

INNOVATION REPORT

Exploring how familiar mobile phone consumers are with emerging technologies and the degrees to which they use them in their lives.

The Mobile Consumer and Emerging Technologies

Intro

The Mobile Consumer and Emerging Technologies

The 21st century is nothing like we imagined. The plan was we'd be driving flying cars (or, at least, time traveling wheeled vehicles). Star Trek had us thinking we'd be eating meals prepared by food replicators. If we based our vision of this century on cinematic portrayals, we'd be very disappointed.

In reality, this century has been a fantastically innovative one. From electric cars that silently cruise the roadways to vaccines created and distributed in months rather than years, we have made tremendous advances that have changed our lives for the better. To some degree, no single advancement is more representative of the innovation we've experienced than the smartphone.

Apple didn't create the first smartphone. IBM did that in 1992. Arguably, Handspring, Nokia and others had created well-regarded smartphones before the iPhone. In launching their phone in 2007, Apple introduced the first smartphone that mattered. The iPhone was the device that figuratively launched one thousand ships.

There's an old Radio Shack ad from 1991 that features lots of cool devices available for sale. Among them were a calculator, a CB radio, stereo Walkman type device, an alarm clock and a video camcorder. Thirty years later, your smartphone performs the tasks of all of those devices and so much more. The future is in your pocket.

That the future is in our pockets lends itself to better understanding how people use smartphones and the increasing number of technologies the devices support. Each generational advance in processing power allows the phones to better accommodate tech like augmented reality (AR), virtual reality (VR), artificial intelligence (AI) and other so-called emerging technologies that have not quite achieved widespread adoption. What is the point of having the future in our pockets if we don't know how to use it, after all?

We set out in this report to gauge two ideas:

- How familiar are people with some of the emerging technologies driving technology innovation (e.g., artificial intelligence, 5G, augmented/virtual reality, etc.)
- How many people use their smartphones to perform tasks that rely on emerging technologies?

To measure these ideas, we conducted a survey on July 10-11, 2021 of 403 participants representing a cross-section of demographic profiles from across the United States through Survey Monkey's Audience platform. The results follow.



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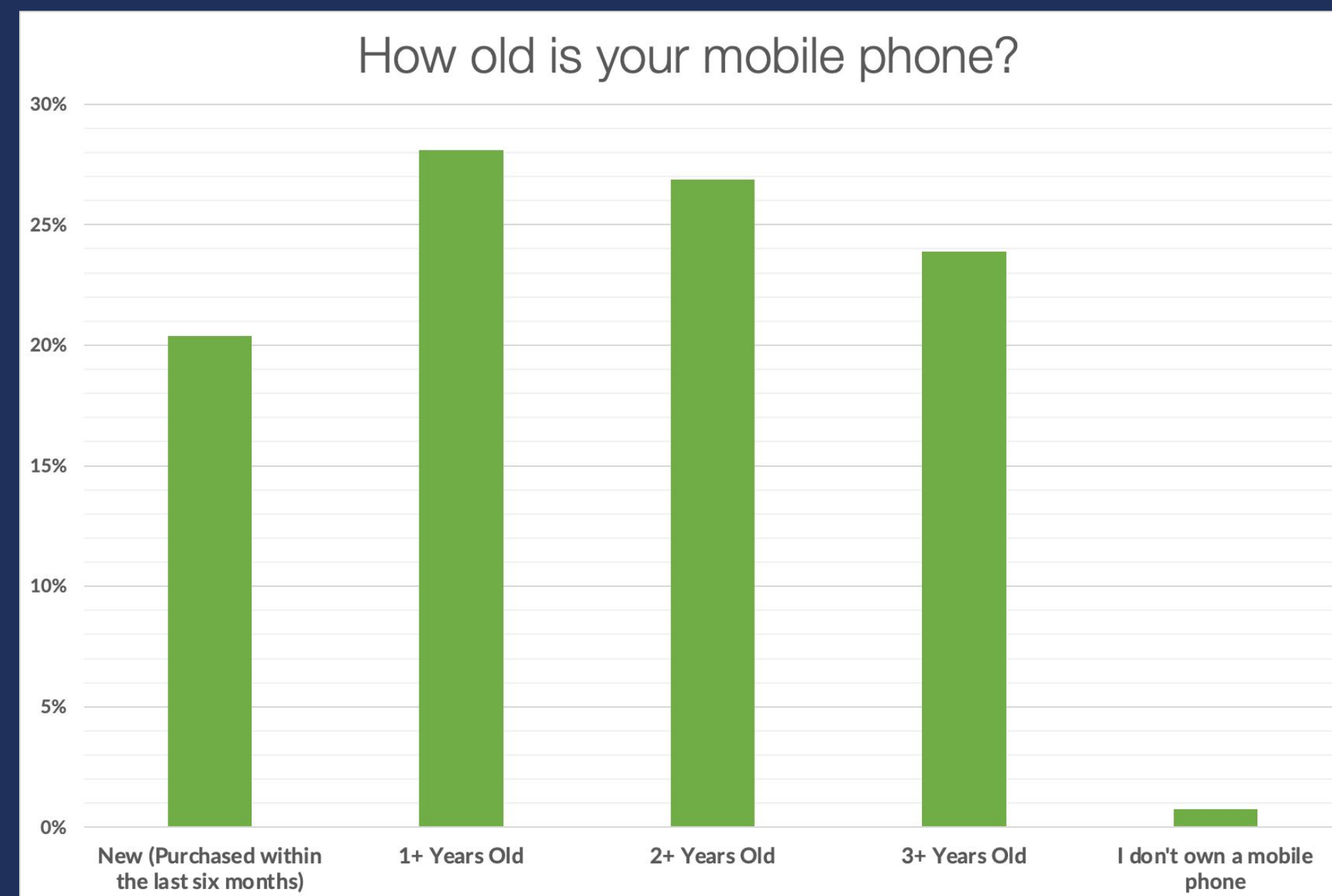
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Phone Age

How long do you hold onto a phone? If you're like most of the people who participated in this survey, your phone is at least a year old and, quite likely, more than two years old.

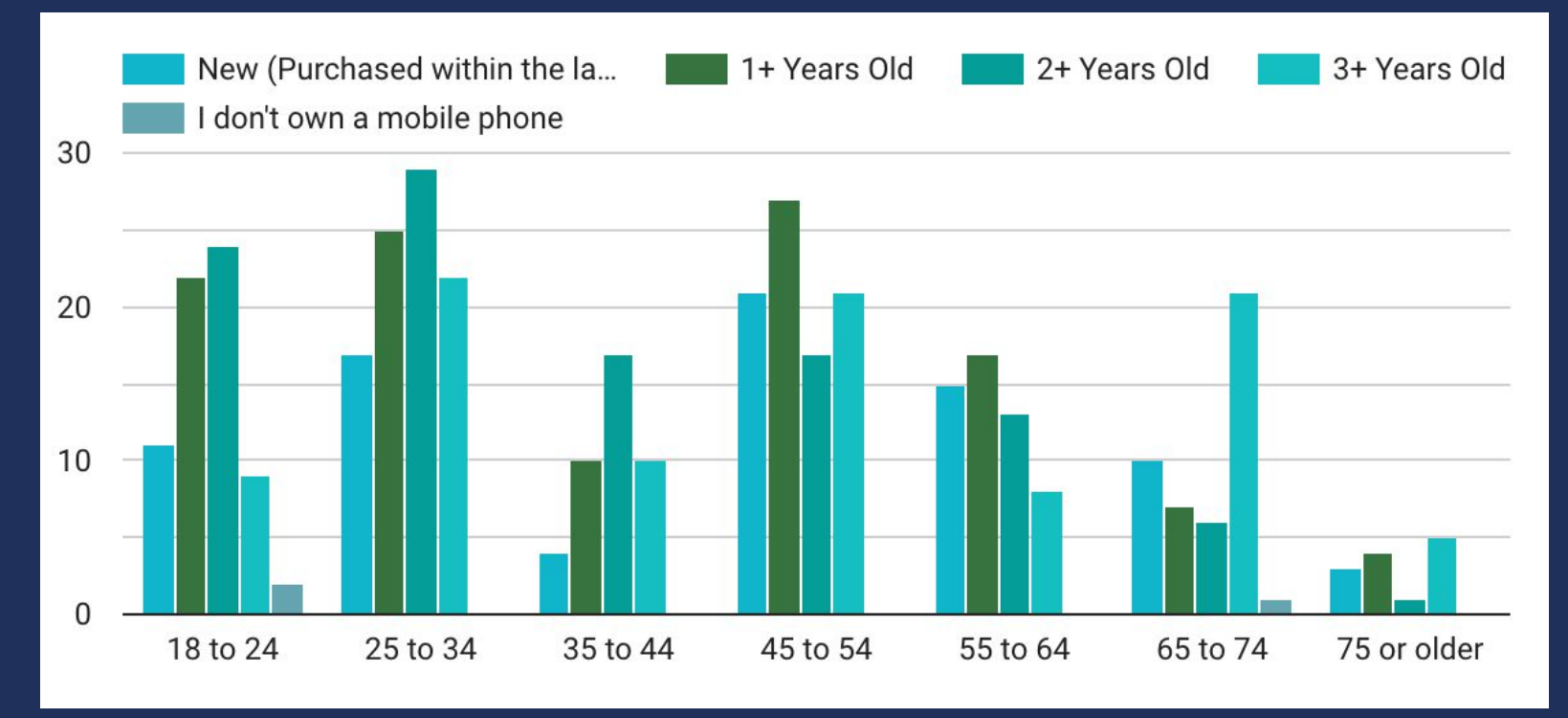


Demographic Breakdown

Each generation of mobile phone is more powerful and introduces new, more advanced features. Phone age can determine how well users can take advantage of modern customer experience and, ultimately, impact how well different groups of customers adapt to digitally integrated customer journeys.

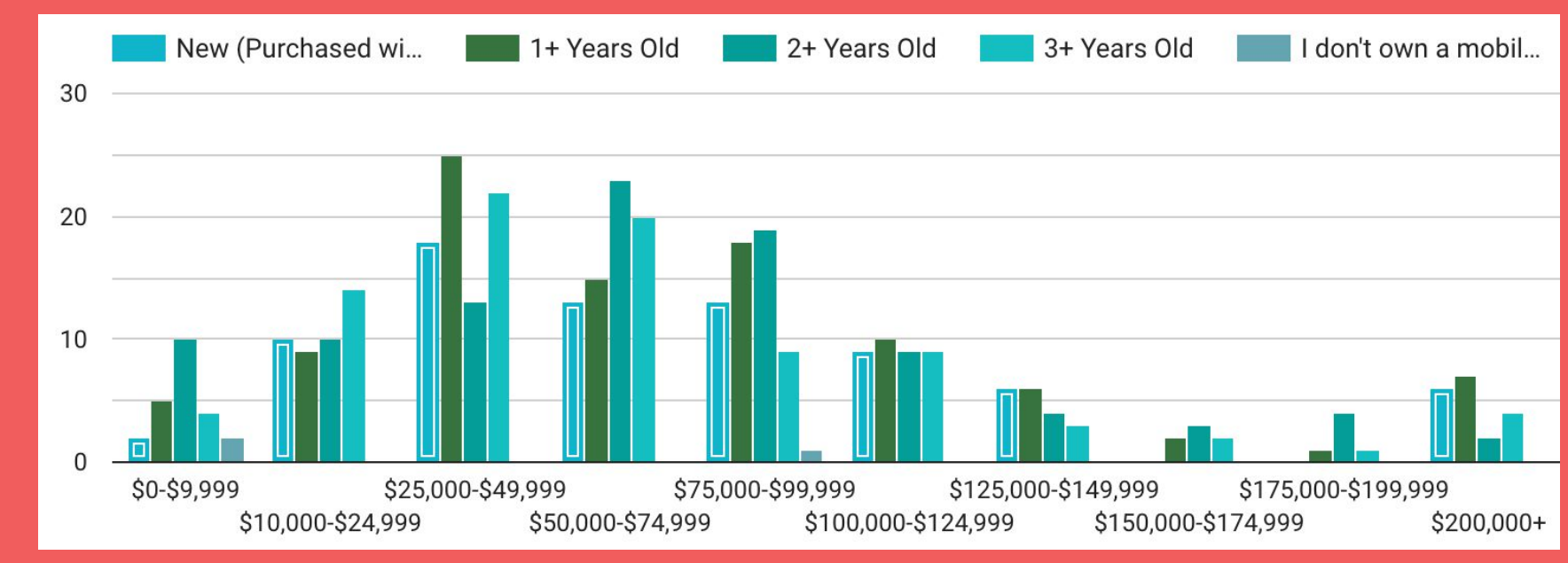
Phone Age by Age

In our study, participants from Boomer and Gen X generations were the most likely to have new phones. Most other age groups on average had phones 2+ years old. Surprisingly, this is especially true for Millennials in the 25-34 age range.



Phone Age by Income

By absolute numbers, people in the \$25-100k income range were the most likely to have devices purchased within the last year. By percentage, however, participants making \$100k+ were most likely to have a new-ish phone. Of note - Phone Ages of New and 1+ Years combined are about equal to 2+ and 3+ years combined.



The Tech

Understanding Consumer Familiarity with Emerging Tech

We started with phone age because phone age is often an indicator of a person's technical proclivity. Passionate technophiles may change phones often. Technology laggards may be satisfied with their current phones until they give out. Both of these ends of the spectrum - and everything in between - have to deal with your customer experience.

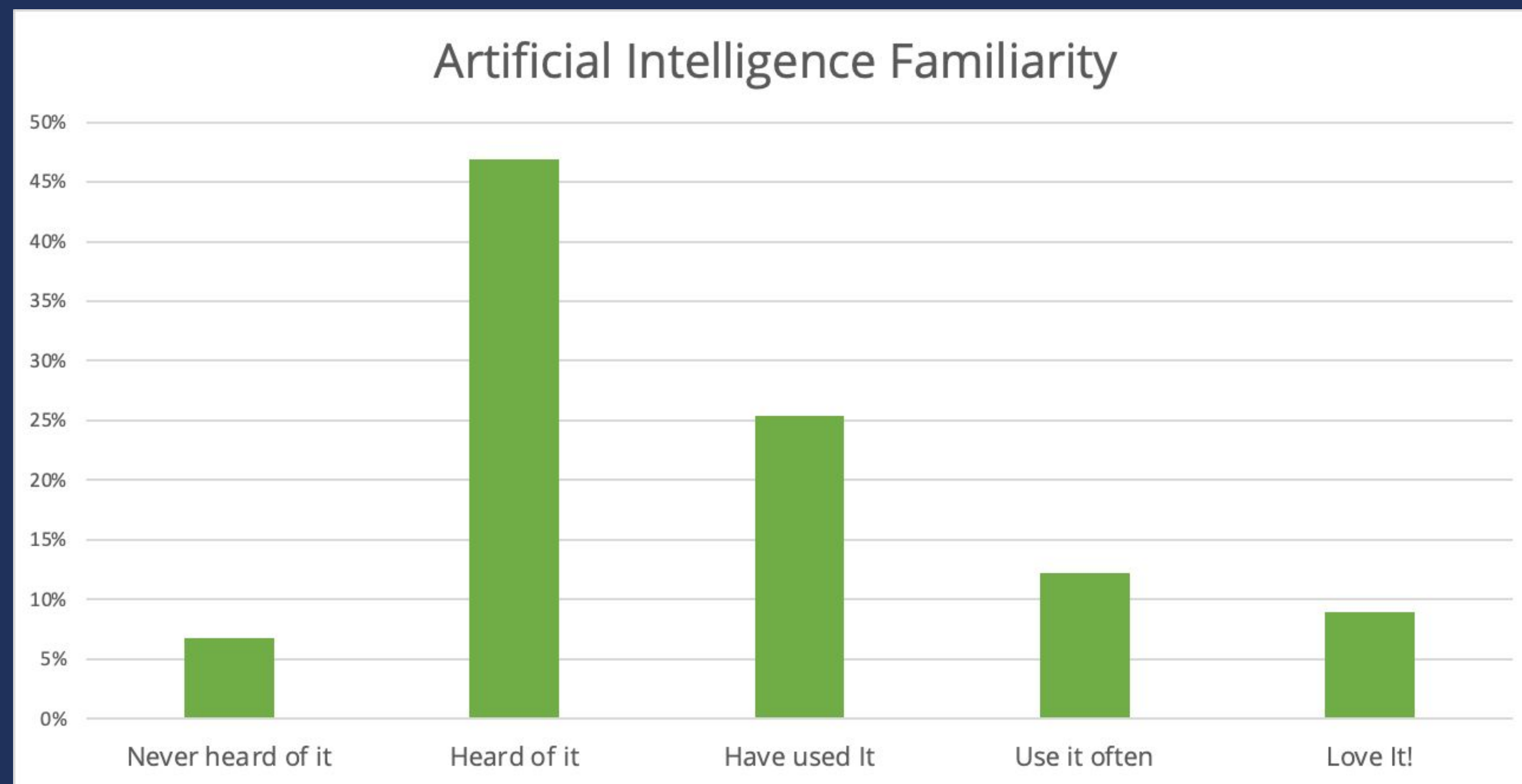
As you embark on your innovation and digital transformation endeavors, which technologies will you rely on to create experiences that differentiate you from your competitors and integrate well into your customers' journeys?

There are six big ones we set out to understand. In particular, we wanted to know how familiar the average consumer is with the terms / concepts many of us often take for granted. In particular, the terms we investigated are:

- Artificial intelligence
- Augmented Reality
- Virtual Reality
- Cryptocurrencies
- 5G
- Internet of Things

Artificial Intelligence

For those of us in the business, it seems like AI is everywhere. What about the average consumer? It appears, they're pretty familiar with AI, too. 47% of respondents have at least heard of AI. 12% use it often and 9% love it. AI is here to stay.

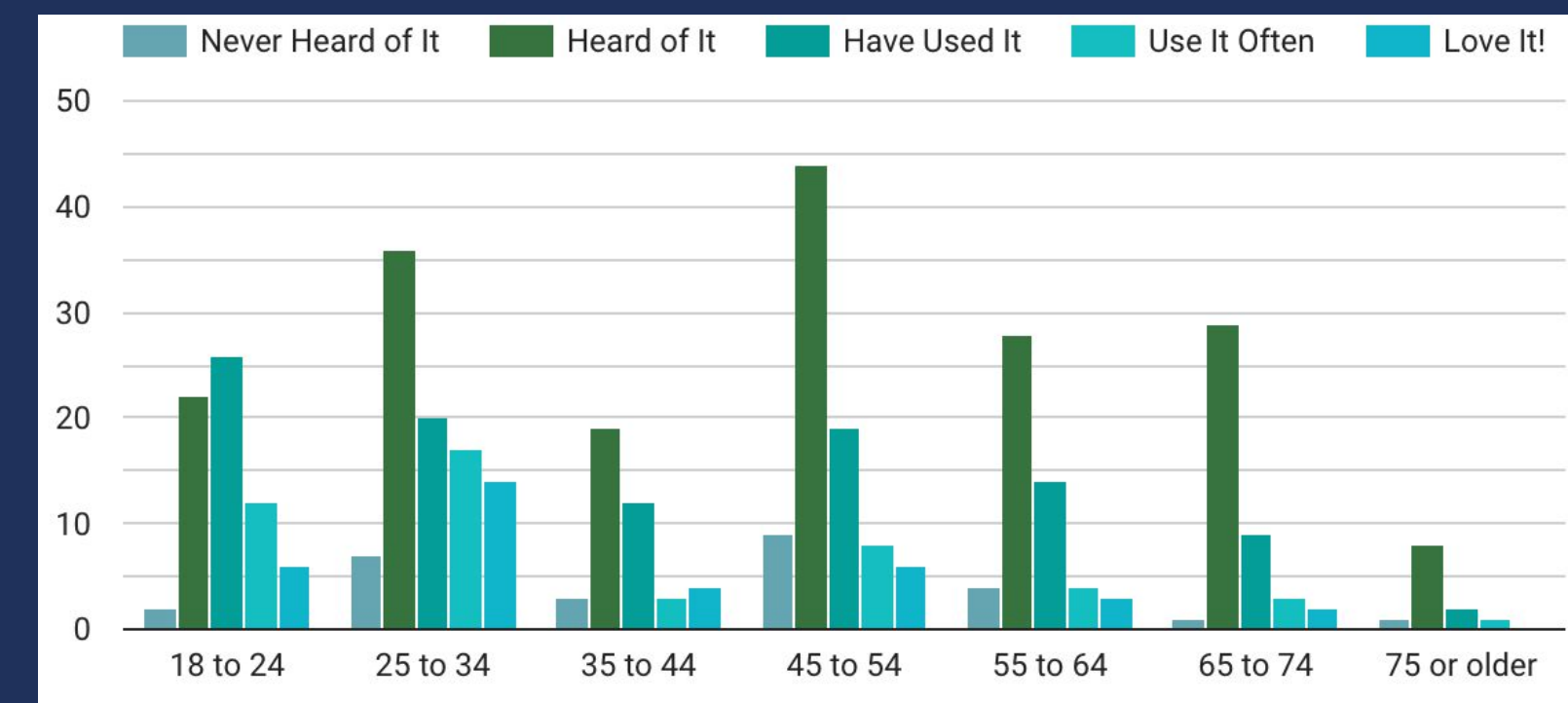


Demographic Breakdown

A.I. means different things to different people. The more mature may think of Hollywood depictions of A.I. from War Games and Knight Rider. Younger people may have a different understanding of the technology and think of more practical applications like video games and social media algorithms. It's important to understand how demographic differences can affect perception of this ever-present technology.

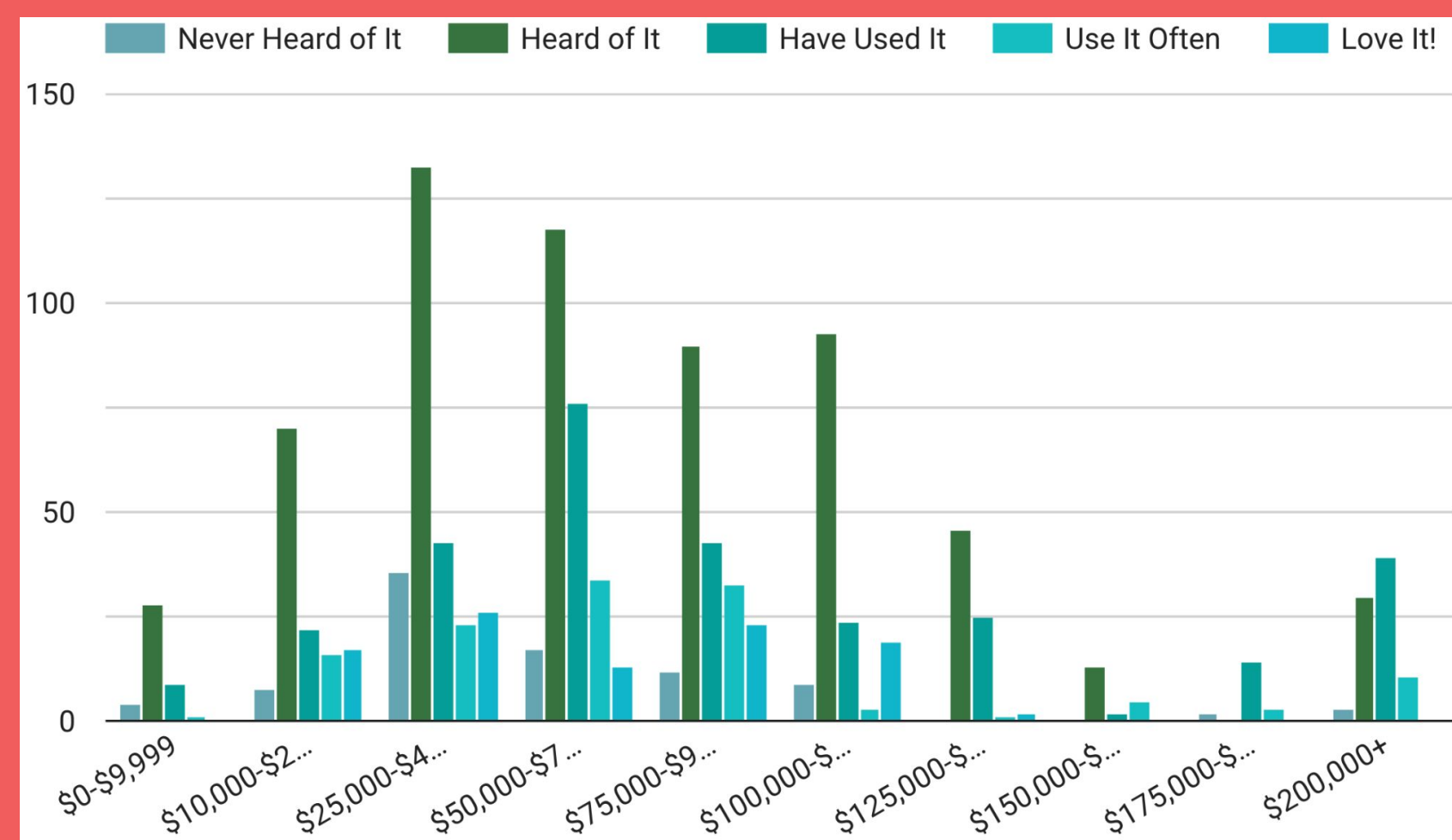
Artificial Intelligence by Age

It's clear from the graph that most people of every age have at least heard of A.I. Interestingly, a 38% of 18-24 year olds have knowingly used the tech. That number grows to 65% when Use Often and Love It are added. Usage numbers decrease by percentage with age, but A.I. is ubiquitous in terms of familiarity.



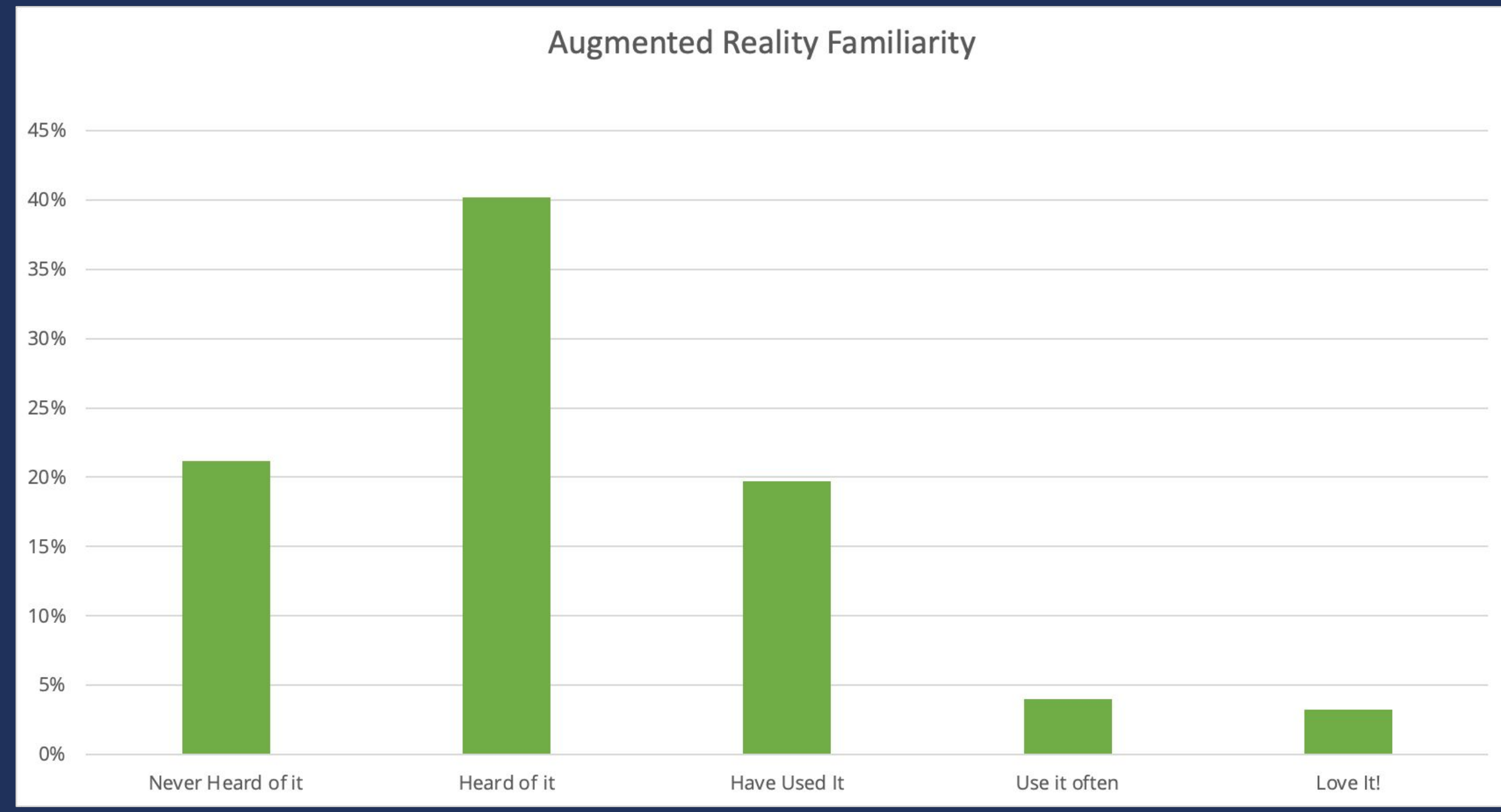
Artificial Intelligence by Income

What becomes clearer by income is, A.I. is as incomes rise, familiarity increases. At \$50k+ our sample peaked with having used it or use if often. High earners shift from little "Heard of It" to actually knowing they are hands-on users of A.I. Few of any category actually "Love It!"



Augmented Reality

Augmented Reality (AR) is not a tip-of-the-tongue technology. Over 60% of our participants had either never heard of it or had only heard of it - not used it (or so they think). The tech is, however, slowly - but radically - changing both the customer experience and the customer journey. We'll all be using it more than we do now.

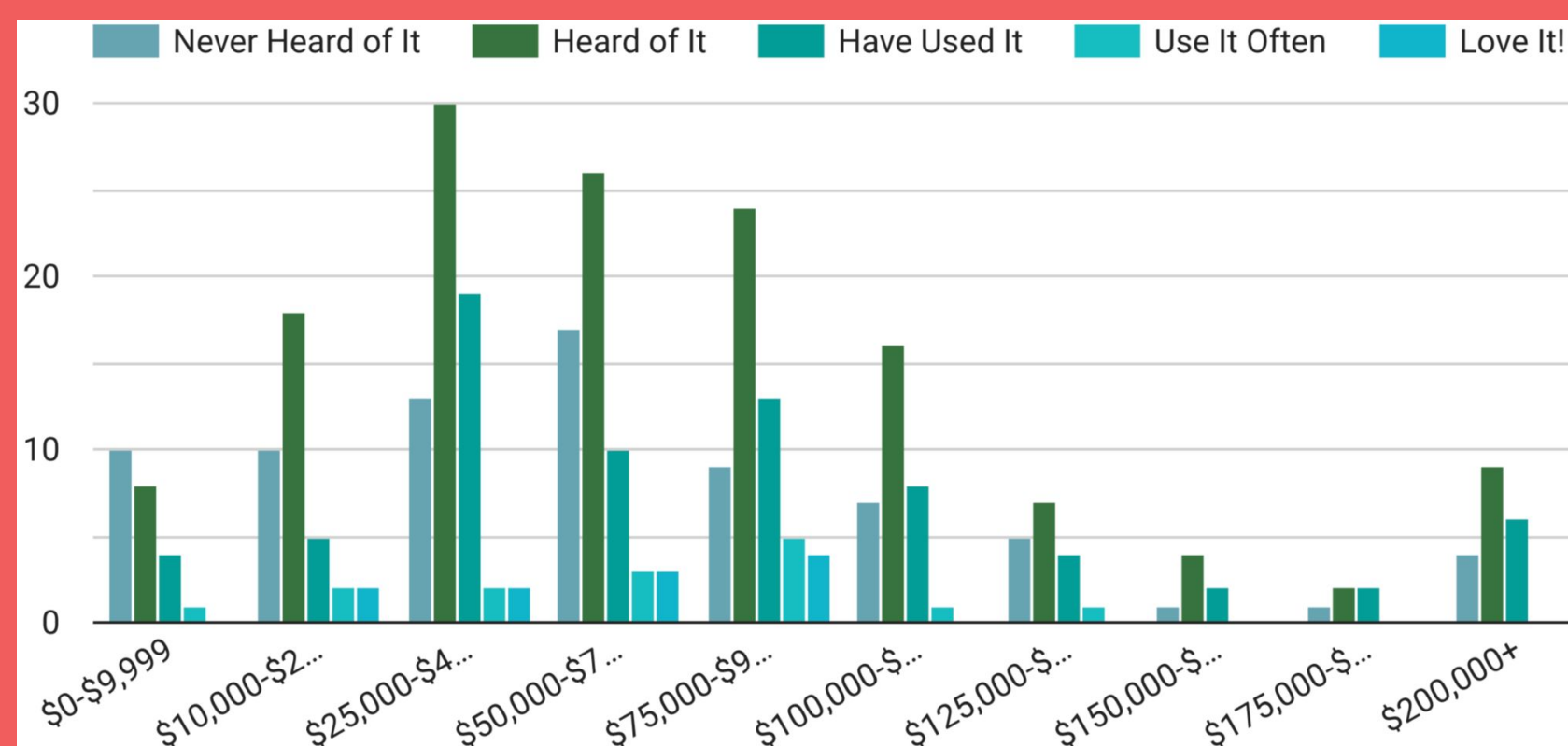
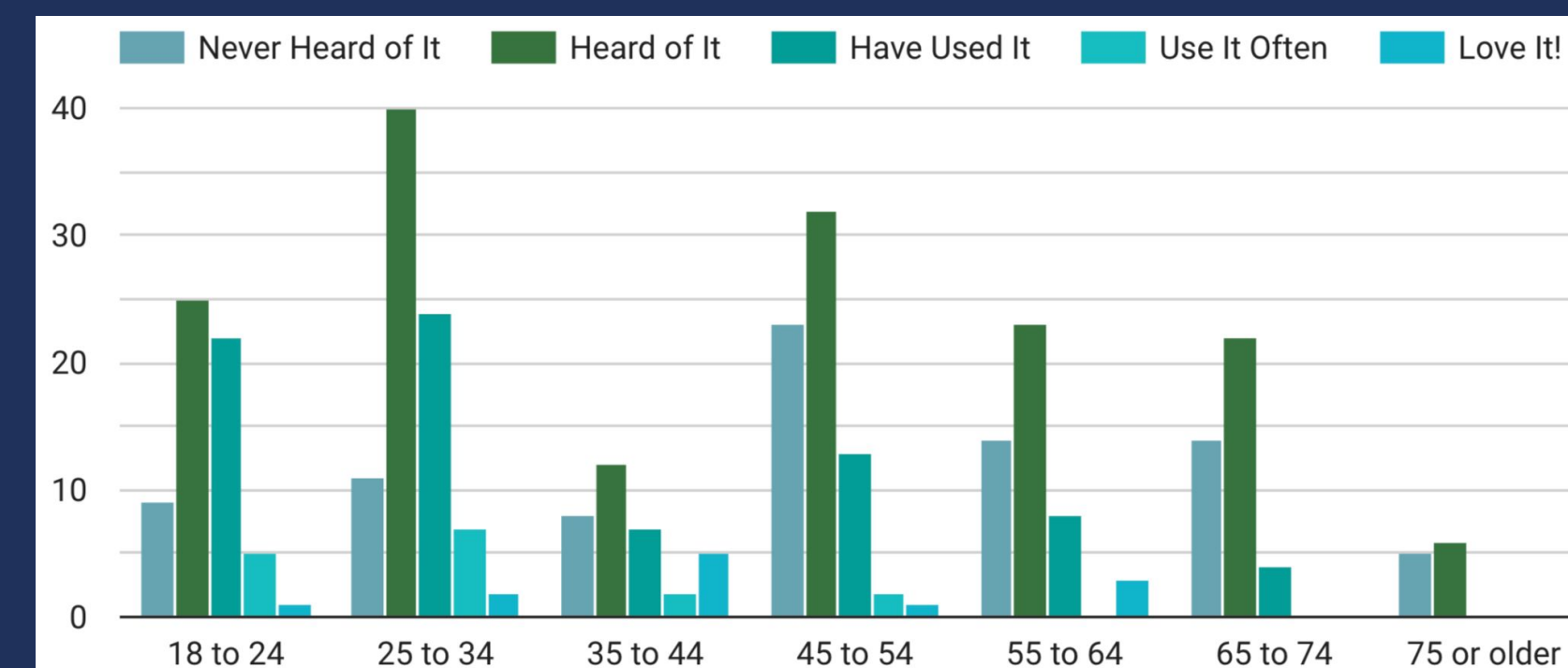


Demographic Breakdown

Like Artificial Intelligence, Augmented Reality (A.R.) is a technology that customers may use without recognizing it by name. A.I. experiences more pop culture name dropping and, as a result, is more top of mind. There are people who use A.R. daily as they send photos of themselves on social media apps. How aware are they of the tech they're using?

Augmented Reality by Age

Regardless of age, a plurality of participants in each age group have limited familiarity with Augmented Reality (AR). This, in spite of exposure to many having used social media face filters and other related tech. As expected, the 18-24 group was most likely to have positive usage associations with the technology. The 35-44 group trailed by only a few points.

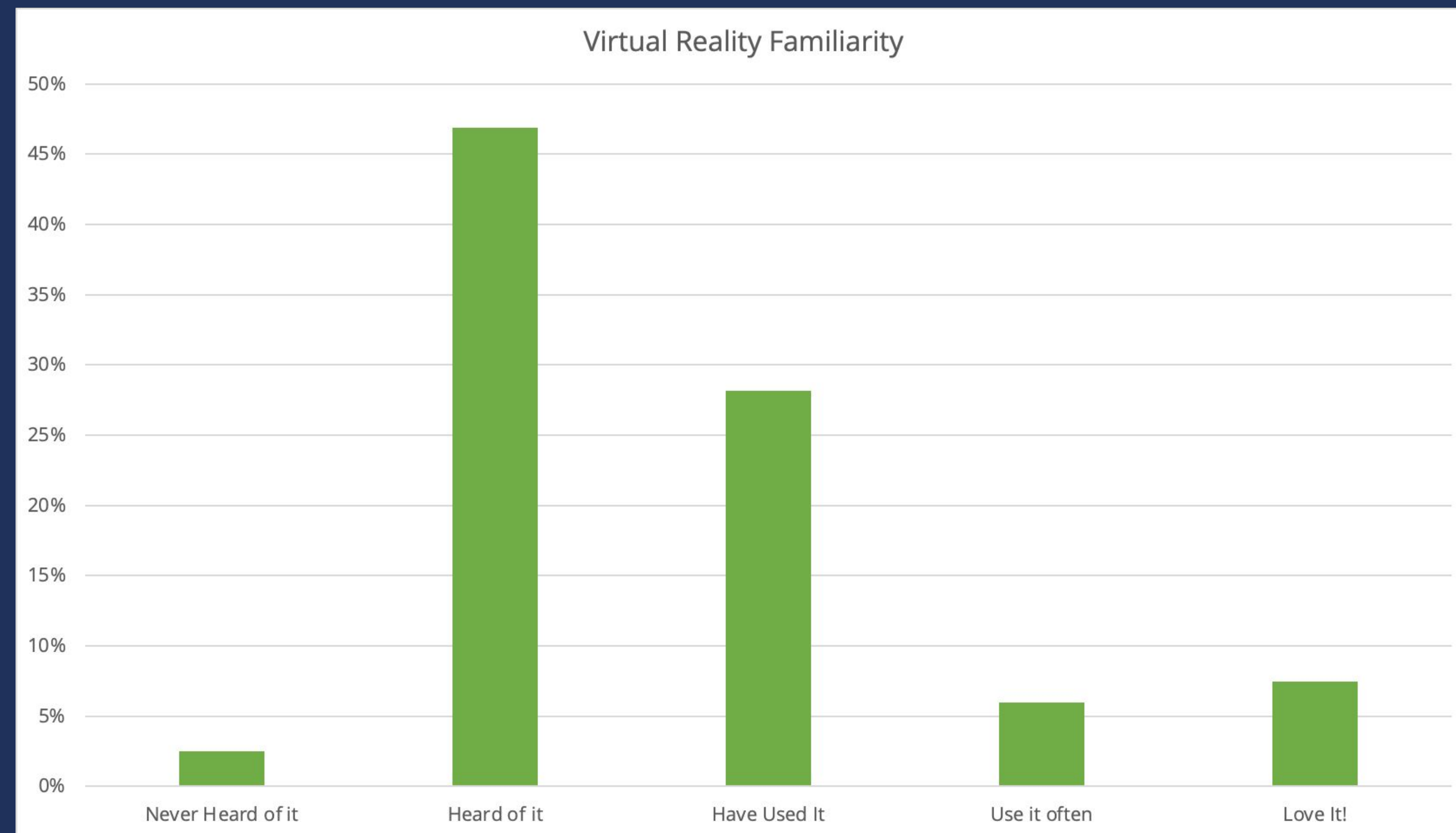


Augmented Reality by Income

70% or more participants of most income strata have limited familiarity with AR -- either unaware or have only "Heard of It". Exceptions are \$25-50k, \$75-100k, \$175-200k, and \$200k+. Those groupings indicate greater experience using the tech (or perhaps awareness of when they're using it). A full 40% of the \$75k and \$175k have strong familiarity with AR.

Virtual Reality

Perhaps unsurprisingly, a super majority of respondents to our survey indicated some level of familiarity with virtual reality (VR). In fact, 41% of respondents suggest they've at least used the technology. It's a curious result given that VR headsets haven't quite achieved mainstream popularity. It speaks positively to the potential of the tech, however.

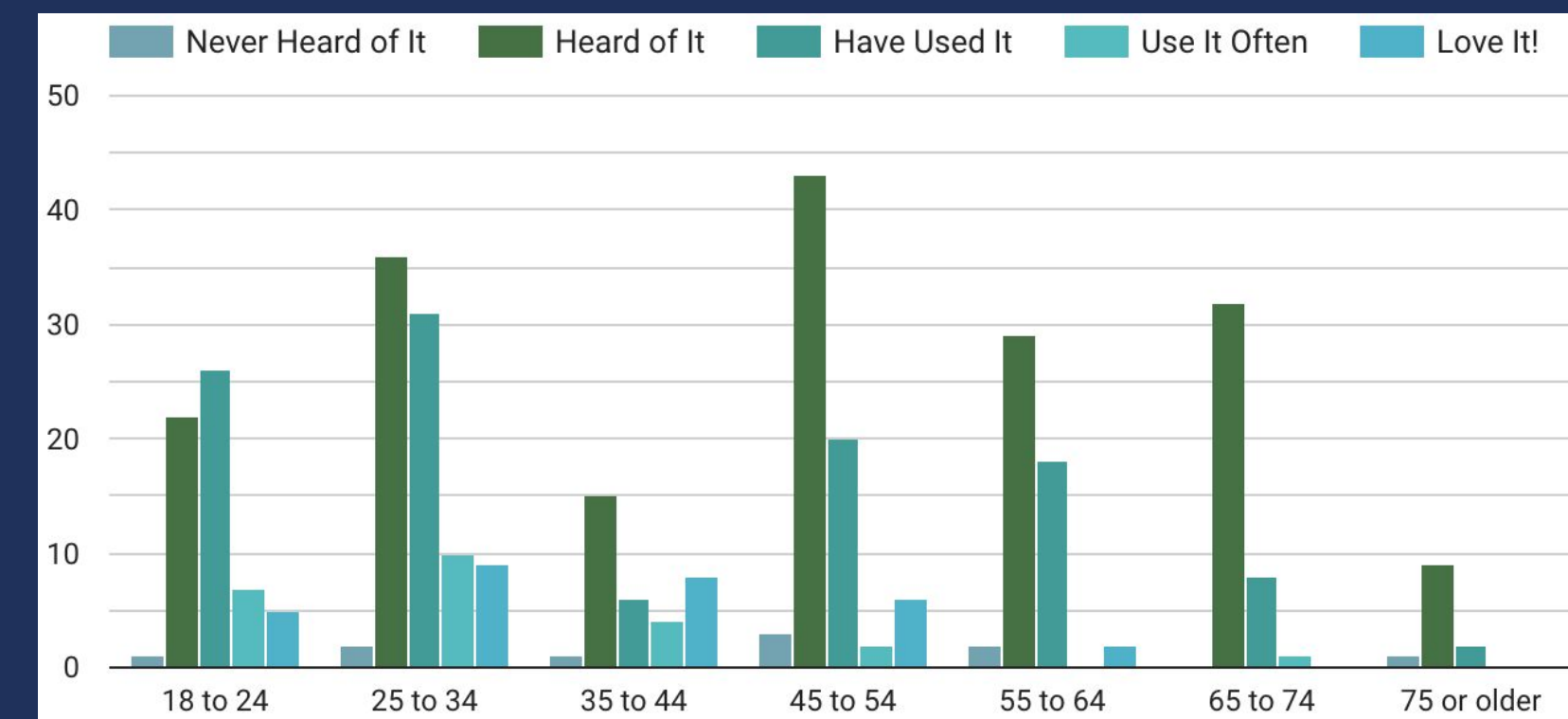


Demographic Breakdown

Virtual Reality (V.R.) definitely shows demographic skewing. Interestingly, the skew doesn't fall the way one might expect. V.R. is more familiar, by percentage, to mid-career ages and higher income levels. These groups demonstrated not simply that they "Have Heard of It" but that they "Use It Often" and/or "Love It!". There's still work to do, therefore, towards making V.R. a truly mainstream technology.

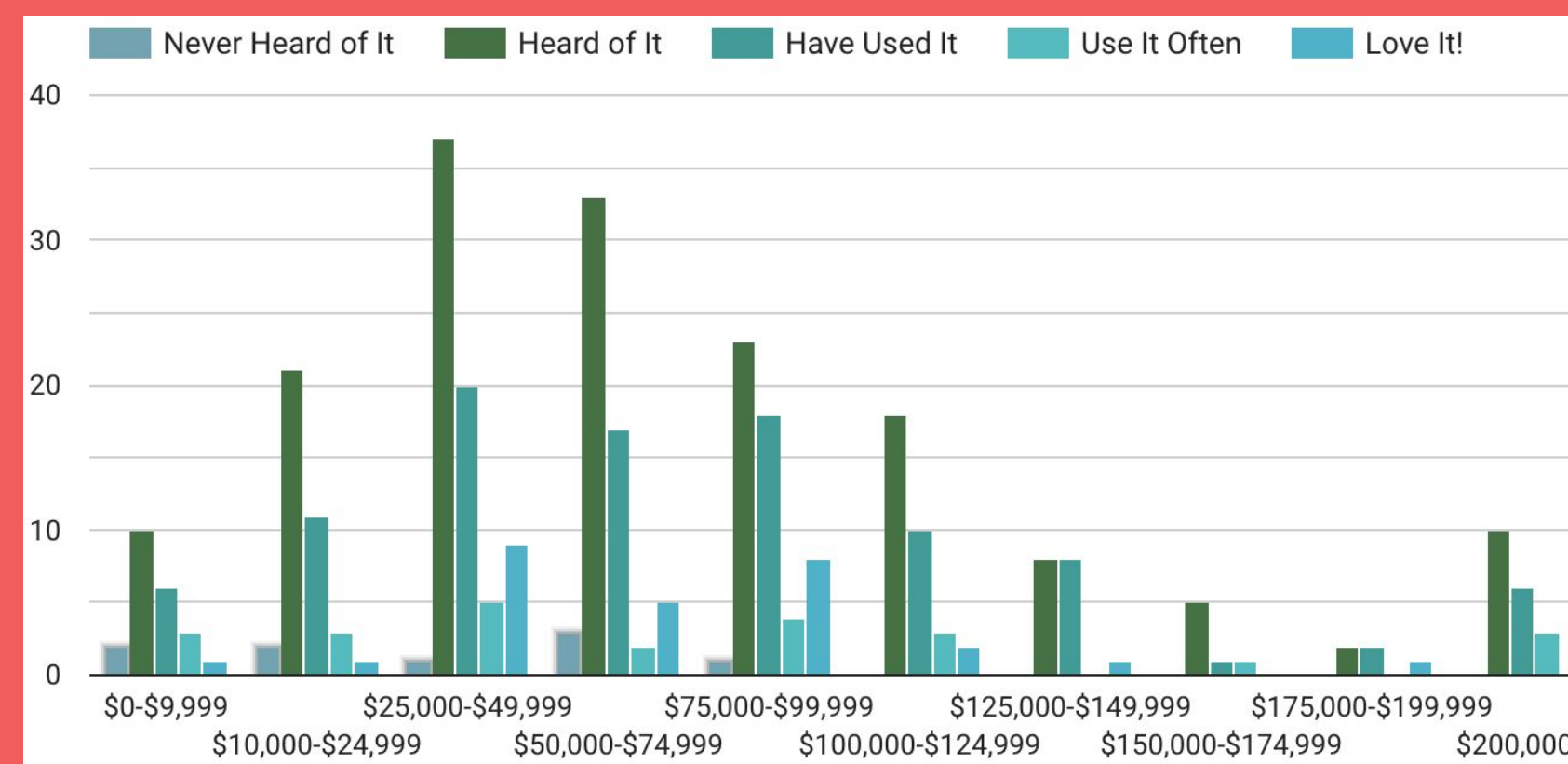
Virtual Reality by Age

Unsurprisingly, the 18 to 24 grouping, at 43%, is most likely to have selected "Have Used It". What is a bit surprising is, tied for second, at 35%, are the 25 to 34 and 55 to 64 age groups. Interestingly, the 35 to 44 grouping, at 36%, is most likely to "Use It Often" or "Love It". They're followed by 25 to 34 at 21% and 18 to 24 at 19%.



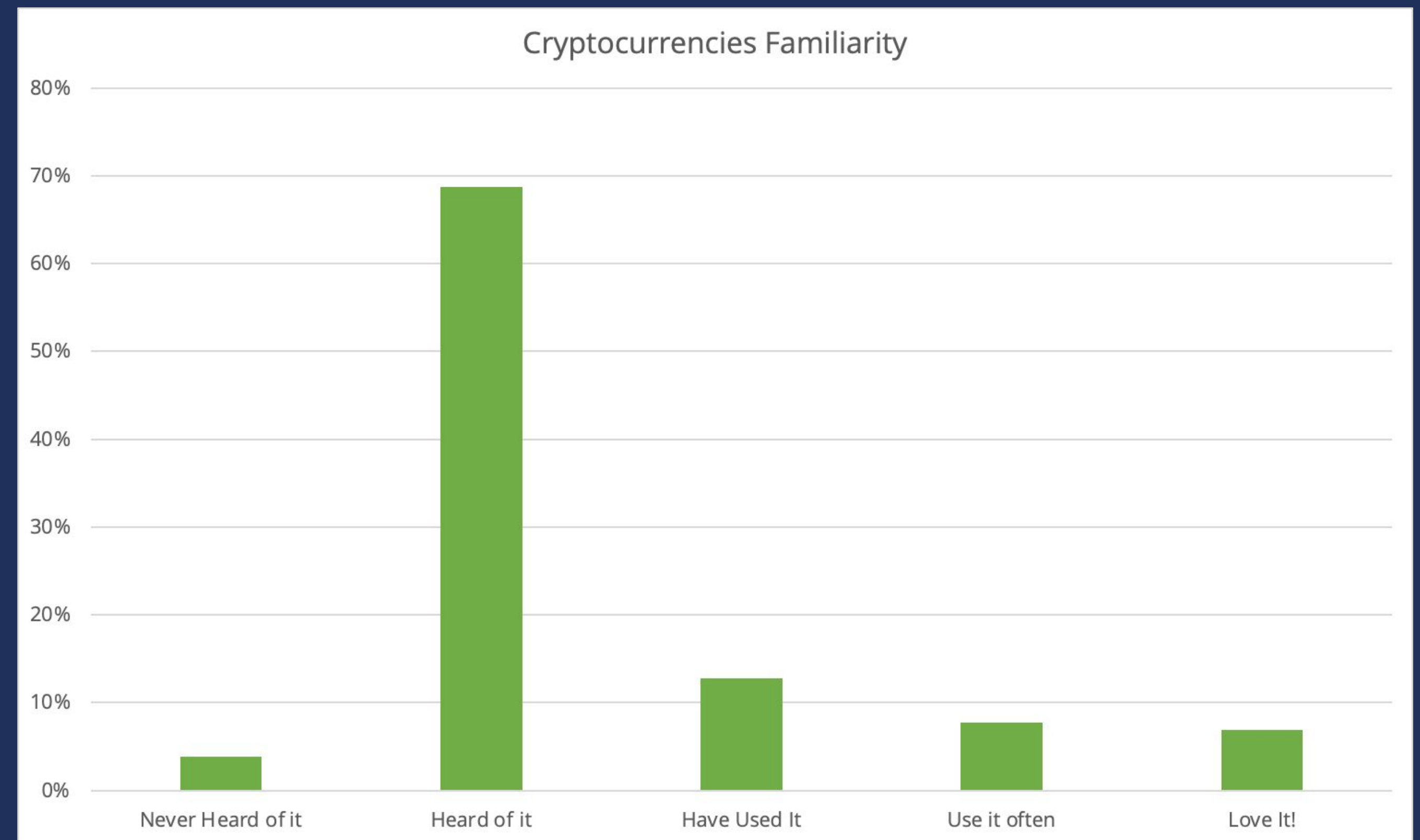
Virtual Reality by Income

Most respondents have at least "Heard of It" when it comes to VR. By income, as by age, few were unfamiliar. What stands out is the income levels at which VR is well used. The \$125-150k, \$175-200k and \$200k+ income levels were the most likely to Have Used It and Use It Often". VR headset price and the training required for industrial uses likely play a role in this relationship.



Crypto-currencies

The first half of 2021 could probably be considered the true awakening of cryptocurrency consciousness as Bitcoin discussions trended due to rapid rises (and falls) in prices. That awakening shows up in our research - but only in terms of "Heard of It". Only 4% of respondents hadn't heard of it. Only 28% of respondents, on the other hand, had real-world experience with it. There's tremendous room for growth.

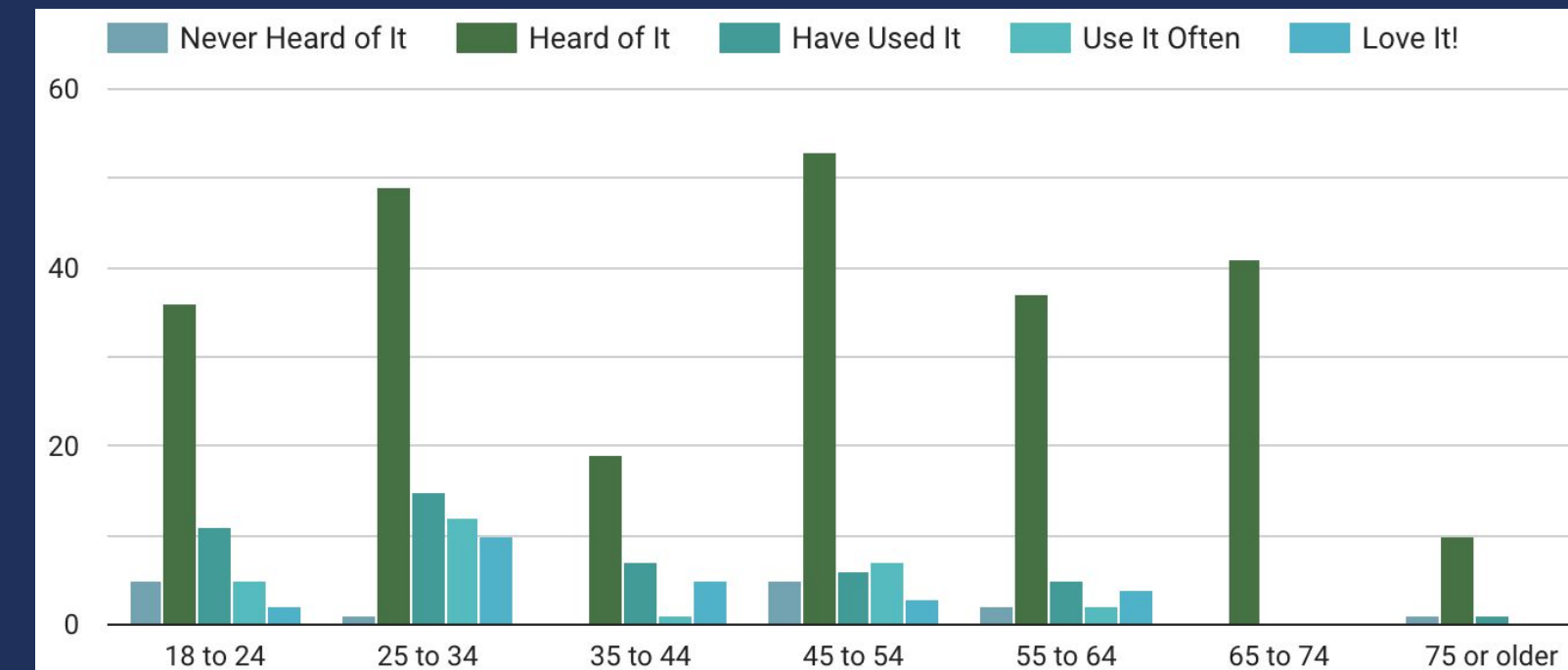


Demographic Breakdown

As one might expect with a technology dependent upon disposable income, respondents who were mid-career (by age) and wealthier (as measured by income levels) demonstrated the strong familiarity and usage of cryptocurrencies. There was significant interest at all income and age levels except for 65+ and, oddly, \$150-175k. We're thinking that last one to be an anomaly of our survey.

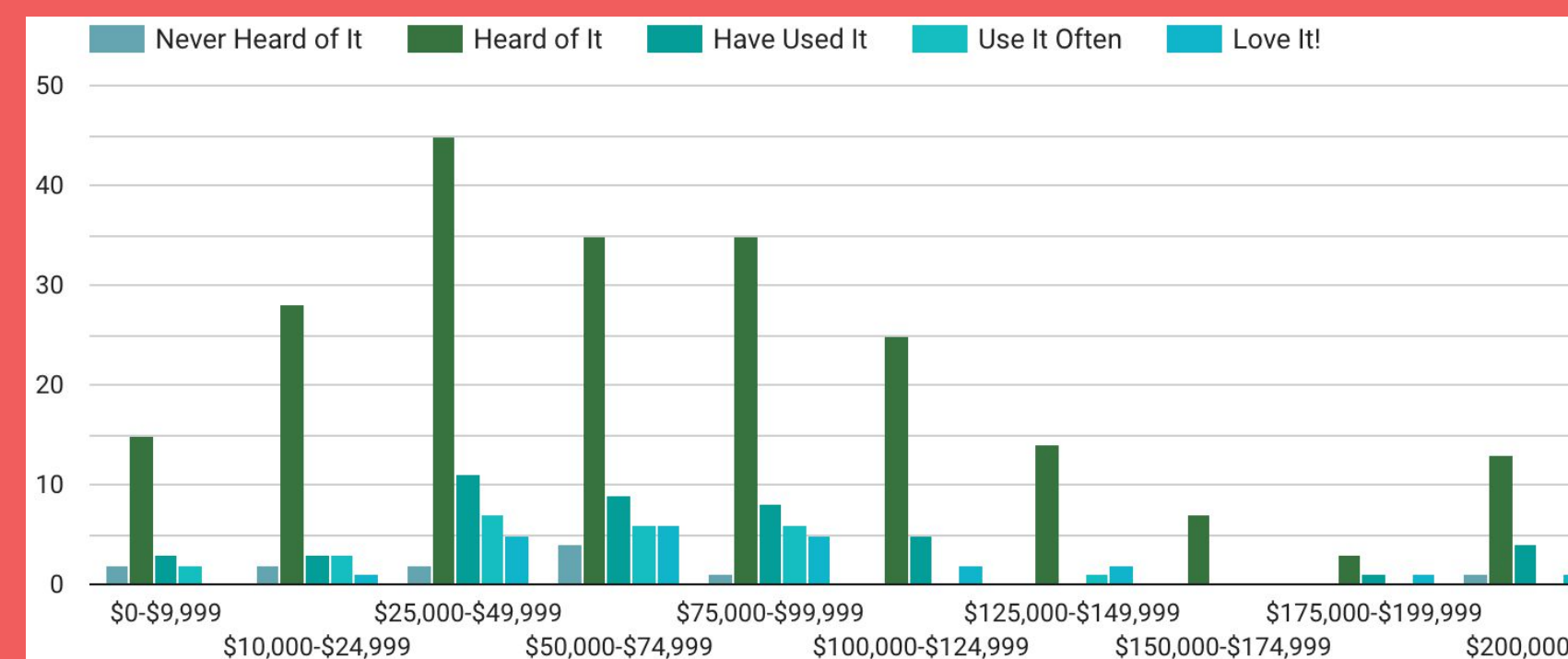
Cryptocurrencies by Age

Each age group indicates a high percentage of "Heard of It" familiarity with cryptocurrencies. At 42% and 41%, respectively, the 25-34 and 35-44 groupings were mostly likely to have high familiarity with cryptocurrencies. The 18-24 grouping followed with 30% having high familiarity. It's likely that life stage and amount of "play money" plays a role in degree of familiarity.



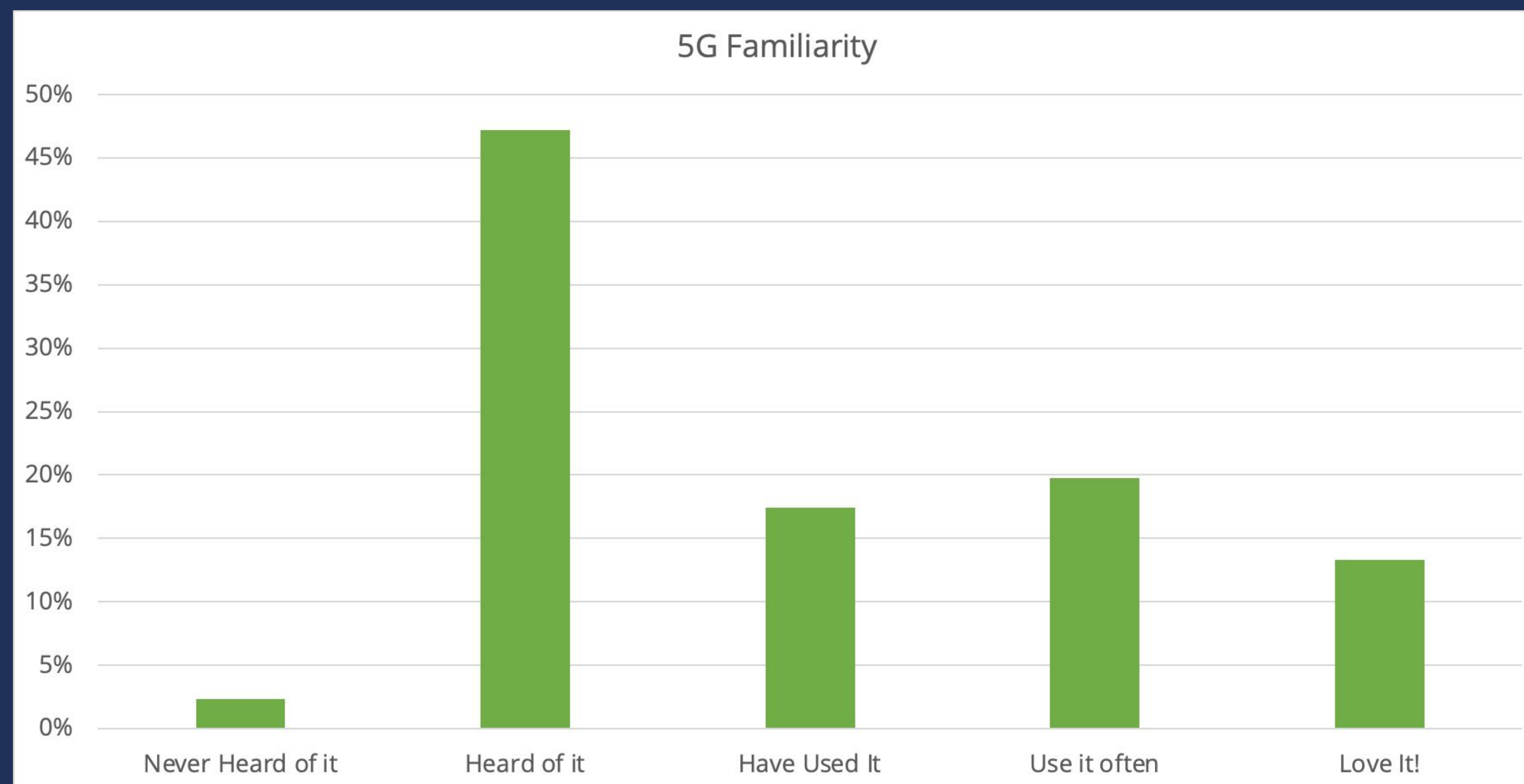
Cryptocurrencies by Income

Our survey suggests some correlation between income and familiarity with cryptocurrencies. In fact, 20% of respondents in the \$175-200k grouping "Love It!". Overall, however, at 45%, respondents with incomes in the \$50-75k seem to have the greatest degree of familiarity with the tech.



5G

5G was included in this survey mostly to function as a control element. Unlike the other technologies measured, 5G has experienced extreme amounts of paid media thanks to mobile phone carriers¹. Those marketing efforts should result in high familiarity numbers. We see that in the data. 98% of respondents have at least heard of it. A full 50% indicated “Have Used It” or stronger familiarity. Only 2% of the group selected “Never Heard of It” (what rock do they live under?).



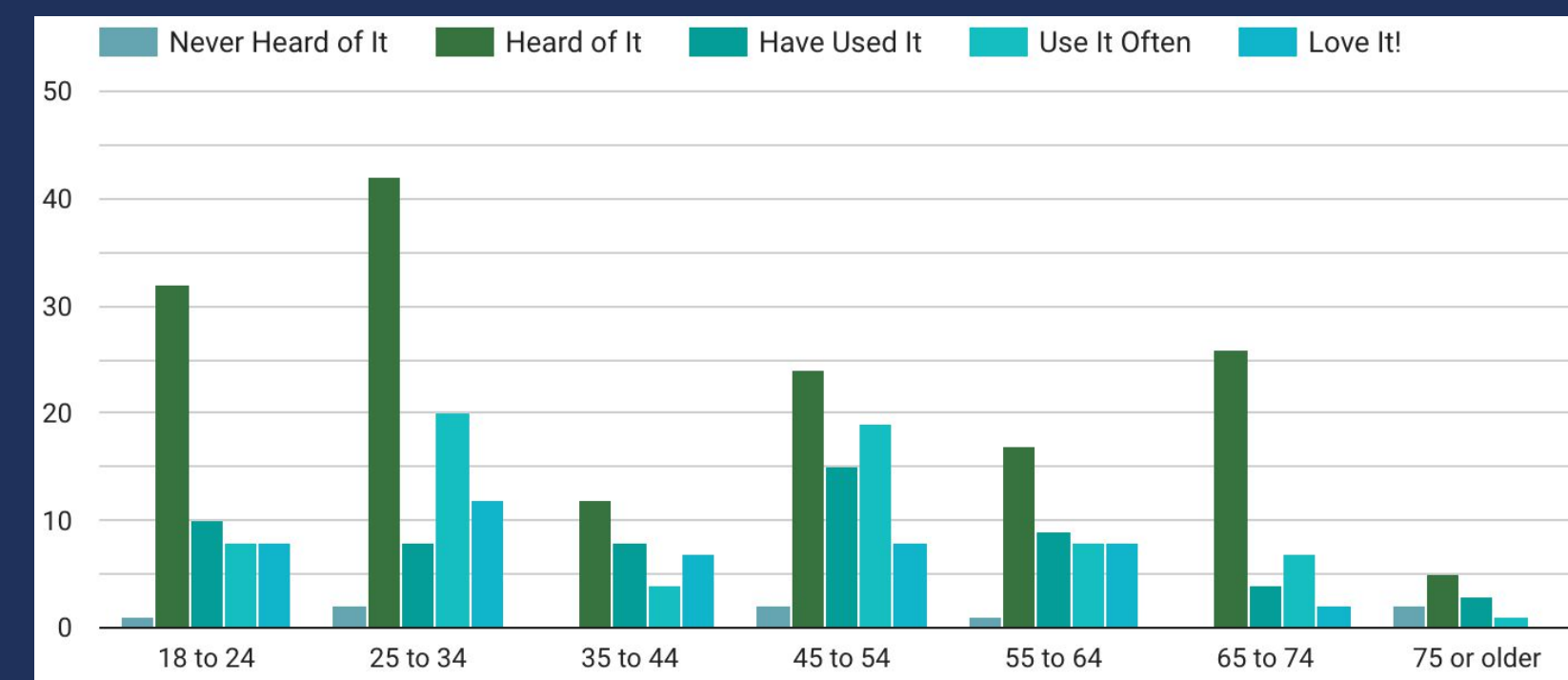
¹ <https://www.lightreading.com/mobile/5g/2019-the-year-us-carriers-waged-a-5g-advertising-war/d/d-id/756400>

Demographic Breakdown

5G promises transform the way we use the Internet by allowing us to access content at speeds previously unavailable on mobile devices. Our study suggests the tech is more familiar to mid-career age groupings and to those in higher income brackets. This makes sense given that phones supporting true 5G must have been purchased within the past year and the 5G networks are still being deployed nationally. 5G still has a ways to go before achieving true Internet transformation.

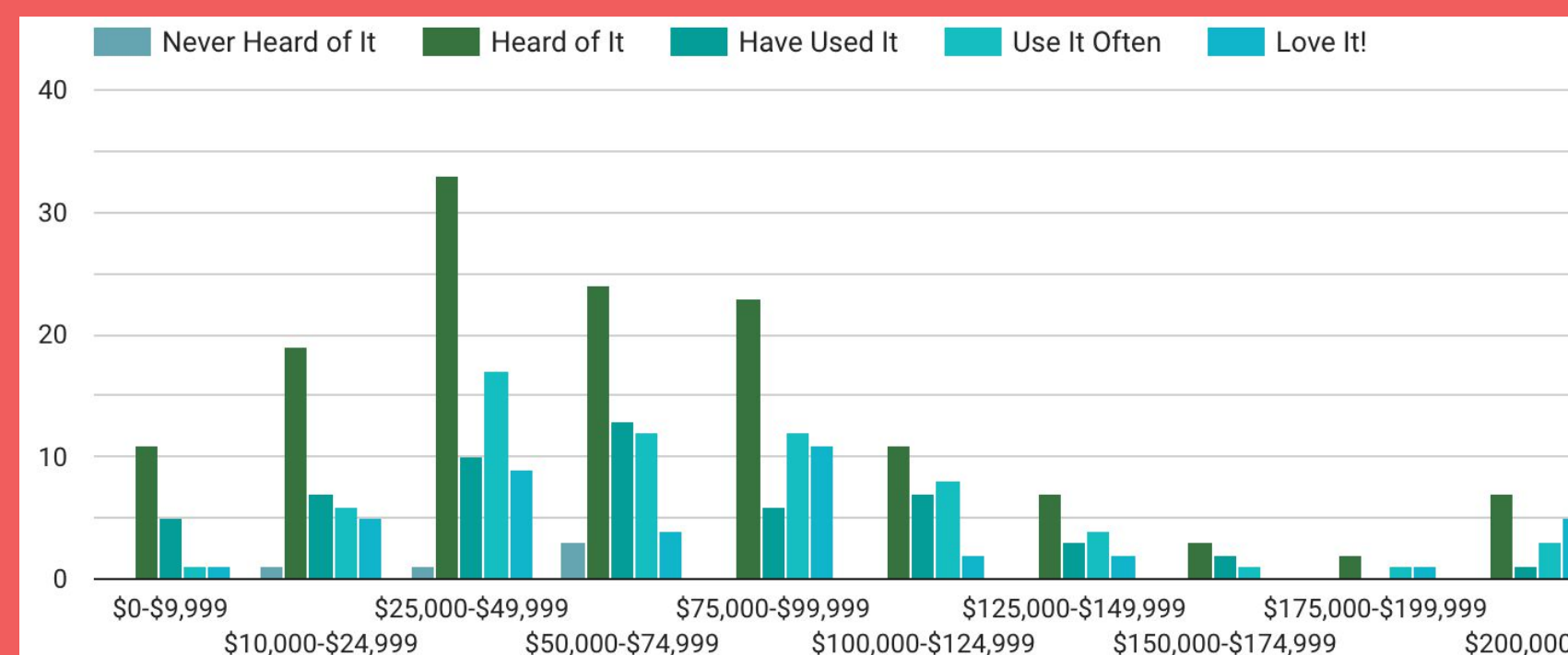
5G by Age

As might be expected, the highest percentage of the respondents who selected “Never Heard of It” fell into the 75+ age category though most age groups had a few. The 35-44 and 45-54 groupings tied at 62% for highest percentage of respondents who have usage familiarity. The 55 to 64 grouping came in third at 59%. By age, overall familiarity with 5G was quite high.



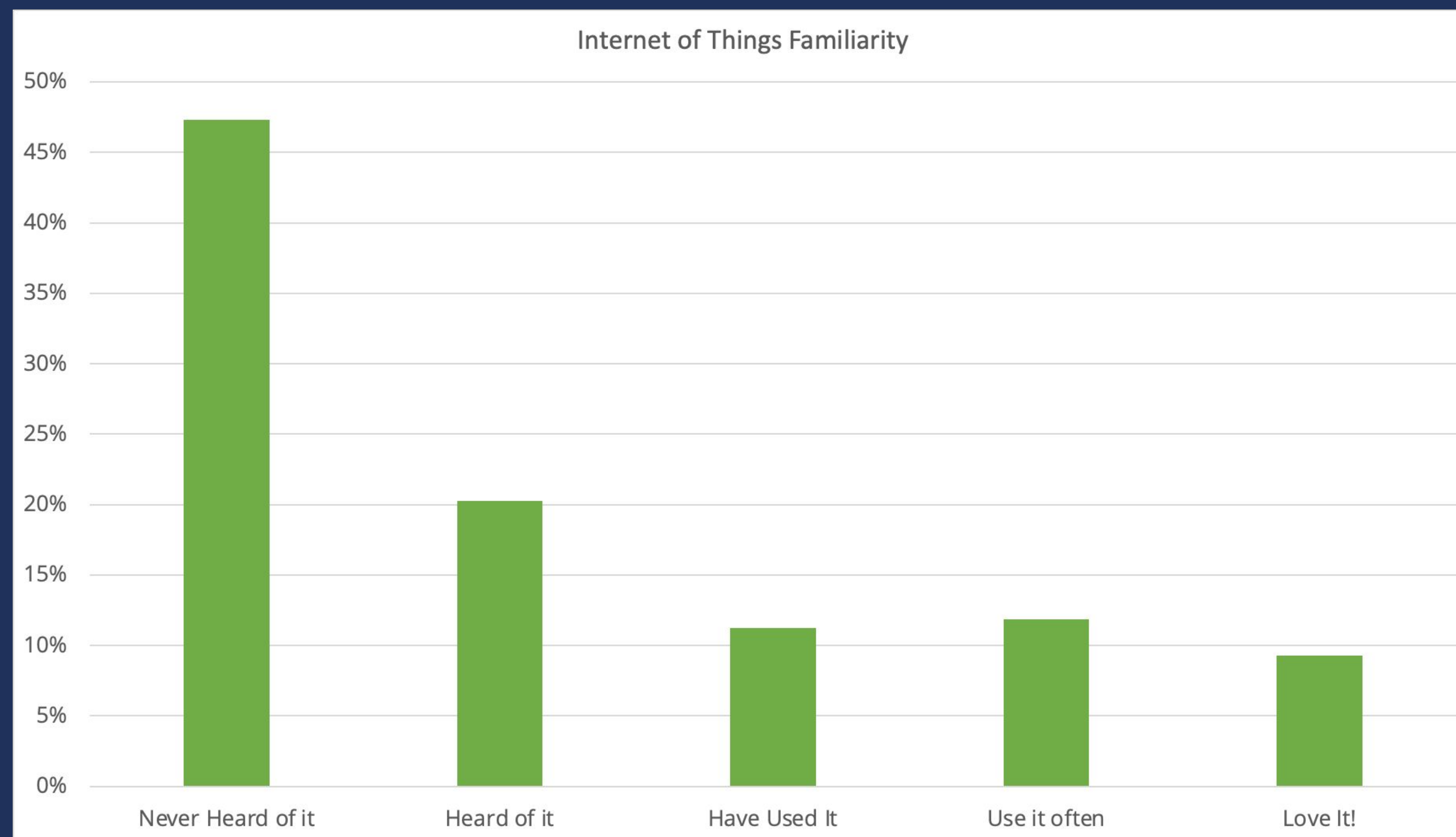
5G by Income

Each income grouping except \$0-10k and \$10-25k had 50%+ usage familiarity (“Have Used It” or more) with 5G. The \$100-125k grouping led with 61% of usage familiarity. Tied for second at 56% were the \$75-100k, \$125-150k and \$200k+ groupings. Though everyone is familiar with 5G, it seems respondents with higher incomes are more likely to actually use the technology.



Internet of Things (IoT)

Much as 5G was included as a control, Internet of Things (IoT) was added to establish a baseline. Neither the full term nor the abbreviation are common. Our expectation was that most people would be unfamiliar with the technology and/or wouldn't have used it. The respondents didn't disappoint us - 47% of them were unfamiliar with the tech. There is some surprise at the number of people who expressed familiarity. 22% of respondents "Have Used It" or "Use It Often" and 9% "Love It!". IoT is making headway in the minds of consumers.

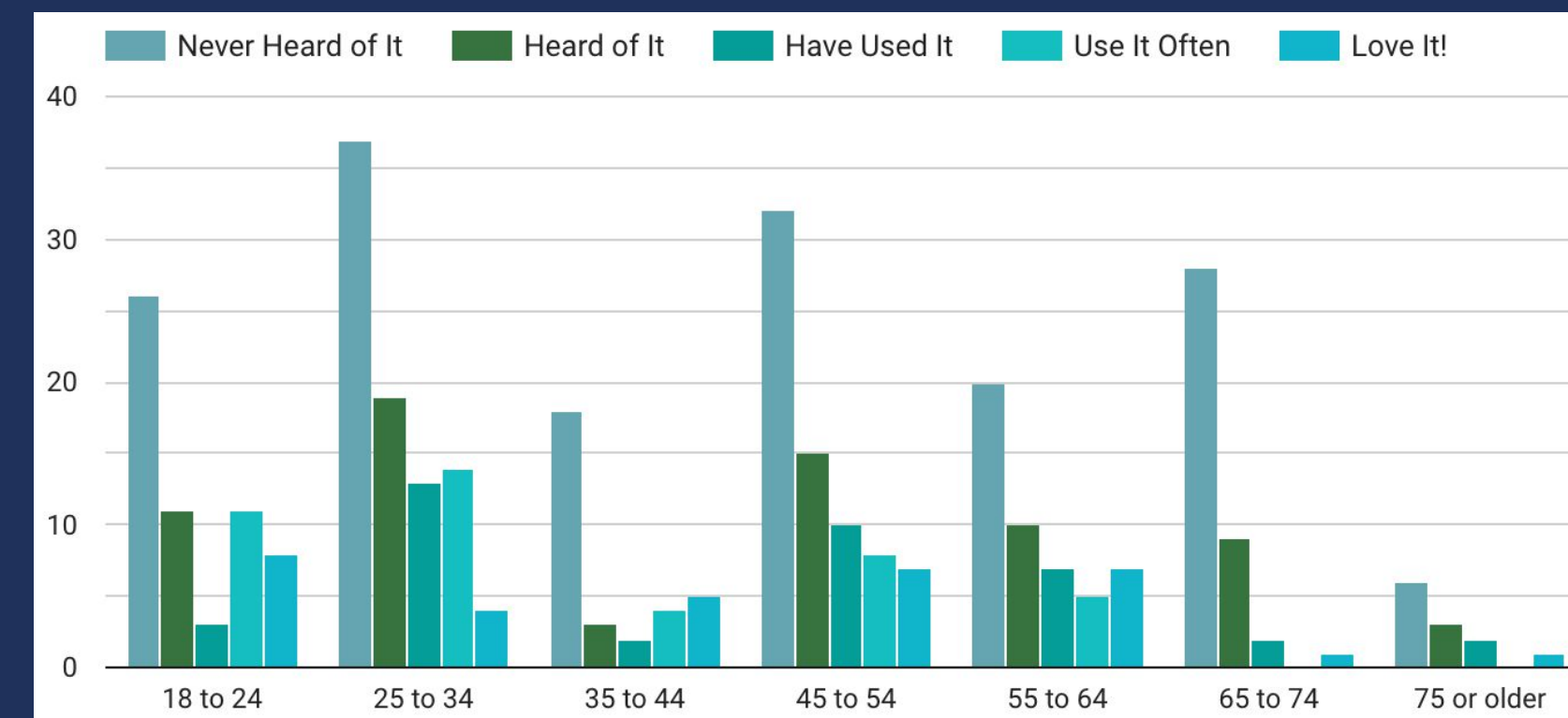


Demographic Breakdown

Internet of Things (IoT) is unfamiliar to most of our respondents. Where familiarity stands out out, however, is, again, with mid-career groups and at higher income levels. This likely indicates a relationship to the control of devices within the home. Higher incomes and greater disposable cash allows greater access to home automation technologies that take advantage of IoT technologies.

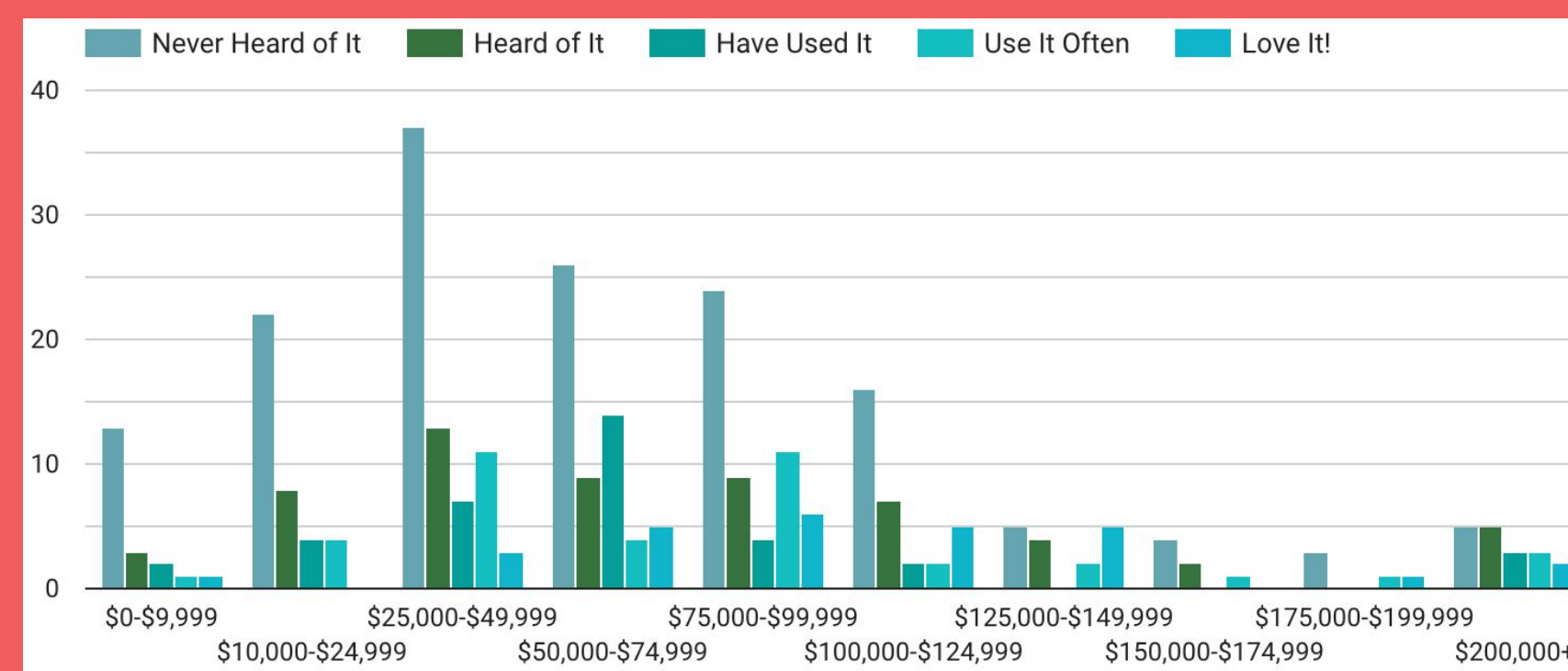
Internet of Things by Age

In this survey, the 35 to 44 age grouping, with only 31% having selected “Never Heard of It”, was the most likely to be familiar with the term Internet of Things. The 45 to 54 age group came out on top with usage familiarity with 40% selecting the three usage options. The 18 to 24 and 55 to 64 groupings tied for second at 38% each. It’s looking AARP members are pretty tech savvy.



Internet of Things by Income

The \$200k+ and \$125-150k income brackets were the most likely to be familiar with Internet of Things with 28% and 31%, respectively, of respondents selecting “Never Heard of It”. Similarly, both groups were the most likely to have usage familiarity with 45% of the \$200+k bracket selecting usage indicators and 44% of the \$125-150k bracket doing the same.



The Activities

Understanding Breadth of Consumer Mobile Phone Behaviors

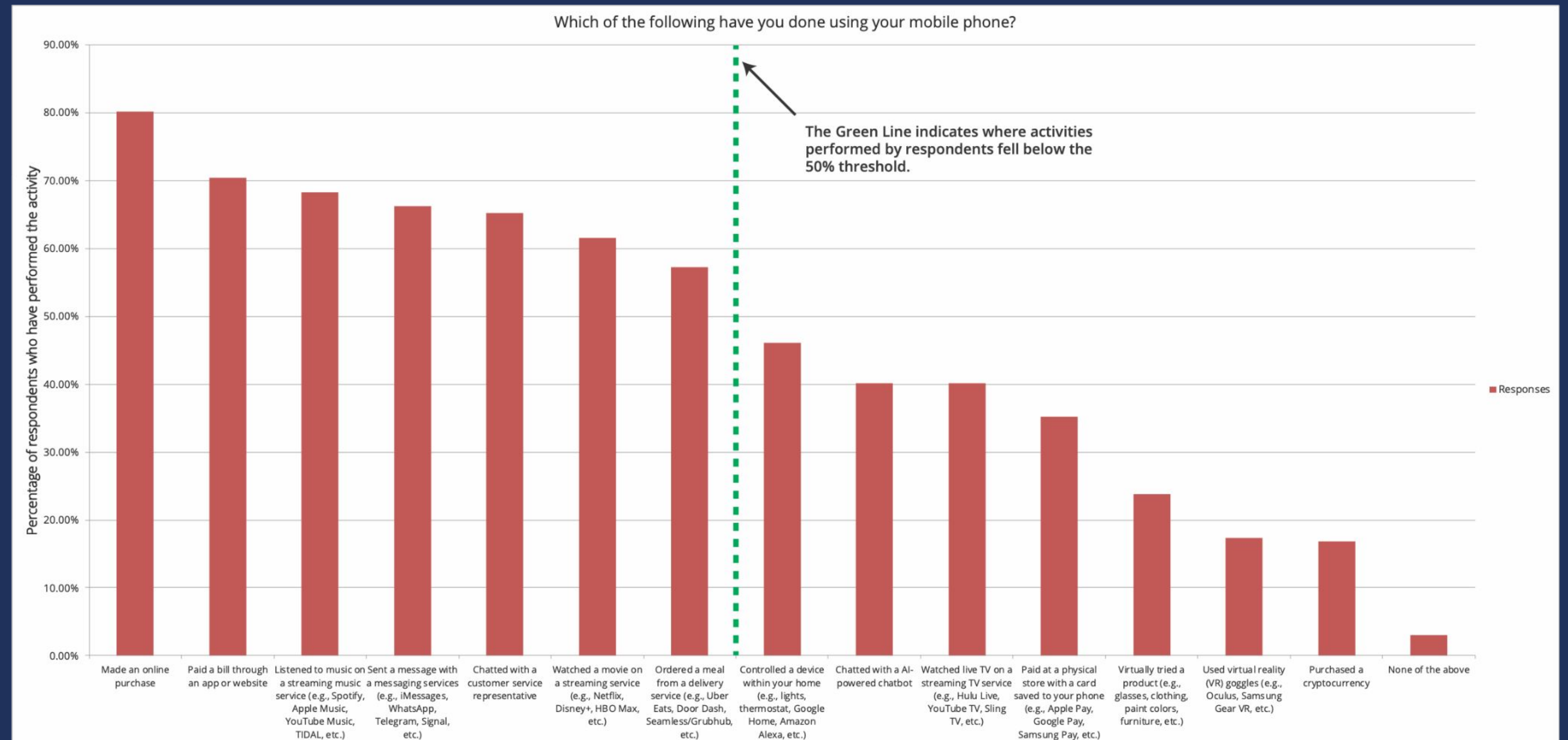
Understanding consumers' familiarity with the identifies six technologies was the first step in learning how well emerging technologies fit into consumers' lives. Customer experience innovations depending on those technologies. Measuring familiarity allows us to gauge how likely consumers are to use the features we present to them and how much education we'll need to provide to ensure a good experience.

More telling than what people say they use is what they actually do. To that end, we also asked survey respondents to tell us about behaviors they've done on their phones. The specific activities we asked about are listed to the right. We asked about common activities and those that were dependent on the technologies referenced above.

Measured Activities

- Made an online purchase
- Paid a bill through an app or website
- Ordered a meal from a delivery service (e.g., Uber Eats, Door Dash, Seamless/Grubhub, etc.)
- Chatted with a customer service representative
- Chatted with a AI-powered chatbot
- Controlled a device within your home (e.g., lights, thermostat, Google Home, Amazon Alexa, etc.)
- Watched a movie on a streaming service (e.g., Netflix, Disney+, HBO Max, etc.)
- Watched live TV on a streaming TV service (e.g., Hulu Live, YouTube TV, Sling TV, etc.)
- Sent a message with a messaging services (e.g., iMessages, WhatsApp, Telegram, Signal, etc.)
- Listened to music on a streaming music service (e.g., Spotify, Apple Music, YouTube Music, TIDAL, etc.)
- Purchased a cryptocurrency
- Virtually tried a product (e.g., glasses, clothing, paint colors, furniture, etc.)
- Used virtual reality (VR) goggles (e.g., Oculus, Samsung Gear VR, etc.)
- Paid at a physical store with a card saved to your phone (e.g., Apple Pay, Google Pay, Samsung Pay, etc.)

Measuring the Activities



The percentage of users who performed each activity on their mobile phone is represented in the bar graph above. The green dashed line indicates where fewer than 50% of respondents had performed the identified activity. It becomes obvious that most respondents have performed activities that did not rely on the emerging technologies mentioned (5G being an exception). Once the activities become dependent upon the featured technologies, however, usage rates begin to fall below 50%. *The majority of respondents to this survey have not used their phones to take advantage of the emerging technologies we've identified.*

Takeaways

We know you need more than just the stats. What follows are six key ideas the data tell us. It's our hope these ideas will help you begin considering anew how to best use these (and other) technologies to innovate your customer experience.



Takeaway 01

Takeaways are here to summarize the data and give you insights you can use going forward.

Money Matters

One of the biggest standouts in our data is the importance of wealth for access to emerging technologies. It's clear from our analysis that income is strongly correlated to both general familiarity with many emerging technologies and, especially, usage familiarity - actually using the technologies and appreciating their impact on your life.

Right now, this is a boon for providers of goods to the affluent. Their customers have the trifecta: money, newer devices and an openness to using new technologies. Financial services companies, high-end realtors, luxury CPG firms, luxury car dealers, philanthropic organizations and other companies dependent upon high-earning consumers should consider how these emerging technologies can help them provide customer experiences that drive customer acquisition and retention.

It bears mentioning that as much as these technologies have the potential to support great experiences for high earners, they also exacerbate the digital divide. Lower income people keep their phones longer and often buy less powerful devices - limiting how well they can take advantage of the tech advances we're experiencing.

Takeaway 02

Takeaways are here to summarize the data and give you insights you can use going forward.

Don't Trust Your Intuition

Your gut may be great at reading poker faces but the customer experience isn't the right place for it. Intuition would suggest that young people are the keys to emerging technologies. It would further suggest we should direct our leading edge ideas at the younger end of the market. As we've shown, the responses from this survey don't support that idea. With some exceptions, respondents in the 35-44 and 45-54 age ranges proved to be technically savvy and more likely to have incomes that support devices that can handle newer technologies.

Takeaway 03

Takeaways are here to summarize the data and give you insights you can use going forward.

Experiment, Test and Learn

Though familiarity with every technology wasn't high, the survey suggests there are opportunities for organizations to find a technology that could work for them and begin experimenting. Virtual reality may not be the right solution for your company but how can you use augmented reality or natural language processing (NLP) to improve your customer experience? What can the computing power of your customers' phones offer that help enable an experience not possible without the phone?

Takeaway 04

Takeaways are here to summarize the data and give you insights you can use going forward.

Phone Age Matters — Some

Our research shows there to be a slight tendency for people with phones New and 1+ year old phones to be more likely to perform most tasks. It stands to reason that people with newer phones purchase those phones because they're inclined to do more with their devices. An emphasis must be placed on the use of the word slight. In practice, by percentage the performance rates are close enough to be almost negligible. To some degree, this makes sense given that while phone models generally see annual upgrades, the features available from year to year don't change much.

Takeaway 05

Takeaways are here to summarize the data and give you insights you can use going forward.

Biggest Surprise: Internet of Things (IoT)

The term Internet of Things is not a common one. Yet, in our research, the majority of respondents (barely) were familiar with the term. Moreover, a significant number of them were aware they'd used the technology to control devices in their home. In fact, the IoT related behavior — controlled a device within your home by phone — was the closest emerging technology related behavior to 50%.

Customers are ready and willing to use their mobile phones to control other devices. We're familiar with the ideas of controlling thermostats, video cameras and speakers but what else can be done? How can digital twin technology help around the home or the workplace? What devices can be made more automated or more informative so that consumers' lives are made easier?

Takeaway 06

Takeaways are here to summarize the data and give you insights you can use going forward.

Innovating Your CX Starts Today

One of the most useful but easy to overlook data points of this study is related to the chart featuring activity usage. Each of the non emerging technology dependent activities had been performed by a majority of respondents. The majority of mobile phone consumers are using their devices to engage brands throughout the purchase and customer support process. That's happening now.

In far less time than you think, the green line is going shift and the majority of users will be performing the emerging tech dependent activities. As marketers and technologists and UX pros and innovators, you have to get there before your customers. You have to be ready to meet your customers where they are. That means, start today with understanding where your customers are and developing pilot projects that help you explore the limits of your customer experience possibilities. Your customers are already using these technologies.

Thank You

Concluding Thoughts

The report was brought to you by The Innovation Pro and Analegy, an innovation and technology consulting firm. We realize that organizations are reluctant to invest too much into emerging technologies because they may not believe there is near-term potential for positive ROI. Our research says the opposite.

Your customers are familiar with the emerging technologies and they're waiting for you to innovate and help them take advantage of them. There are demographic differences that may affect near-term utilization but the overall trend shows the technologies ultimately becoming more ubiquitous.

If you're interested in see more of our data including how the behaviors net out by Phone Age, [please visit our Google Data Studio report](#).

If you're interested in learning more about The Innovation Pro, [please visit the website](#) and click Contact Me.