2021
STATE OF
AUTOMATIC
SPEECH
RECOGNITION

Report by **opusresearch**   Presented by **DG DEEPGRAM**

Table of Contents

Introduction

## The Untapped Potential Within Enterprise Speech

Prior to the COVID-19 pandemic, companies had multiple touch points with their customers, including call center recordings, in-person experiences and chatbots. These various interactions provided enterprise companies with multiple touch points to connect with fellow employees and customers. When the pandemic hit the U.S., shelter-in-place orders made in-person experiences largely impossible, upending all internal and external business interactions. In a year of touchless exchanges, voice technology—including conferencing platforms and improved call center technology—emerged as a way for businesses and customers to not only stay connected, but also to better understand each other through the voice data produced.

To gain an understanding of the state of speech recognition in the enterprise today, **Deepgram** partnered with **Opus Research** to survey 400 North American decision-makers, from managers to the C-suite, and in industries from retail to telecom to government, to discover how they are currently using ASR. What we found, was that **while virtually all enterprise companies are utilizing Automatic Speech Recognition (ASR) technology today, they are barely scratching the surface of its potential.**

STATE OF ASR REPORT

Key Findings

An Appetite for More Use Cases

Currently, ASR is mainly used for...

- OPERATIONAL EFFICIENCY
- COMPLIANCE
- REGULATORY MANDATES
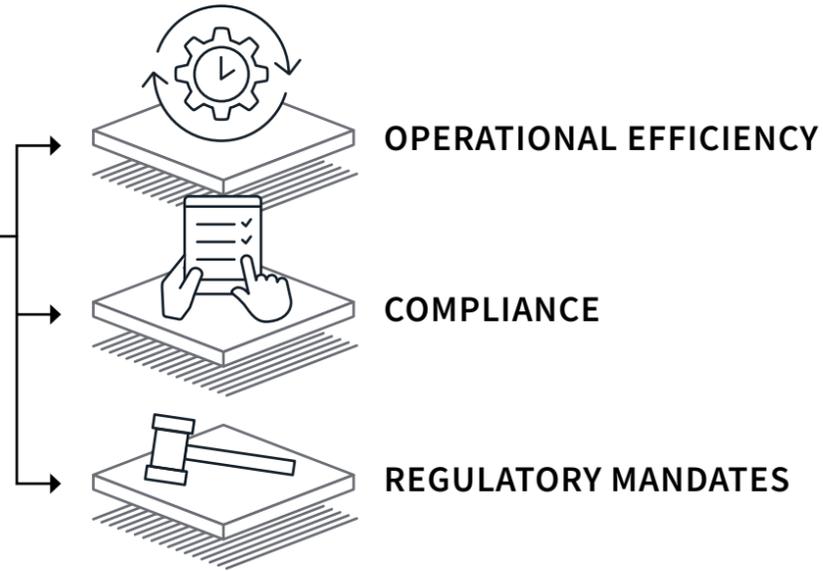
But there is an appetite for more use cases. For example...

- REAL-TIME ANALYTICS
- VIRTUAL ASSISTANTS
- MARKET RESEARCH

STATE OF ASR REPORT
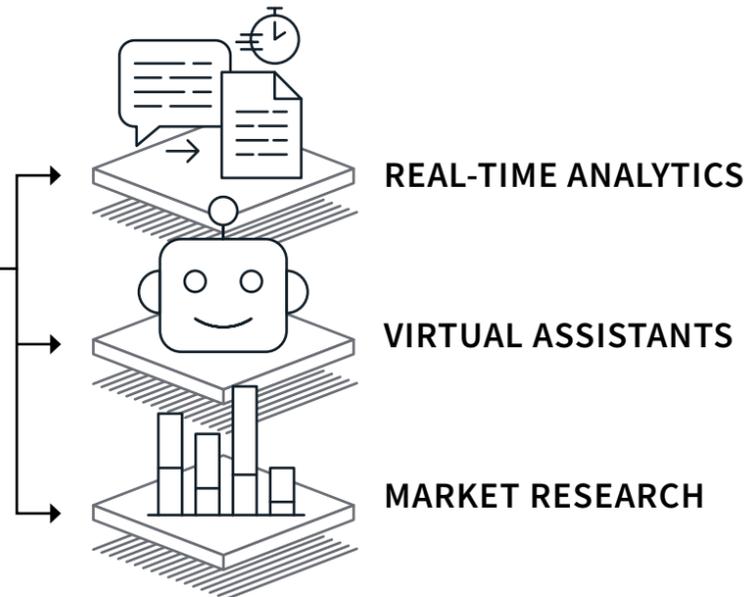
Over **80%+** Of respondents are actively using ASR to transcribe speech data.

However...

2/3 Say they are significantly underutilizing their audio.
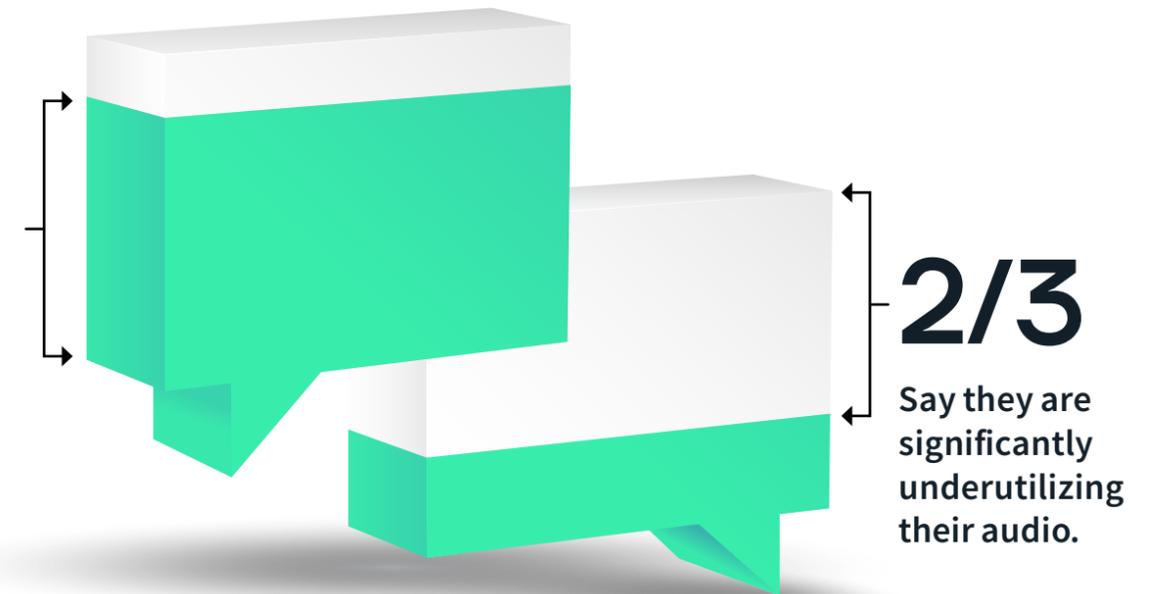
80% Of respondents list COVID-19 as a top reason they accelerated the adoption of ASR.
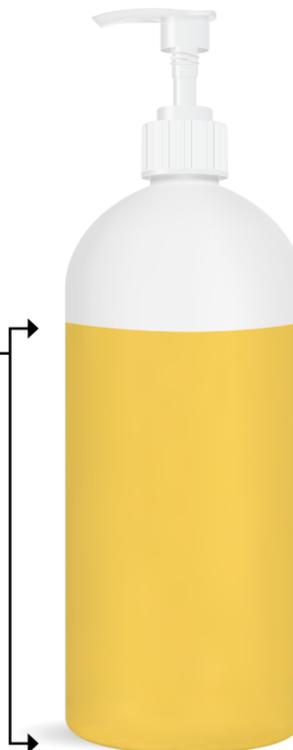
85% Indicate ASR as important/very important to their future enterprise strategy.
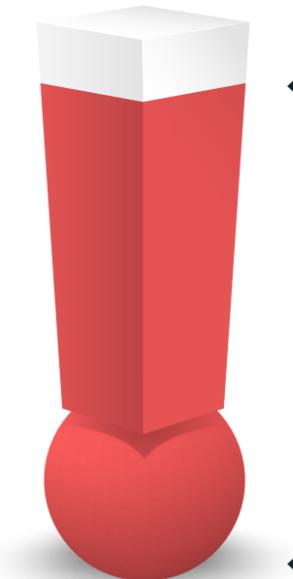
The Value of ASR

It is clear that for most enterprise companies, ASR is not a "new" technology. While it was not a requirement for respondents to currently be using ASR, **99% of respondents indicated that they currently implement ASR** in some capacity as part of their business strategy, and a large majority plan to significantly increase their investment in 2021. Across all industries surveyed—from healthcare to financial services—the value of ASR and the types of available use cases will only continue to grow.

STATE OF ASR REPORT

Question: Do you currently implement an automated speech recognition (ASR) technology solution for transcription or analytics?

Banking/Financial Services (n=55)

100%

Contact Center (n=60)

100%

Government/Public Sector (n=16)

100%

Healthcare/Medical Services (n=57)

100%

Insurance (n=25)

92%   8%

Retail (n=55)

98%   2%

Telecom (n=22)

100%

Travel + Hospitality (n=55)

100%

Media + Entertainment (n=55)

100%
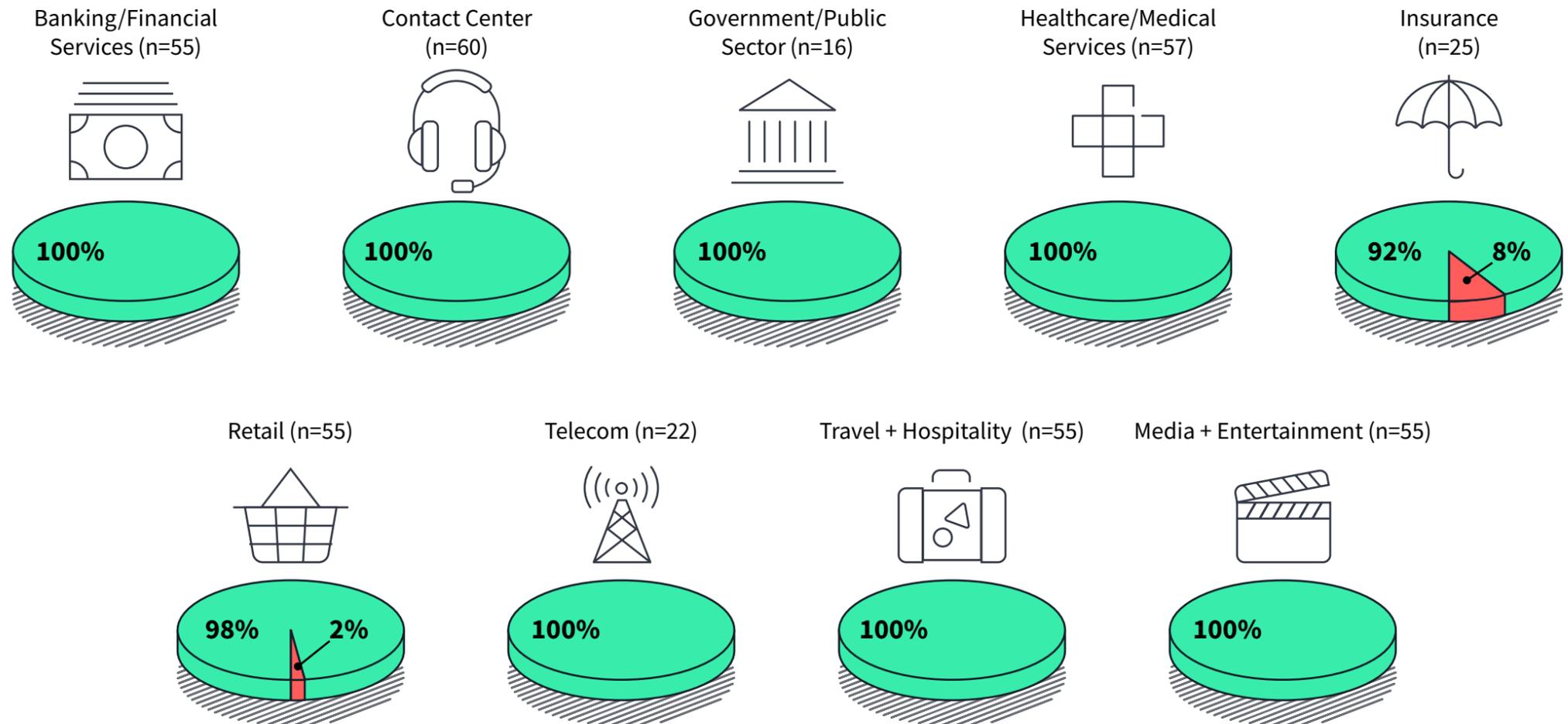
Base: All Respondents (bases vary)

YES   NO   I DON'T KNOW

Perhaps, what is more indicative of the value of speech recognition, is that **85%** responded that ASR is **"Important"** or **"Very Important"** to their future enterprise strategy.

Importance of Speech Recognition

| 15% | 85% |

LESS IMPORTANT (1+2) ■ MIDDLE (3) ■ MORE IMPORTANT (4+5) ■

5-Point Scale (1 = Least Important, 5 = Most Important)
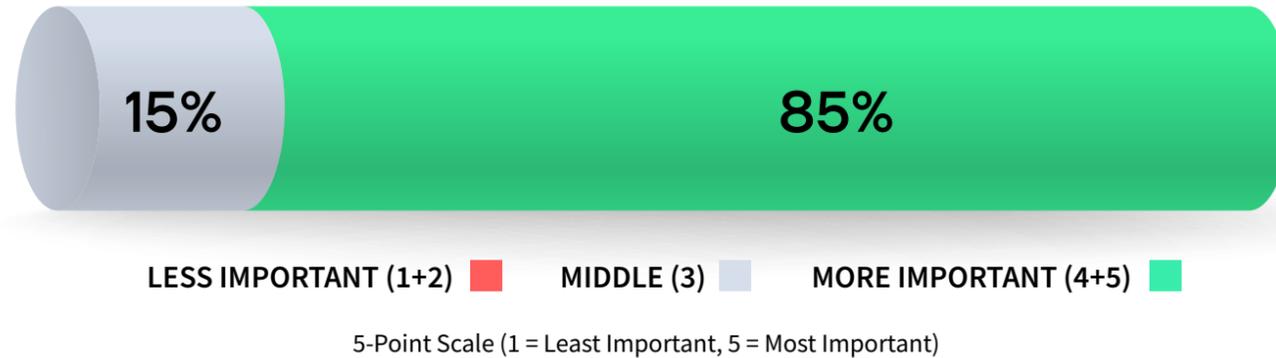
Our research also revealed that speech recognition will only continue to gain momentum in 2021, with **73%** of respondents **planning to increase their ASR budgets** in the next year.

Question: What are your spending expectations for ASR budget over the next 12 months?

ASR Budget Expectation

| 27% | 73% |

DECREASE (1+2) ■ NO CHANGE (3) ■ INCREASE (4+5) ■

5-Point Scale (1 = Decrease Significantly, 5 = Increase Significantly)
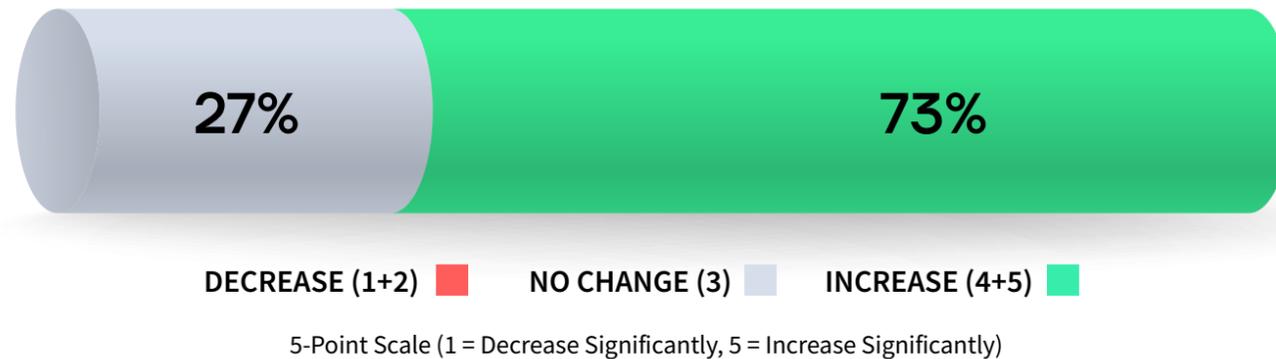
Insight Tip

It's clear that ASR is considered important and that enterprise investments are expected to continue increasing. Yet, most respondents admit their organizations aren't maximizing the technology's full potential. So, while most enterprises may not be starting at square one in terms of leveraging ASR, **conducting an audit of how they are currently using the technology will reveal opportunities for where it could be utilized more.** This type of forward-thinking will enable companies to remain competitive and understand how they're falling short when it comes to using ASR.

02. Barely Scratching the Surface of ASR Use Cases

To get a clear understanding of how enterprises aren't using ASR to its fullest potential, it's helpful to take a step back and look at how the technology is currently being used across industries. According to our findings, the majority of respondents (**78%**) are currently using ASR to transcribe and analyze voice data from consumer-facing devices, skewed heavily toward voice assistants within mobile applications.

Question: Where do you currently deploy ASR solutions?

Edge devices
(e.g. smart speakers, kiosks, auto, smartphones, etc.) → 78%

Integrated with our collaboration platform
(e.g. Zoom, Webex, Skype, Slack) → 65%

In our customer-facing contact center(s) → 60%

Supporting our internal Help Desk
(e.g. Axios, Zendesk, Freshdesk, Intercom) → 59%

Elsewhere → 0%

STATE OF ASR REPORT
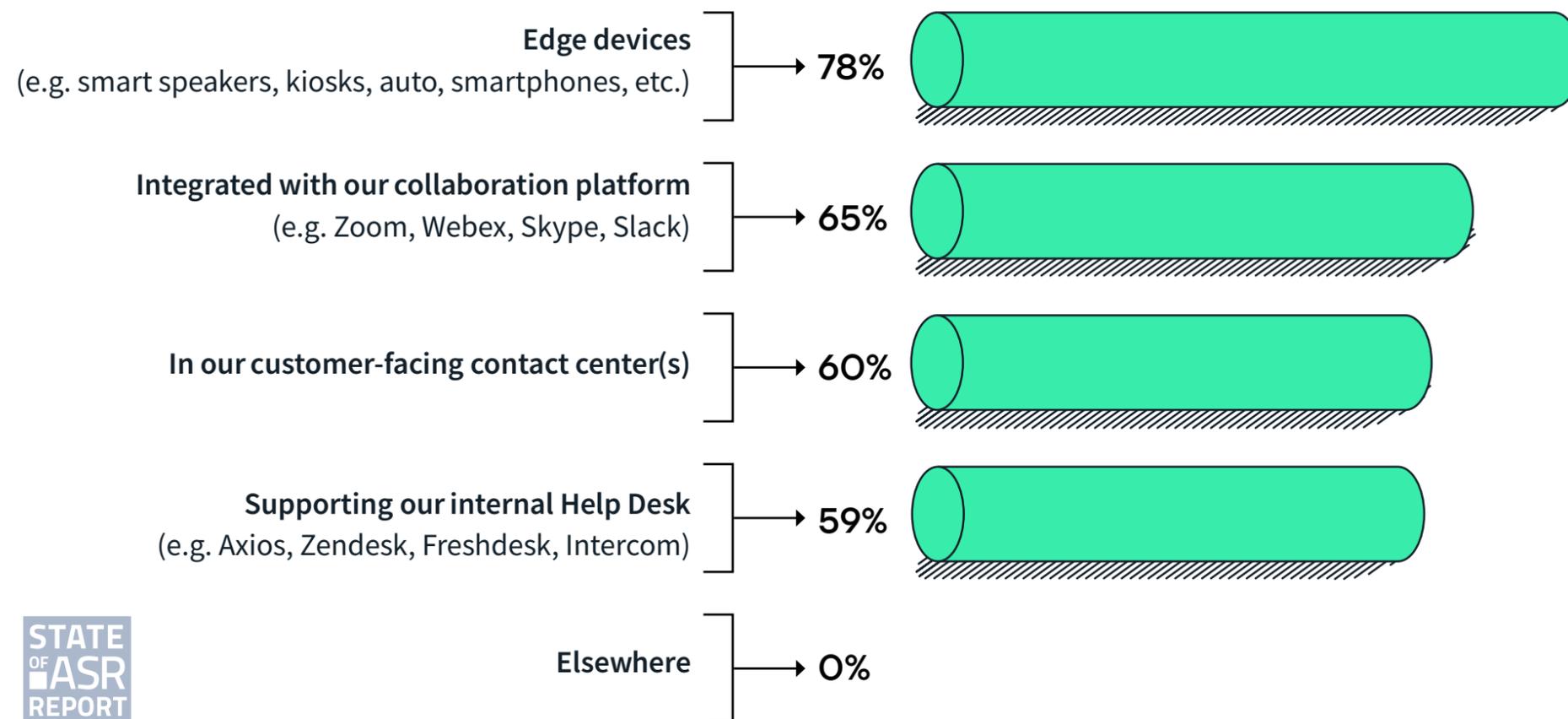
Insight Tip

While this finding isn't entirely surprising considering the volume of calls we joined this year, 65% of respondents selected leveraging ASR to transcribe meetings as an important use case for this type of technology, while 60% of respondents said incorporating ASR within customer-facing contact centers was another crucial use case. Internal use cases were not as widely selected, with only 59% of respondents implementing ASR to support internal Help Desks. **As a result, companies that are leveraging high performance ASR solutions in their call help desks stand to differentiate themselves from their competition.**

Overall, most survey respondents indicated operational efficiencies and compliance as the highest drivers of ASR use. Looking at the industry data, however, **retail (72%)** and **telecom (77%)** ranked **"defining products and services"** higher than other verticals surveyed, while **telecom (86%)** and **contact centers (92%)** ranked **"inform training programs"** as high drivers. These findings likely indicate what matters most within these verticals, and where voice data insights best fit into the picture.

Question: How are you making use of captured audio in your firm?

	Banking / Financial Services (n=55)	Contact Center (n=60)	Government/ Public Sector (n=16)	Healthcare/ Medical Services (n=57)	Insurance (n=23)	Retail (n=54)	Telecom (n=22)	Travel + Hospitality (n=55)	Media + Entertainment (n=55)
PROMOTE OPERATIONAL EFFICIENCIES	80%	92%	100%	84%	91%	76%	86%	95%	73%
ASSURE COMPLIANCE WITH REGULATORY MANDATES	84%	67%	75%	77%	100%	37%	68%	78%	65%
DEFINE OR REFINE OUR PRODUCTS OR SERVICES	58%	57%	25%	63%	57%	72%	77%	53%	45%
GAIN INSIGHTS INTO NEW BUSINESS OPPORTUNITIES	62%	72%	6%	25%	57%	59%	50%	49%	33%
INFORM TRAINING PROGRAMS	60%	92%	44%	47%	26%	43%	68%	27%	25%
NONE OF THE ABOVE	0%	0%	0%	0%	0%	2%	0%	0%	0%
OTHER	0%	0%	0%	2%	0%	0%	0%	0%	2%

Base: All Respondents (bases vary)

Current Usage, Enterprise-wide

In aggregate, the industry data points to the fact that ASR use is siloed, with no industry using it for all of the listed use cases. While respondents are primarily leveraging ASR for **cost savings** (e.g., operational efficiencies and improved training) or **cost avoidance** (compliance), they're **not utilizing it as much for overall enterprise growth or to improve products and services, with the exception of the retail and telecom industries.**

Question: How are you making use of captured audio in your firm?

Use Case	Percentage
Promote Operational Efficiencies	85%
Assure compliance with regulatory mandates	70%
Define or refine our products or services	58%
Gain insights into new business opportunities	49%
Inform training programs	49%
None of the Above	0%
Other	1%
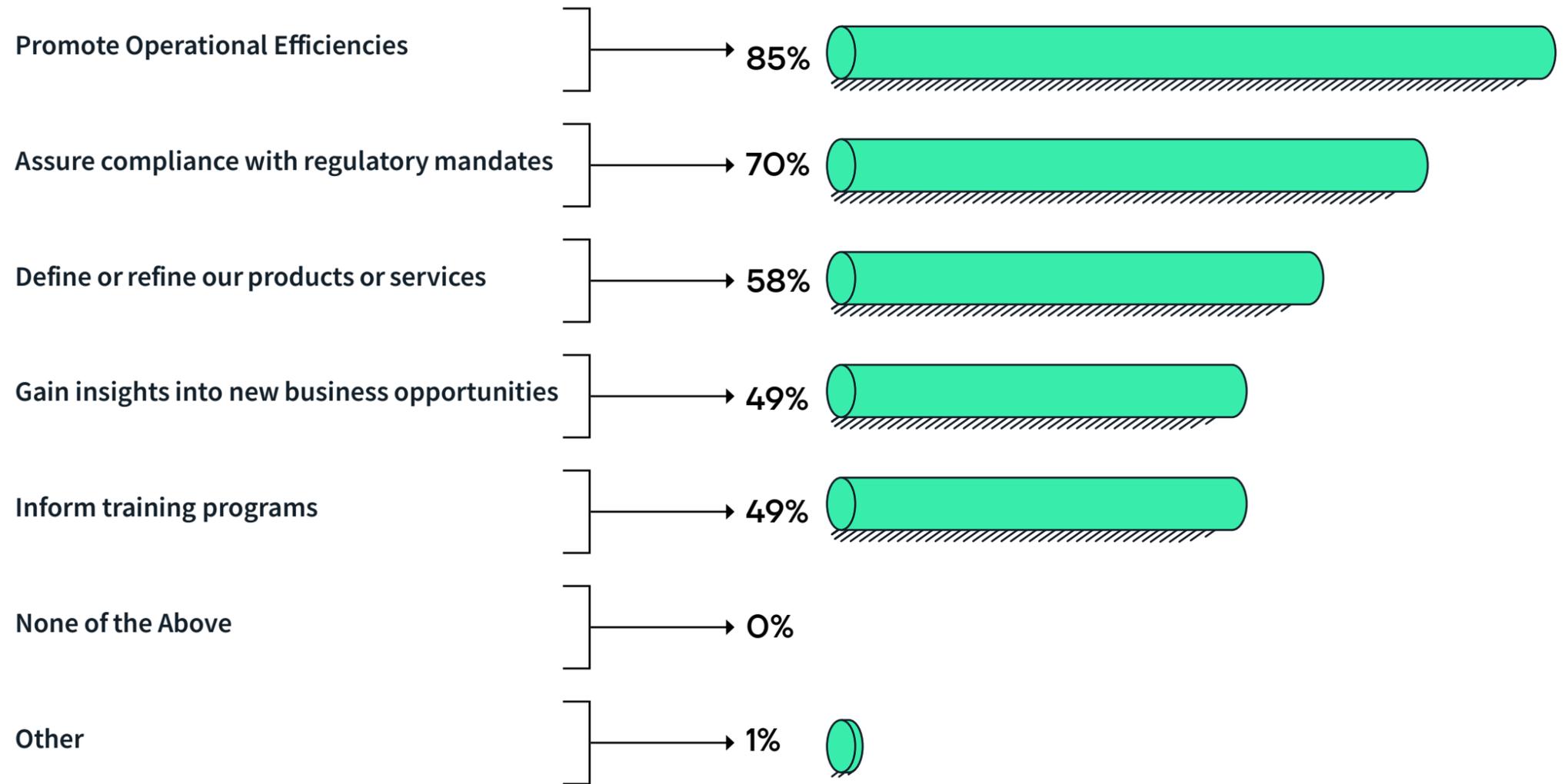
Base: All Respondents (n=397)

03. Exposing ASR's Untapped Potential

What is perhaps most illuminating within our findings is that while 88% of enterprise companies are using ASR to transcribe or analyze spoken conversational content, more than half of respondents (66%) don't believe their audio is being properly utilized. This data indicates that **many companies understand there is a treasure trove of knowledge hidden within their unstructured speech data, but don't know how to make the best use of it.**

Question: Are you using ASR to transcribe or analyze spoken conversational content (speech data)?

88%

12%

YES ■   NO ■   I DON'T KNOW ▫
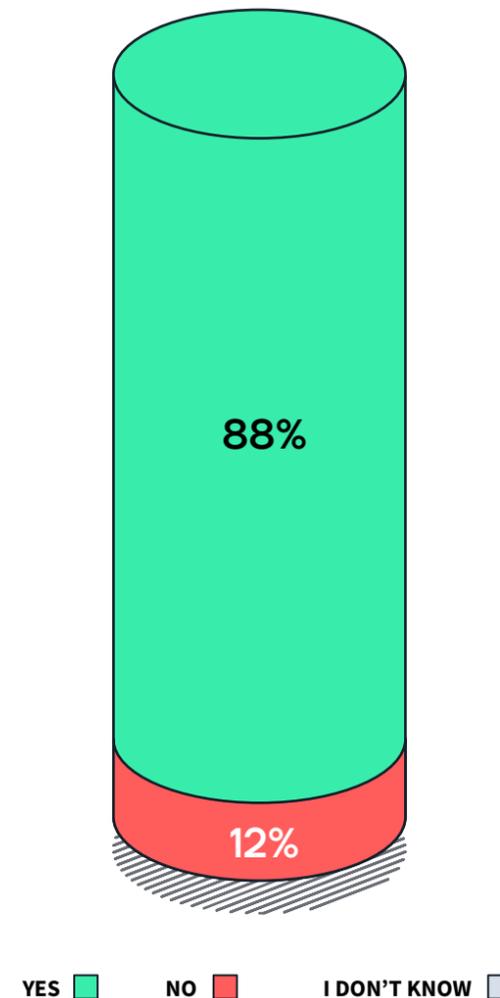
Base: All respondents (bases vary, n=400)

Question: If "Yes," what percentage of your audio is being properly utilized?

31%

66%

3%

100% ▫   75-99% ■   50-74% ■   25-50% ■   10-25% ■   <10% ■   I DON'T KNOW ▫
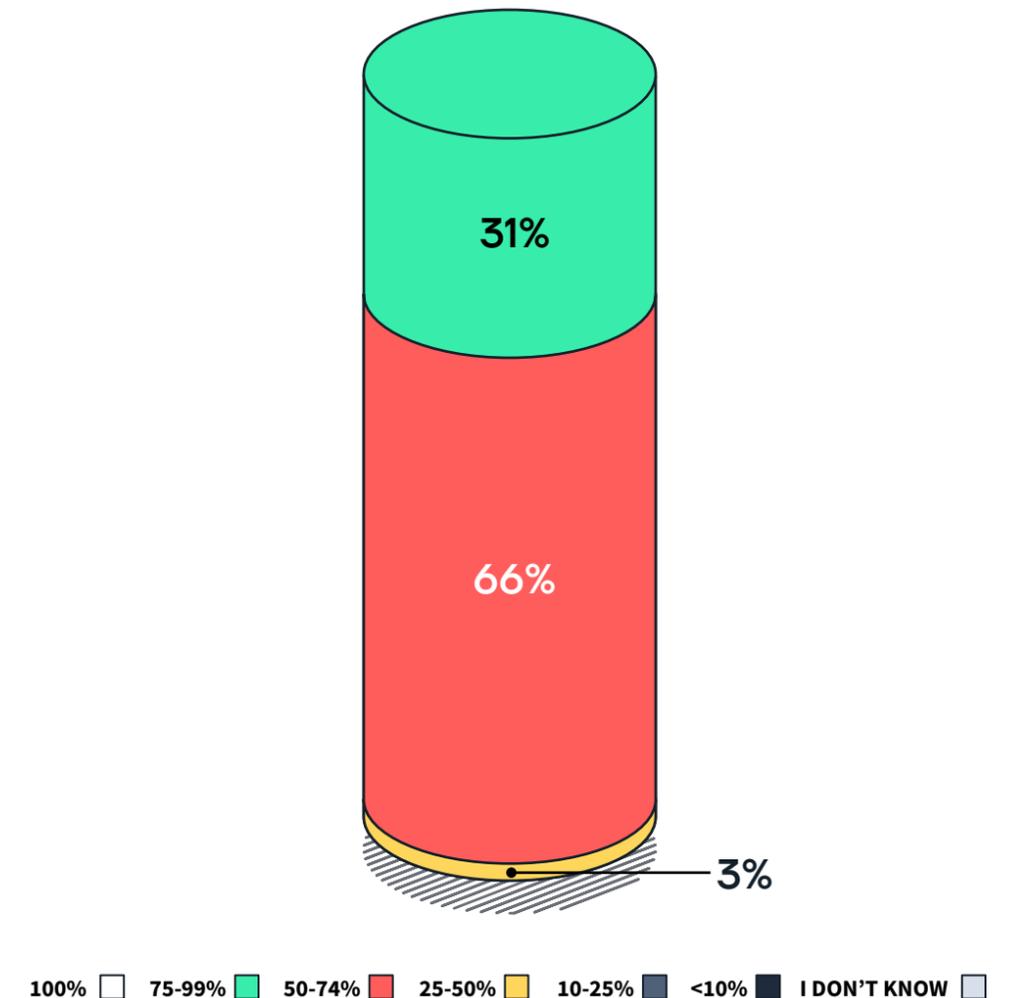
Base: Those who selected "Yes" at previous question (n=351)

04. Adopting New Tech: The Laggards + Leaders

When asked, "Are you using ASR to transcribe or analyze spoken conversational content (speech data)?", our findings indicate that a large majority of the surveyed vertical industries are actively doing so (90%+) with **retail, government, insurance, and media lagging slightly behind.**

Question: Are you using ASR to transcribe or analyze spoken conversational content (speech data)?

Banking/Financial Services (n=55)

91%   9%

Contact Center (n=60)

100%

Government/Public Sector (n=16)

75%   25%

Healthcare/Medical Services (n=57)

96%   4%

Insurance (n=25)

76%   24%

Retail (n=55)

75%   25%

Telecom (n=22)

100%

Travel + Hospitality (n=55)

87%   13%

Media + Entertainment (n=55)

80%   20%
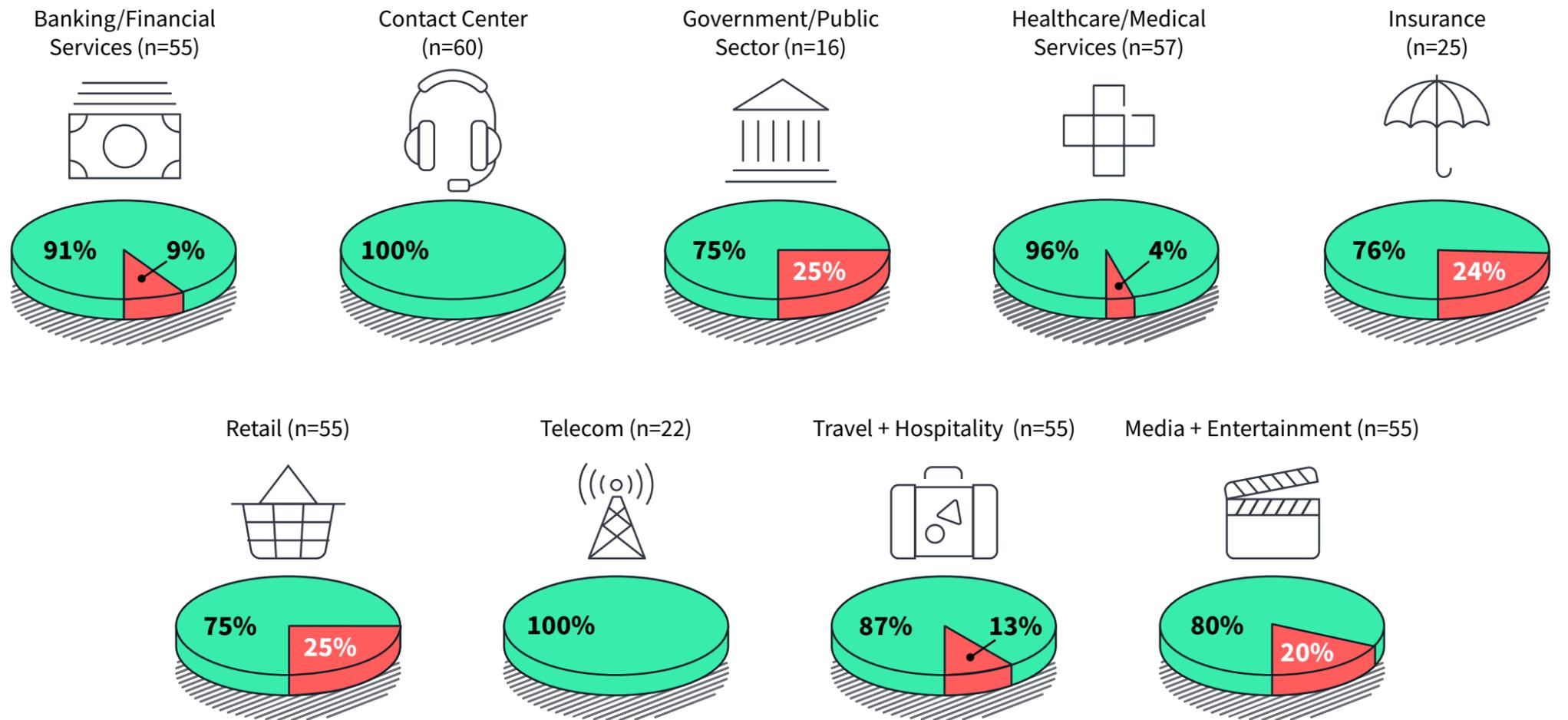
Base: All Respondents (bases vary)

YES   NO   I DON'T KNOW

Unexpectedly, we found that retail, an industry we believe to be one of the biggest adopters of emerging technology, is lagging slightly in its utilization of ASR transcription compared to industries such as financial services or telecom. Furthermore, **retail respondents noted that only 7% of their audio is being properly utilized.**

Out of all the industry verticals surveyed, **call center respondents claimed the highest percentage of their audio (55%)** is being properly utilized. As an industry, contact centers have naturally relied heavily on audio conversations. As a result, they're more confident in how they're leveraging audio to gather critical customer insights.

Transcription Utilization by Industry

Question: What percentage of your audio is being properly utilized?

100% ☐   75-99% 🟩   50-74% 🟥   25-50% 🟨   10-25% ⬛   <10% ⬛   I DON'T KNOW ☐

Banking / Financial Services (n=50)	Contact Center (n=60)	Government/ Public Sector (n=12)	Healthcare/ Medical Services (n=55)	Insurance (n=19)	Retail (n=41)	Telecom (n=22)	Travel + Hospitality (n=48)	Media + Entertainment (n=44)
32%	55%	25%	49%	42%	7%	18%	13%	25%
66%	43%	75%	49%	58%	88%	77%	83%	70%
2%	2%		2%		5%	5%	4%	5%

12
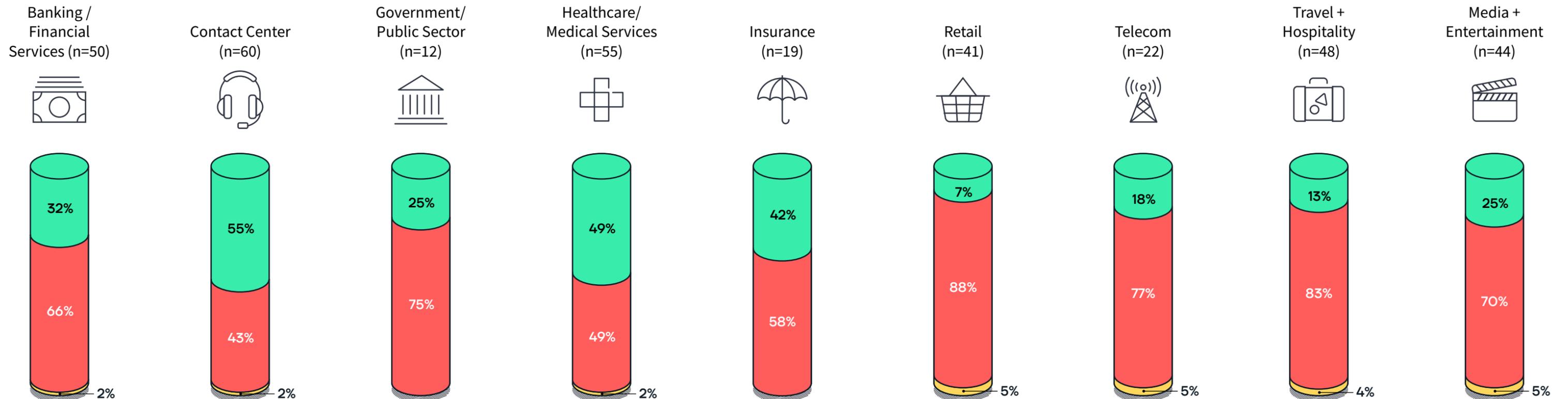
05. COVID-19 Speeds Up ASR Adoption

The pandemic has transformed technology and business principles across industries forever. 80% of respondents believe that COVID-19 has accelerated the adoption of ASR.
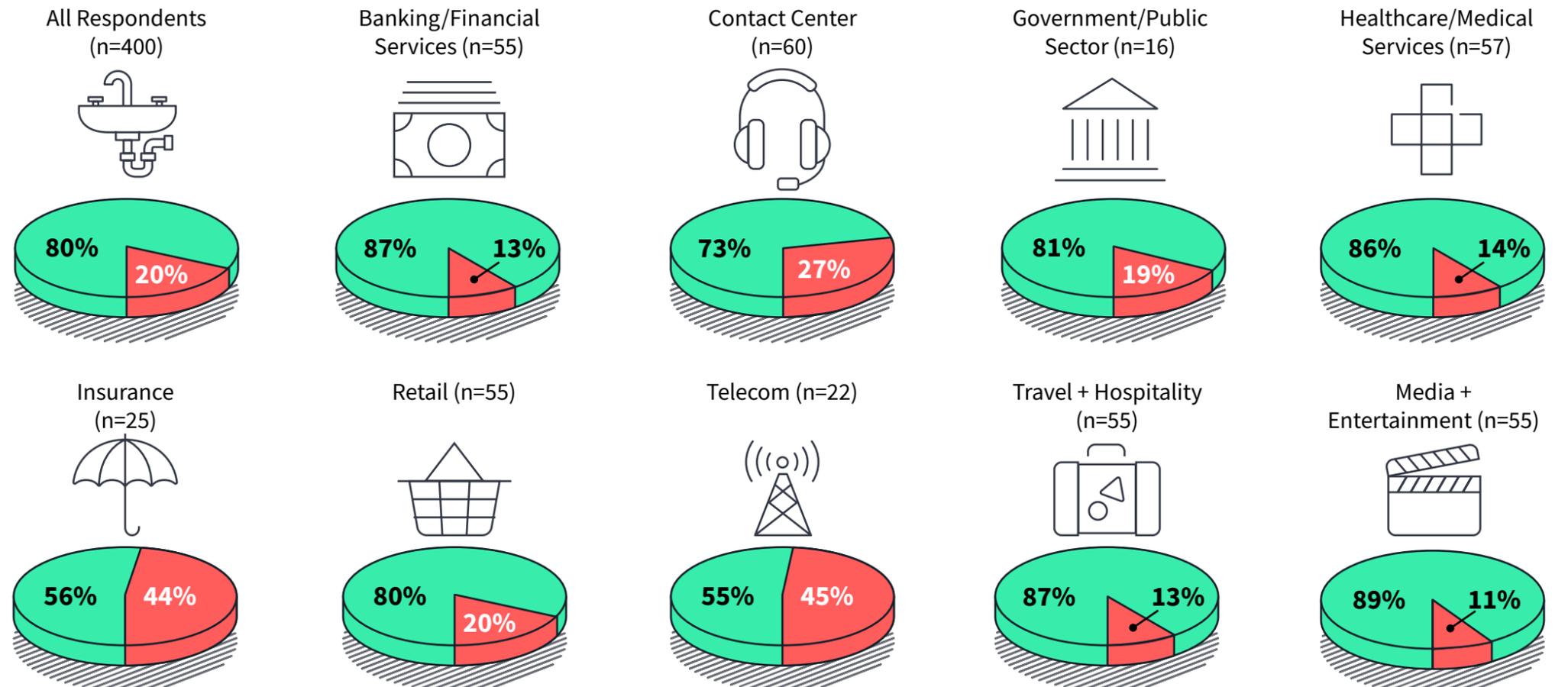
The retail (80%), banking (87%) and healthcare (86%) industries sped up their adoption of ASR the mostly due to the pandemic, leading us to a few different conclusions. First, the industries that have historically adopted emerging technologies faster due to consumer demand (e.g., retail and banking, who were early adopters of mobile apps) were quick to recognize the significance of ASR. Our second insight is that industries that have been historically slower to innovate (e.g., healthcare) accelerated ASR due to the impact of the pandemic and shelter-in-place orders. Lastly, while certain industries like retail accelerated ASR adoption more rapidly than others, they are still severely underutilizing their audio.

This conclusion likely signifies that, while the industry leaders defined in the previous section recognize the importance of ASR, and are rapidly adopting it to remain competitive, **they still don't quite understand how to capitalize on the data they are collecting.**

Question: Has COVID-19 accelerated your adoption of ASR technologies?   YES ▢ NO ▢ I DON'T KNOW ▢

All Respondents (n=400)	Banking/Financial Services (n=55)	Contact Center (n=60)	Government/Public Sector (n=16)	Healthcare/Medical Services (n=57)
80% / 20%	87% / 13%	73% / 27%	81% / 19%	86% / 14%

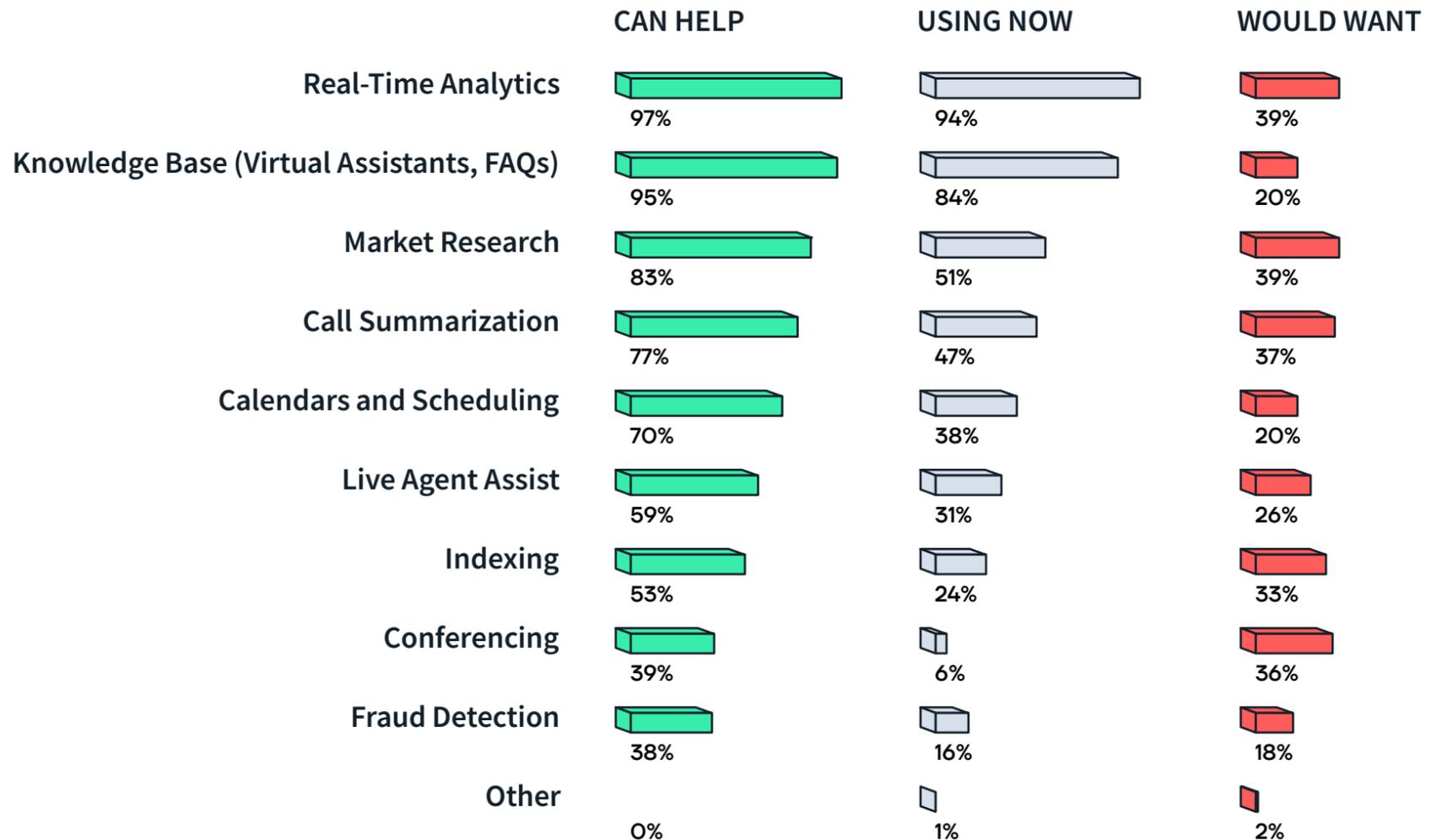| Insurance (n=25)	Retail (n=55)	Telecom (n=22)	Travel + Hospitality (n=55)	Media + Entertainment (n=55)
56% / 44%	80% / 20%	55% / 45%	87% / 13%	89% / 11%

06. Missed Opportunities With Your ASR Provider

When survey respondents were asked which areas ASR could support within their organization, the top use cases selected were "real-time analytics" (97%), a "knowledge base, including virtual assistants and FAQs" (95%) and "market research" (83%), with "call summarization" (77%) and "calendars and scheduling" (70%) falling closely behind. When asked a follow-up question of which use cases they were currently implementing ASR for, 94% were already using it for "real-time analytics" and 84% were using ASR for a "company knowledge base". However, only 51% of respondents marked that they were using ASR for "market research", with "call summarization" (47%) and "calendars and scheduling" (38%) even less common among respondents.

STATE OF ASR REPORT

Questions:
1. **What are the use cases within your organization that ASR/Analytics can help?** ⟶ 🟩
2. **What use cases are you using voice/ASR technology for now?** ⟶ ⬜
3. **What use cases would you ideally want from your ASR provider?** ⟶ 🟥

	CAN HELP	USING NOW	WOULD WANT
Real-Time Analytics	97%	94%	39%
Knowledge Base (Virtual Assistants, FAQs)	95%	84%	20%
Market Research	83%	51%	39%
Call Summarization	77%	47%	37%
Calendars and Scheduling	70%	38%	20%
Live Agent Assist	59%	31%	26%
Indexing	53%	24%	33%
Conferencing	39%	6%	36%
Fraud Detection	38%	16%	18%
Other	0%	1%	2%

O7. Industry Analysis

0.7.1 Market Research is Important For Consumer-Facing Industries, But It's Still Underutilized

When looking at this same question vertically, it was surprising to find that across industries, "market research" was significantly underutilized—especially by companies that interact directly with customers, with only 51% of respondents in banking and financial services, 16% of respondents in insurance, and 51% in the travel and hospitality spaces currently using ASR for market research.

0.7.2 Financial Services and Insurance Want Fraud Detection From Their ASR Provider

Digging deeper, the data exposed other areas where ASR was not being used to its full potential, or in the areas that are most important to respondents.

For example, in the banking and financial services (78%) and insurance (80%) spaces respondents selected "fraud detection" as a key area where ASR could lend support to their business. Yet, only 38% of banking and financial services and 64% of insurance respondents indicated that they were currently using ASR for fraud detection.

0.7.3 Industries That Experience a Heavy Call Volume Are Missing the Mark

When looking at industries that experience a heavy volume of calls, including government (81%), insurance (84%) and telecom (86%), survey respondents selected "call summarization" as an important area for ASR use. However, the data again revealed how respondents current ASR strategy is not addressing the key pain points for employees with only 44% of government, 28% of insurance and 36% of telecom respondents utilizing ASR for "call summarization".

These findings suggest that companies are interested in capitalizing on the insights that ASR can unearth, but have yet to take full advantage of the technology. This could be due to a lack of understanding of what their provider can offer or due to the sophistication of the technology itself, which brings us full circle to our earlier finding that 66% of respondents don't believe their audio is being properly utilized. ASR is a critical element of any enterprise strategy and has the power to unlock powerful insights into the overall customer experience, how a product or service is working and much more. But, as of this survey, the technology is not being used to its full potential.
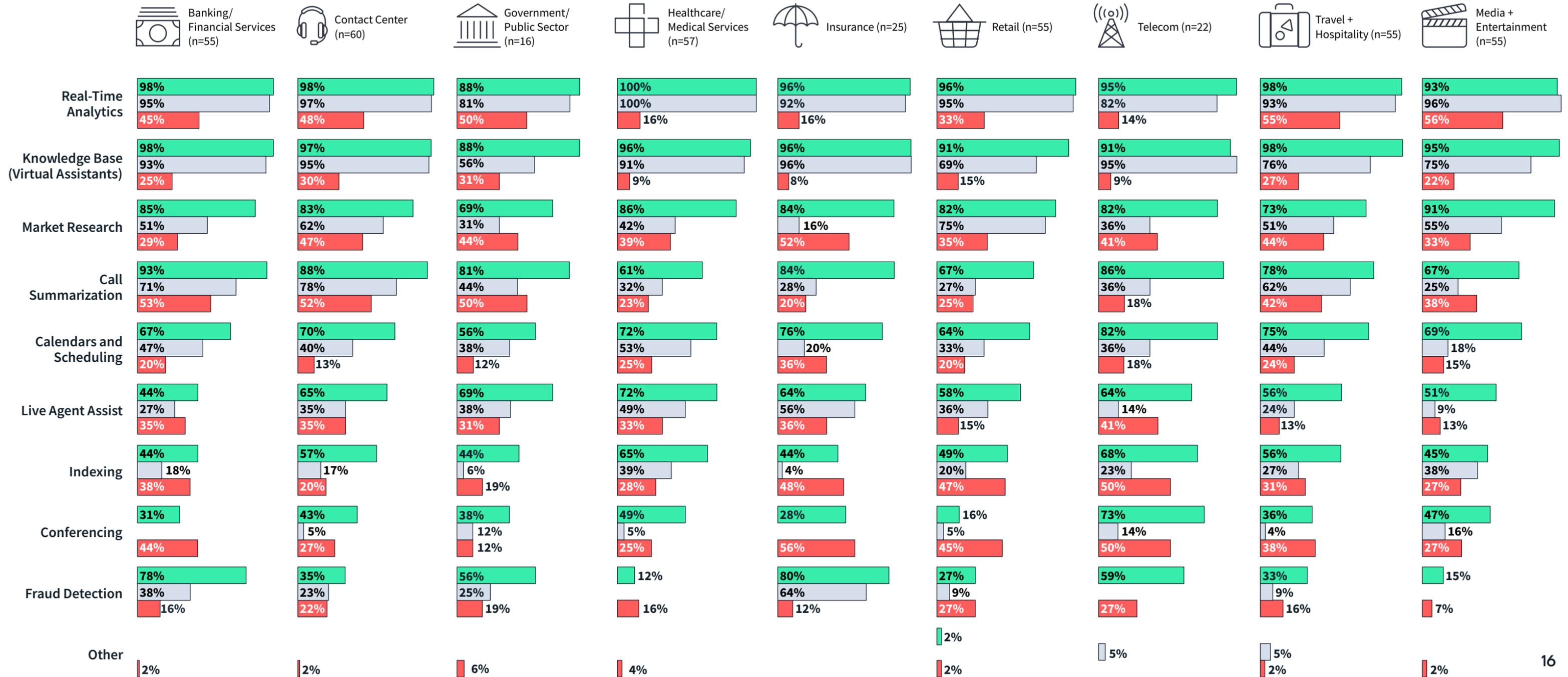
Use Case Opportunities

Questions:
1. What are the use cases within your organization that ASR/Analytics can help? → (green)
2. What use cases are you using voice/ASR technology for now? → (gray)
3. What use cases would you ideally want from your ASR provider? → (red)

Use Case	Q	Banking/Financial Services (n=55)	Contact Center (n=60)	Government/Public Sector (n=16)	Healthcare/Medical Services (n=57)	Insurance (n=25)	Retail (n=55)	Telecom (n=22)	Travel + Hospitality (n=55)	Media + Entertainment (n=55)
Real-Time Analytics	1	98%	98%	88%	100%	96%	96%	95%	98%	93%
	2	95%	97%	81%	100%	92%	95%	82%	93%	96%
	3	45%	48%	50%	16%	16%	33%	14%	55%	56%
Knowledge Base (Virtual Assistants)	1	98%	97%	88%	96%	96%	91%	91%	98%	95%
	2	93%	95%	56%	91%	96%	69%	95%	76%	75%
	3	25%	30%	31%	9%	8%	15%	9%	27%	22%
Market Research	1	85%	83%	69%	86%	84%	82%	82%	73%	91%
	2	51%	62%	31%	42%	16%	75%	36%	51%	55%
	3	29%	47%	44%	39%	52%	35%	41%	44%	33%
Call Summarization	1	93%	88%	81%	61%	84%	67%	86%	78%	67%
	2	71%	78%	44%	32%	28%	27%	36%	62%	25%
	3	53%	52%	50%	23%	20%	25%	18%	42%	38%
Calendars and Scheduling	1	67%	70%	56%	72%	76%	64%	82%	75%	69%
	2	47%	40%	38%	53%	20%	33%	36%	44%	18%
	3	20%	13%	12%	25%	36%	20%	18%	24%	15%
Live Agent Assist	1	44%	65%	69%	72%	64%	58%	64%	56%	51%
	2	27%	35%	38%	49%	56%	36%	14%	24%	9%
	3	35%	35%	31%	33%	36%	15%	41%	13%	13%
Indexing	1	44%	57%	44%	65%	44%	49%	68%	56%	45%
	2	18%	17%	6%	39%	4%	20%	23%	27%	38%
	3	38%	20%	19%	28%	48%	47%	50%	31%	27%
Conferencing	1	31%	43%	38%	49%	28%	16%	73%	36%	47%
	2		5%	12%	5%		5%	14%	4%	16%
	3	44%	27%	12%	25%	56%	45%	50%	38%	27%
Fraud Detection	1	78%	35%	56%	12%	80%	27%	59%	33%	15%
	2	38%	23%	25%		64%	9%		9%	
	3	16%	22%	19%	16%	27%		27%	16%	7%
Other	1					2%				
	2						5%		5%	
	3	2%	2%	6%	4%	2%			2%	2%

16

Conclusion: Siloed ASR Use Leads to Lost Potential for Enterprise

Only
49%
of respondents are leveraging ASR to gain insights into new business opportunities.
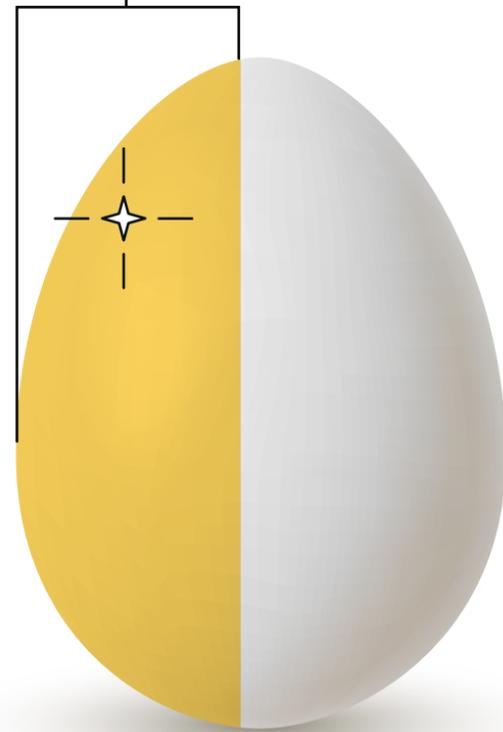
While it is encouraging to see the widespread use of ASR technology, many enterprises are still missing its potential. Survey respondents are primarily leveraging ASR for cost savings or cost avoidance, and less than half of respondents (49%) are using it to gain insights into new business opportunities. This is a major, untapped opportunity given the fact **90% of all data in the world is unstructured**, meaning audio, image and video files aren't readily placed into databases.

We believe that **voice data presents enterprises with a significant opportunity to gain more insight into their business, customers and markets**, and we are committed to helping enterprises unlock the potential hidden within their voice data.

10%
of all data is "structured," (readily placed in a database): email, messaging, social, paper.
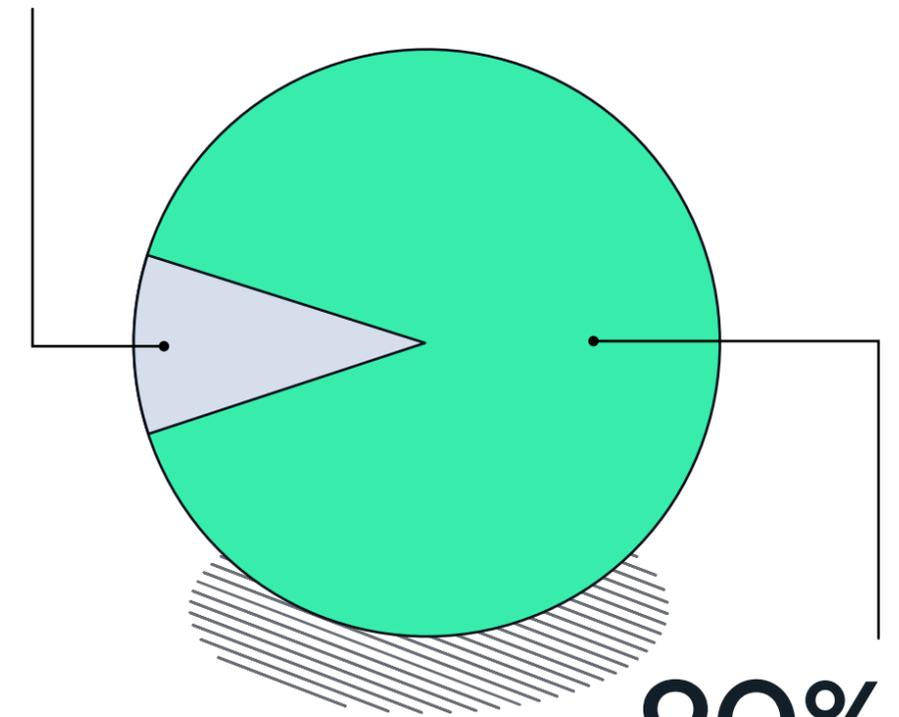
90%
is "unstructured," i.e. image, video, and **voice**.
⭐ **Major opportunity to gain insight.**

About the Report

Methodology

Opus Research in partnership with Deepgram fielded a survey of 400 decision-makers seeking to assess how businesses view automatic speech recognition technology. The 400 respondents represented eight vertical industries (Banking / Financial Services, Contact Center, Government / Public Sector, Healthcare / Medical Services, Insurance, Retail, Telecom, Travel & Hospitality, Media & Entertainment) with decision-making roles across varied business units (Engineering, Data Science, Business Analytics, Contact Center Operations, Customer Experience, Marketing, and Innovation).

opusresearch

About Opus Research

Opus Research is a diversified advisory and analysis firm providing critical insight on software and services that supports digital transformation. They are focused on the merging of intelligent assistance, NLU, machine learning, conversational AI, conversational intelligence, intelligent authentication, service automation and digital commerce. To learn more visit **OpusResearch.net**.

DG DEEPGRAM

About Deepgram

Deepgram is the leader in Automatic Speech Recognition (ASR) for enterprises and software providers. With our patented end-to-end deep learning approach, data scientists get access to the industry's fastest, most accurate and highly scalable AI technology. We take the heavy lifting out of noisy, multi-speaker, hard to understand audio transcription, so you can focus on what you do best. To learn more visit **deepgram.com**, **create a free account** or **Contact us** to get started.

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