38%	34%	3%	7%
Telecom Operator	15%	23%	46%	8%	8%
Systems integrator / MSP	15%	33%	35%	6%	10%
Healthcare	0%	38%	23%	8%	31%

Future Technologies

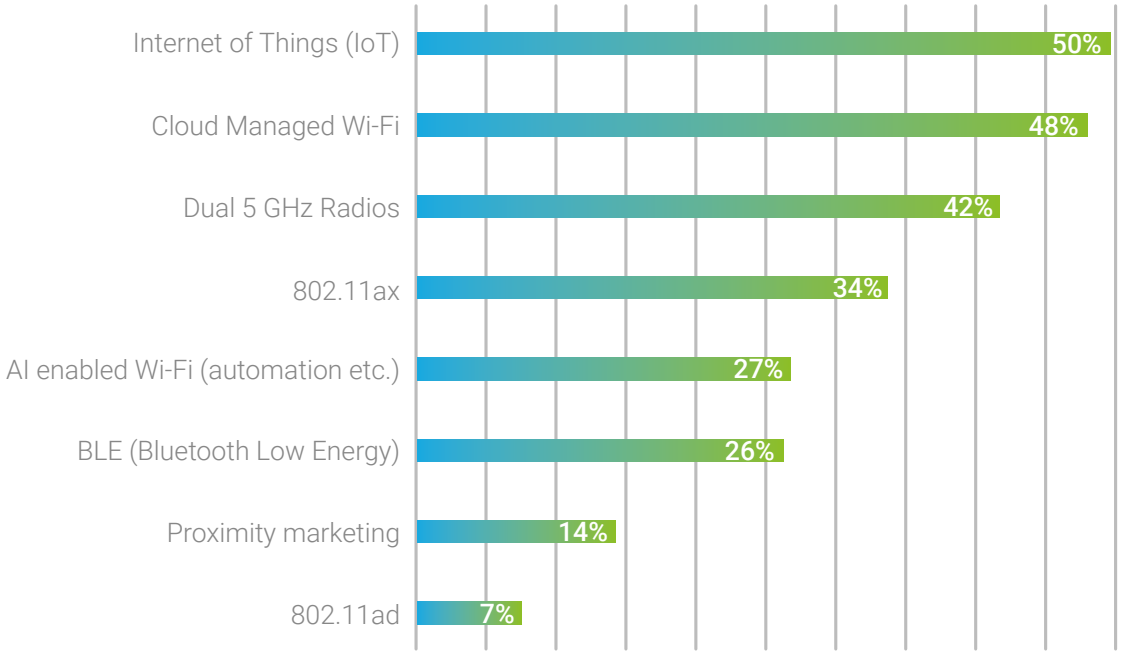
Technologies predicted to take off in 2018

Respondents predicted that the three biggest trends of 2018 will be the Internet of Things (IoT), Cloud Managed Wi-Fi, and Dual 5GHz Radios.

Each of these trends has a direct impact on the others.

The growth of IoT (Wi-Fi connected devices) is in turn driving the need for additional capacity in the network. Companies often do this by using dual 5 GHz capable Access Points, as both radios are on the 5 GHz band where there are more Wi-Fi channels available in the spectrum.

Cloud Managed Wi-Fi enables the ability to manage and monitor a Wi-Fi network from anywhere in the world without the need for expensive and complex on-premise wireless controllers.

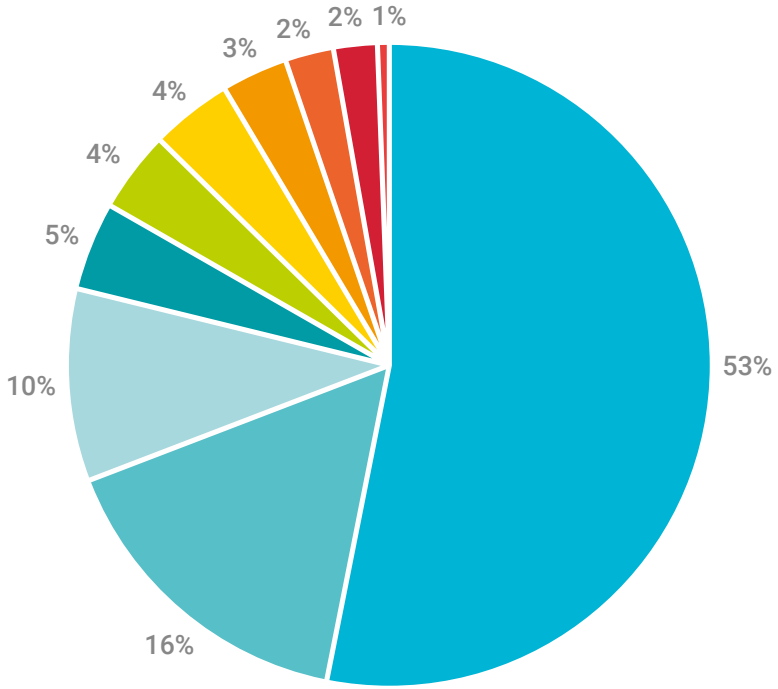


	IoT	Cloud Managed Wi-Fi	Dual 5 GHz Radios	802.11ax	AI enabled Wi-Fi	BLE	Proximity marketing	802.11ad
Other	21%	22%	12%	13%	14%	10%	5%	2%
Systems integrator / MSP	17%	20%	17%	14%	10%	12%	9%	2%
Education	23%	16%	25%	12%	10%	11%	1%	1%
Healthcare	23%	23%	13%	10%	6%	13%	6%	6%
Telecom operator	25%	14%	7%	21%	11%	14%	4%	4%
Government	20%	20%	30%	10%	5%	5%	0%	10%
Hospitality	16%	5%	26%	16%	16%	0%	11%	11%

Research Methodology

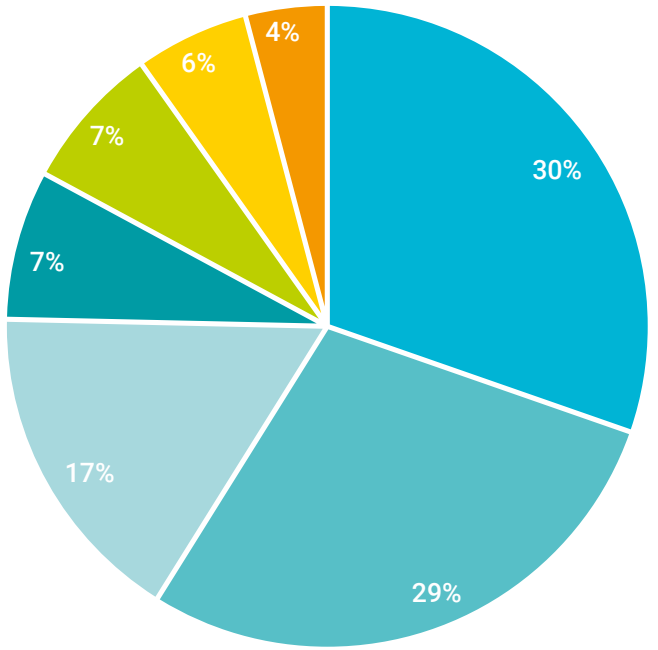
The results are compiled from 175 responses received in an online survey conducted in April 2018, which included network engineers, IT managers, and wireless consultants from around the world.

What is your role?



- Network Engineer
- Other
- IT Manager
- Network/Solutions Architect
- CEO/President
- Network Administrator
- CIO/CTO/CDO
- IT Supervisor
- Director of Network Operations
- Solutions Architect

What industry do you work in?



- Other
- Systems integrator/MSP
- Education
- Hospitality
- Healthcare
- Telecom Operator
- Government

About the Authors

About Open Reality

Founded in 1999, Open Reality is a privately owned company that specialises in network testing, monitoring and optimisation.

We have created a dedicated and focused Value Added Channel team that works hand-in-hand with our channel partners to provide first class customer service and support, making sure that every request and order is satisfied in a timely and professional manner.

Because we really understand our vendors' products, how they work, and whom they benefit, we can provide advice, feedback, and support that you won't get elsewhere. Our channel programme combined with our expertise and hard work supports our reseller partners in growing their business, services and revenue. That's why we strive to recruit, on-board, enable, and create demand for our channel partners (in partnership with the vendor) to create a win/win/win scenario.

Ultimately we believe that a strong partnership with our resellers makes a world of difference and drives exceptional customer service and bottom line sales.

www.openreality.co.uk

About Ekahau

Ekahau is the global leader in solutions for enterprise wireless network design and troubleshooting. More than 15,000 customers, including 30% of Fortune 500 companies, run their networks with Ekahau's Wi-Fi planning and measurement solutions. Our software and hardware solutions design and manage superior wireless networks by minimizing network deployment time and ensuring sufficient wireless coverage across all industries, project sizes, building infrastructures and levels of complexity. We are recognized for delivering the easiest-to-use, most reliable solutions for Wi-Fi planning, site surveys, troubleshooting and optimization. Whether a corporate office, hotel, hospital or university – if the Wi-Fi works well, it has likely been built using Ekahau's Wi-Fi Design solutions.

Ekahau is headquartered in Reston, Virginia and has much of its R&D and product related functions in Helsinki, Finland.

www.ekahau.com