DIGITAIL

AI in Veterinary Medicine: The Next Paradigm Shift

The Voice of the Veterinary Community. Year 2024

digitail.com

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Beyond the Tech, AI is the Fulfillment of Our Professional Oath: A Veterinarian's Reflections on the Findings

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Introduction

"In the anticipated symbiotic partnership, men will set the goals, formulate the hypotheses, determine the criteria, and perform the evaluations. Computing machines will do the routinizable work that must be done to prepare the way for insights and decisions in technical and scientific thinking. Preliminary analyses indicate that the symbiotic partnership will perform intellectual operations much more effectively than man alone can perform them."

This is a quote from a visionary paper by J.C.R. Licklider titled "Man-Computer Symbiosis." It was presented in 1960.

Back then, the idea of computing machines was akin to magic. Today, it is our reality. From video calling halfway across the globe to summoning a ride at our doorstep in minutes, from virtual assistants orchestrating family schedules to self-driving cars – we've harnessed the power of technology to work for us.

As artificial intelligence (AI) penetrates every industry, veterinary medicine is not staying on the sidelines.

Sebastian Gabor
Founder and CEO of Digitail

The possibilities of this technology are actively explored for applications such as diagnostic imaging, predictive analytics, medical record management, client communication, and even wearable health monitoring devices for animals. Today, AI-powered software can deliver instant interpretation of X-rays, summarize patient records within seconds, seamlessly transcribe notes into SOAP format, calculate dosages, prescreen and triage patients, and even answer complex medical questions.

Existing tools and visionary ideas for AI integration into the clinic workflows spark both excitement and apprehension as stakeholders grapple with the potential benefits and challenges presented by emerging technologies. Despite these passionate opinions, there has been a lack of comprehensive data to truly understand the sentiments and perspectives of veterinary professionals regarding AI in their field. To move forward, we must collectively address these questions: Is AI truly prepared to navigate the complexities of veterinary medicine? If not, what steps must be taken to ensure its readiness and responsible implementation?

We are thrilled to spearhead this first industry-wide survey on AI in veterinary medicine in collaboration with the American Animal Hospital Association (AAHA). This groundbreaking study is designed to capture the diverse perspectives, concerns, and applications of AI within the veterinary care landscape.

By leveraging the collective wisdom of veterinary professionals, we can navigate the integration of AI thoughtfully and responsibly, maximizing its potential while addressing any challenges that may arise.

Now that the magic of the past became the reality of the present, are you prepared for the next paradigm shift?

Methodology

Design

The research was initiated by Digitail and administered by the American Animal Hospital Association. It employed an online survey approach, wherein participants received a hyperlink to access the survey generated and hosted on Qualtrics. The survey was distributed to AAHA's members and the Digitail community of veterinary professionals in North America, including veterinarians, veterinary technicians, veterinary assistants, practice managers, customer service representatives (CSRs), veterinary students, business executives, and other industry representatives.

The survey contained an introduction letter providing general background information on AI and briefly describing the purpose of the study. The questionnaire included 18 close-ended questions and 7 open-ended questions designed to explore respondents' awareness, perception, personal and medical usage, expectations, concerns, and barriers to the adoption of AI in veterinary medicine.

Data collection took place over three weeks, starting on December 19, 2023, and ending on January 8, 2024. As a gesture of gratitude, respondents who provided their email addresses upon completing the questionnaire were entered into a raffle for 10 $25 Amazon gift cards.

Participants

The survey collected 3,968 responses. 45.3% of respondents were under 31 years old; 30.8% were between the ages of 31 and 40; 13.1% were aged 41 to 50. A smaller proportion, comprising 6.5% and 4.3%, respectively, were in the age groups of 51 to 60 and 61 years old or older. The average age of participants was 35 years old.

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What is your age range?

Age Range	Percentage
≤30	45.3%
31-40	30.8%
41-50	13.1%
51-60	6.5%
≥61	4.3%

Average age: 35
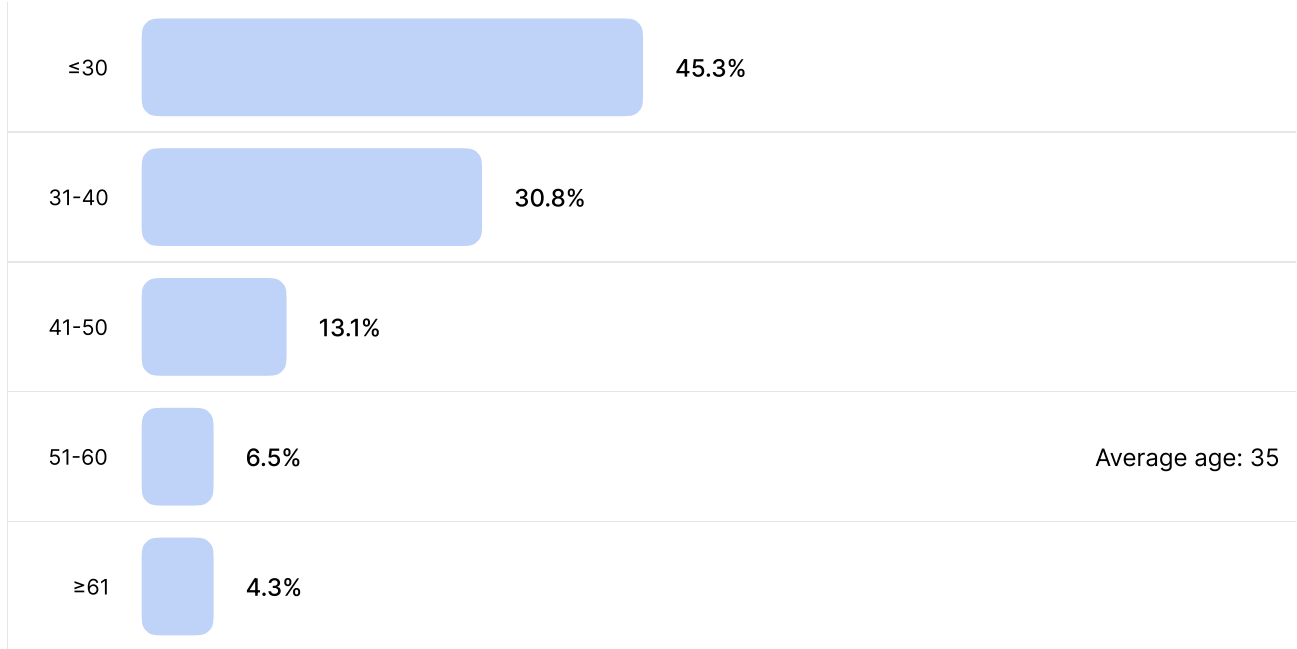
The distribution of roles among respondents varied. Approximately a quarter of the respondents, or 24.3%, identified as veterinarians, while a similar percentage, at 25.2%, were veterinary technicians. Practice managers represented 8.4% of the sample, followed by veterinary assistants at 12.5%. Receptionists or CSRs comprised 6.7% of respondents and students made up 13.6% of the sample. A smaller percentage, 2.6%, held roles as business executives, while the remaining 6.6% fell into various other roles not specified in the provided options.

What is your current role at your organization?

Role	Percentage
Veterinary technician	25.2%
Veterinarian	24.3%
Student	13.6%
Veterinary assistant	12.5%
Practice manager	8.4%
Receptionist/Customer Service Representative (CSR)	6.7%
Other	6.6%
Business executive	2.6%
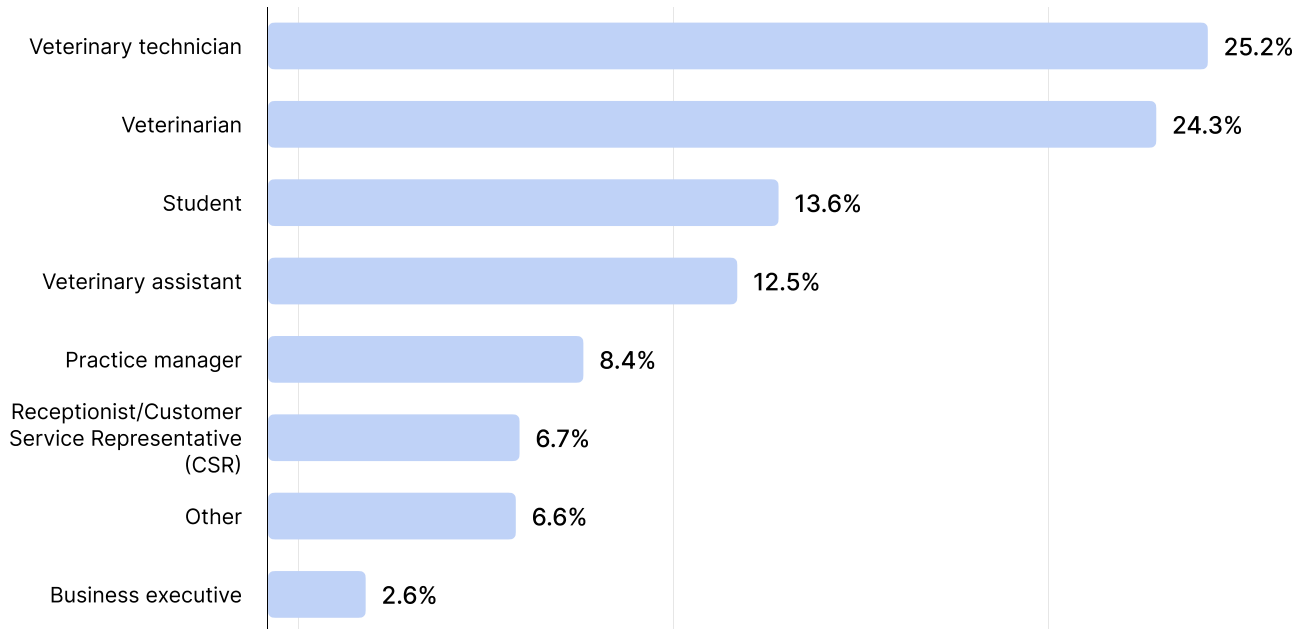
The survey respondents included veterinary professionals from diverse practice settings. A significant proportion, accounting for 44.6%, currently work in general practice. 16.2% are employed in ER/Specialty hospitals, 10.1% in academia, and 9.5% are engaged in shelter or non-profit organizations. A smaller percentage, constituting 5.5%, work as relief veterinarians (locums); 4.0% operate in a mobile practice capacity. The remaining 9.9% represent various other practice settings not specified in the provided options.

What practice setting are you currently working in?

Setting	Percentage
General practice	44.6%
ER/Specialty hospital	16.2%
Academia	10.1%
Other	9.9%
Shelter/Non-Profit	9.5%
Locum (Relief veterinarian)	5.5%
Mobile practice	4.0%
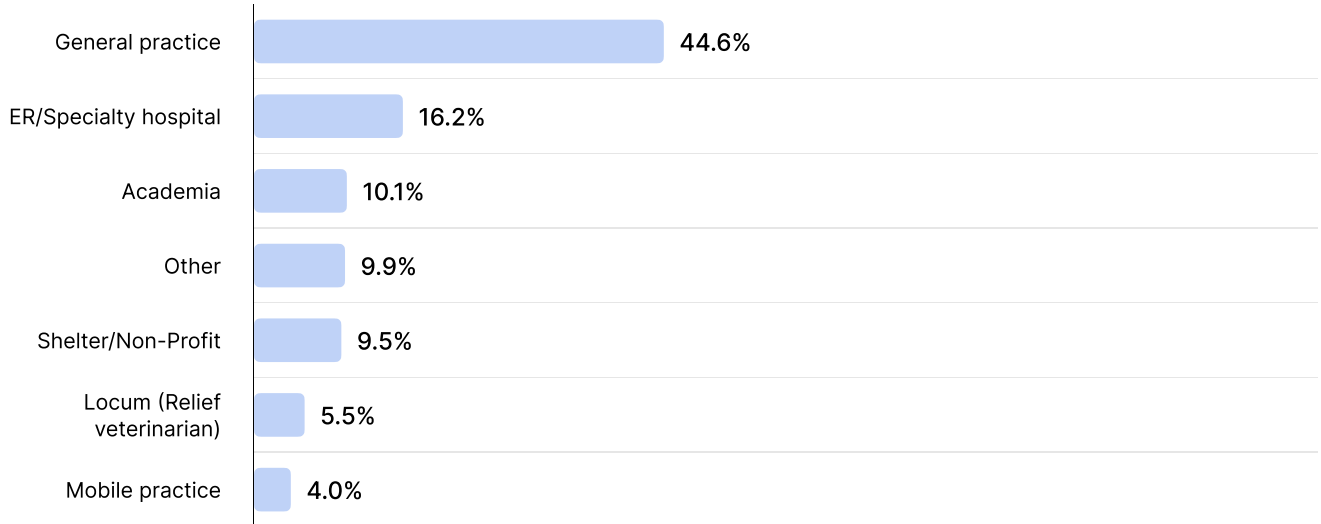
Survey participants represented a wide range of organizational types within the veterinary profession. The largest segment, comprising 44.9% of respondents, is affiliated with private practices. A substantial proportion, accounting for 30.6%, belong to corporate or consolidator-owned practices. Additionally, 12% are associated with academic institutions, while 6% work within government organizations. The remaining 6.5% represent other types of organizations not specified in the provided options.

What type of organization do you work for?

Organization	Percentage
Private practice	44.9%
Corporate (consolidator-owned) practice	30.6%
Academia	12.0%
Other	6.5%
Government	6.0%
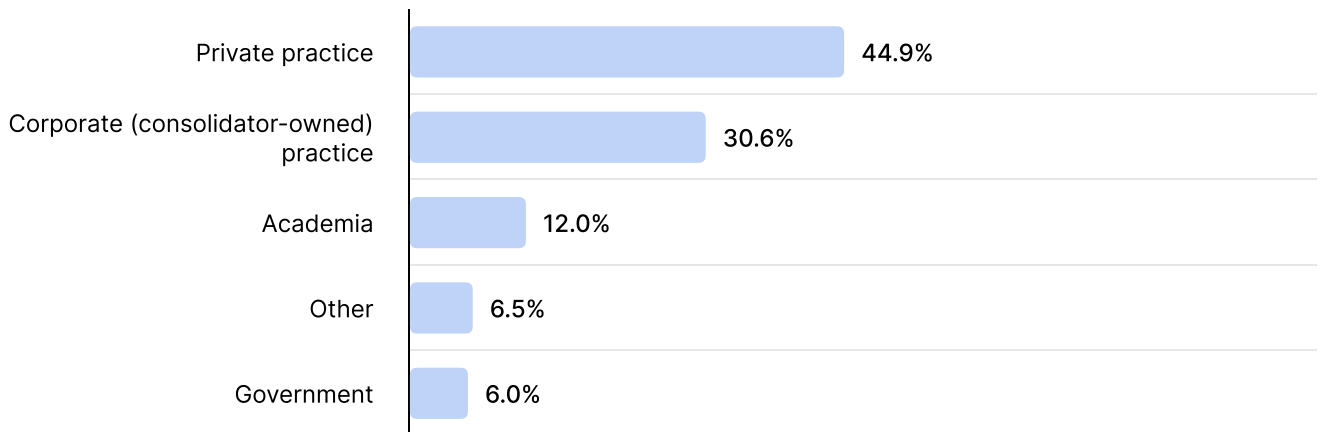
Key Findings

Exposure and sentiments towards AI

Respondents demonstrated varying levels of familiarity with AI and its applications. A third of them, or 33.3%, indicated being very familiar with AI and its applications. A larger proportion, at 50.5%, reported being somewhat familiar with AI. 16.2% of respondents admitted to not being familiar with AI at all.

How familiar are you with AI and its applications, such as ChatGPT?

| Not familiar at all | Somewhat familiar | Very familiar |
| 16.2% | 50.5% | 33.3% |
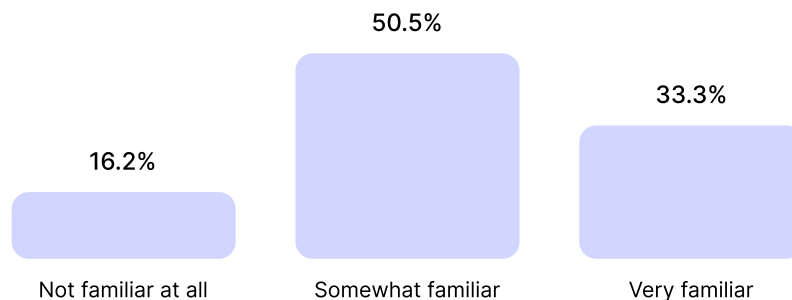
The overwhelming majority of veterinary professionals are familiar with AI and its applications

Respondents who claim greater familiarity with AI and its applications are statistically more likely to:

- Be most optimistic about the adoption of AI in veterinary medicine
- Have used AI tools or software for personal tasks or purposes
- Have used AI tools or software in a veterinary setting
- Use AI tools in their veterinary practice most often
- Want to incorporate AI into their veterinary practice in the near future
- Believe that adopting AI could give their veterinary clinic a competitive advantage

Overall, the sentiment among veterinary professionals leans toward optimism regarding the adoption of AI in veterinary medicine. Specifically, 13.9% express being very optimistic, while 29.2% are somewhat optimistic. Conversely, 25.2% report feeling somewhat skeptical, and 11.7% express being very skeptical. Additionally, 19.9% remain neutral on the matter.

In general, how do you feel about the adoption of AI in veterinary medicine?

| Very skeptical (1) | Somewhat skeptical (2) | Neutral (3) | Somewhat optimistic (4) | Very optimistic (5) |
| 11.7% | 25.2% | 19.9% (3.1) | 29.2% | 13.9% |
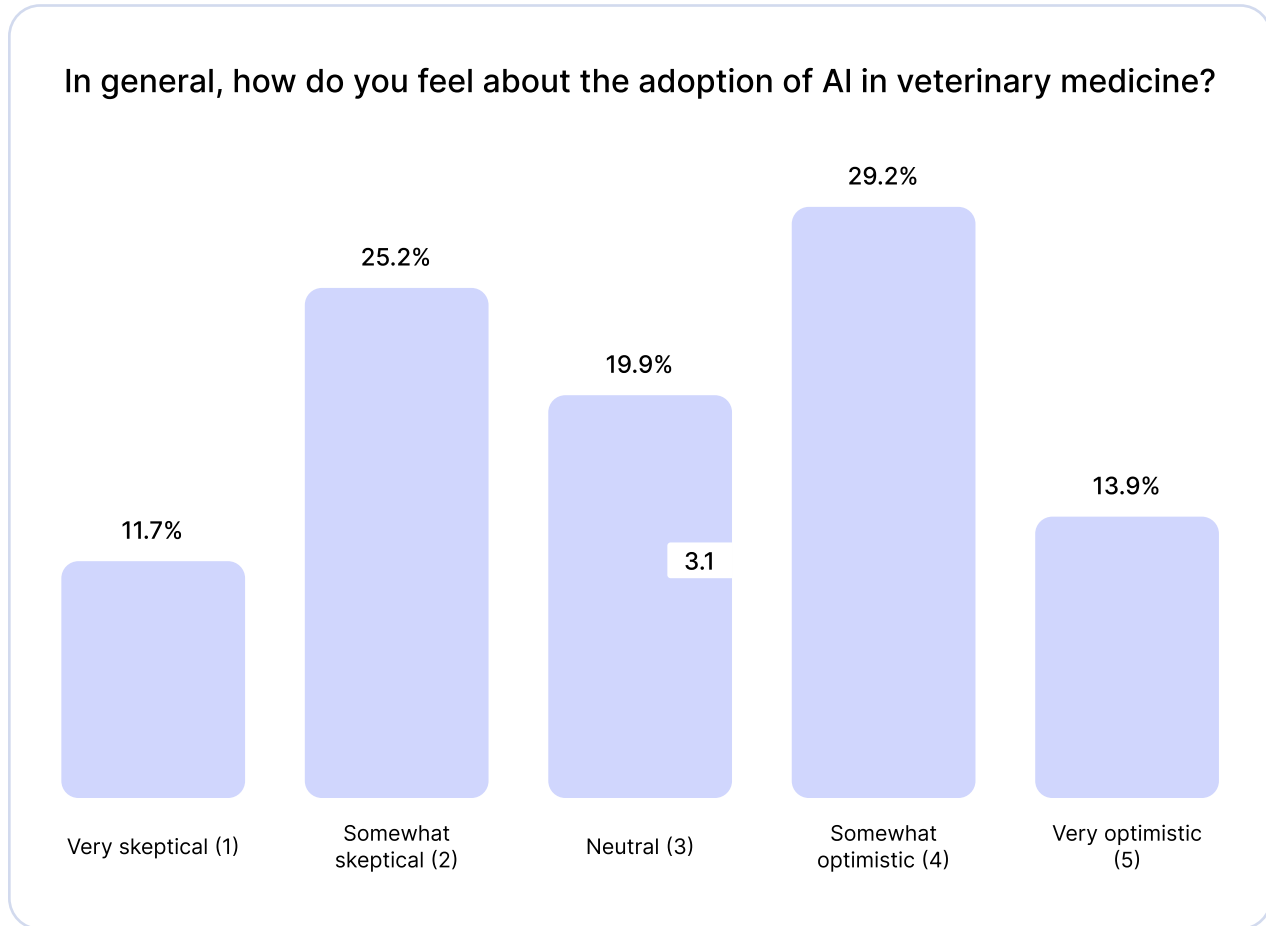
Veterinary professionals generally feel more optimistic than skeptical about AI in veterinary medicine.

How familiar are you with AI and its applications, such as ChatGPT?
x
In general, how do you feel about the adoption of AI in veterinary medicine?

	Very skeptical (1)	Somewhat skeptical (2)	Neutral (3)	Somewhat optimistic (4)	Very optimistic (5)
Not familiar at all Average: 2.4	22.1%	33.6%	26.8%	14.6%	3.0%
Somewhat familiar Average: 2.9	11.2%	29.0%	23.3%	30.7%	5.8%
Very familiar Average: 3.7	7.5%	15.4%	11.5%	34.0%	31.6%
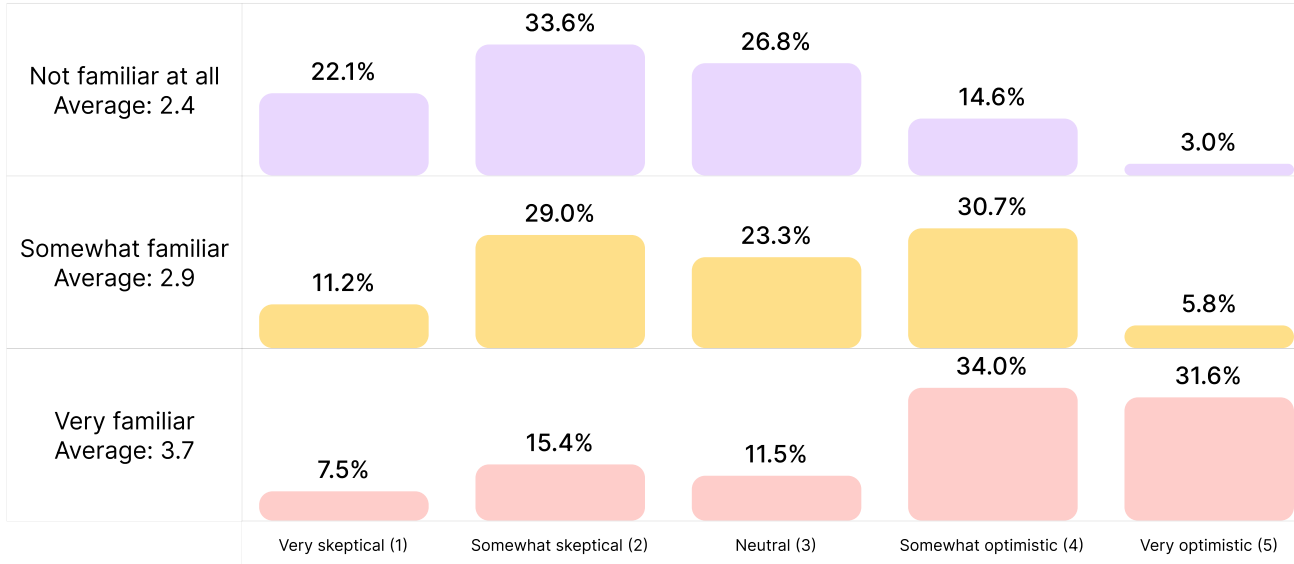
Respondents who are more familiar with AI are statistically more optimistic about the adoption of AI in veterinary medicine

> *Increased use would allow the technology to grow and have people become more familiar. Once basic tasks can be performed reliably, the technology will be better trusted. From there, folks may be willing to adapt to more advanced tasks.*
>
> Pharmacy Supervisor

The study also explored differences between certain demographics and their exposure to and feelings about AI.

Younger respondents exhibit a statistically higher level of familiarity with AI and its applications. Professionals with an average age of 33 displayed the highest familiarity. When considering roles, students emerged as having the most exposure, while veterinary technicians reported relatively lower exposure. However, across all demographics, respondents demonstrated at least a moderate level of familiarity with AI and its applications on average.

How familiar are you with AI and its applications, such as ChatGPT?
x
What is your age range?

	≤30	31-40	41-50	51-60	≥61
Not familiar at all (1) Average Age: 40	11.6%	14.2%	23.2%	27.9%	38.5%
Somewhat familiar (2) Average Age: 36	48.6%	51.8%	52.6%	54.2%	46.2%
Very familiar (3) Average Age: 33	39.8%	34.0%	24.2%	17.9%	15.4%
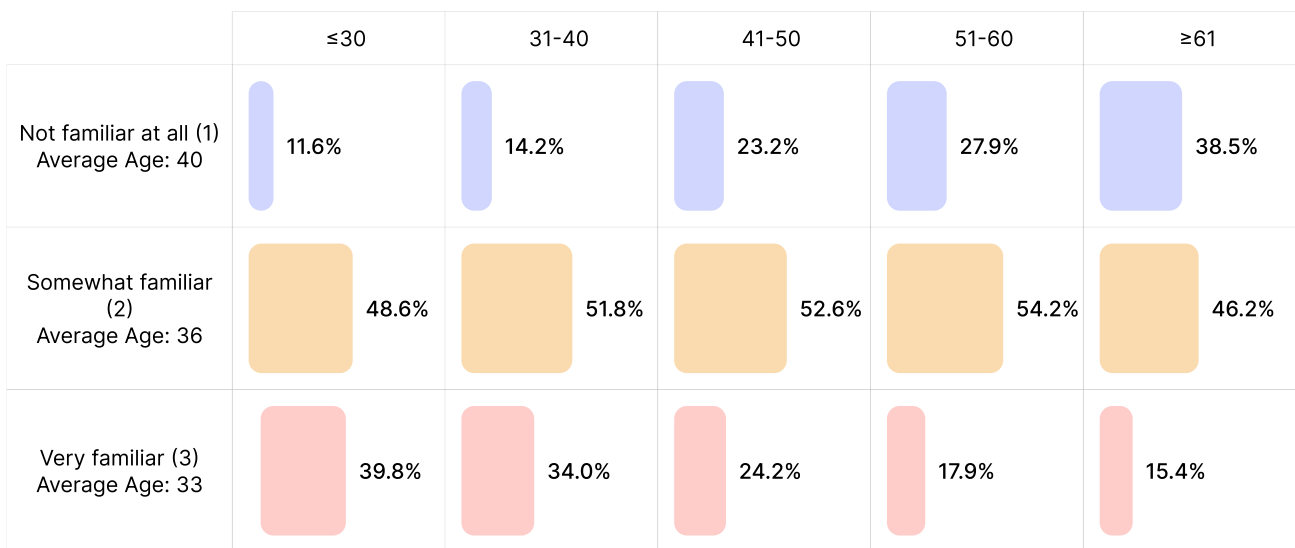
Younger respondents are statistically more familiar with AI and its applications

How familiar are you with AI and its applications, such as ChatGPT?
x
What is your current role at your organization?

	Very familiar (3)	Somewhat familiar (2)	Not familiar at all (1)
Student Average Rating: 2.5	54.2%	40.0%	5.8%
Business executive Average Rating: 2.3	39.8%	50.5%	9.7%
Veterinarian Average Rating: 2.2	35.0%	50.4%	14.6%
Practice manager Average Rating: 2.2	32.0%	51.7%	16.3%
Receptionist/Customer Service Representative (SR) Average Rating: 2.1	32.4%	50.8%	16.8%
Veterinary assistant Average Rating: 2.1	29.2%	55.9%	14.9%
Veterinary technician Average Rating: 2.0	24.2%	52.6%	23.2%
Other Average Rating: 2.0	26.5%	52.1%	21.4%

Students and business executives are relatively more familiar with AI and its applications

Younger respondents are statistically more skeptical regarding the adoption of AI in veterinary medicine. This statistical correlation is primarily the result of the number of respondents under age 31 indicating higher levels of skepticism than other respondents. If respondents under age 31 are removed from the calculation, then the finding is reversed, and older respondents are statistically more skeptical regarding the adoption of AI in veterinary medicine.

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What is your age range?
x
In general, how do you feel about the adoption of AI in veterinary medicine?

Age	Very skeptical (1)	Somewhat skeptical (2)	Neutral (3)	Somewhat optimistic (4)	Very optimistic (5)
≤30 — Average Rating: 2.9	14.0%	30.5%	19.0%	26.6%	9.8%
31-40 — Average Rating: 3.3	10.1%	20.1%	20.1%	31.6%	18.1%
41-50 — Average Rating: 3.2	10.0%	21.8%	20.0%	32.4%	15.9%
51-60 — Average Rating: 3.1	11.8%	23.5%	20.2%	29.0%	15.5%
261 — Average Rating: 3.2	6.3%	25.9%	27.3%	27.3%	13.3%
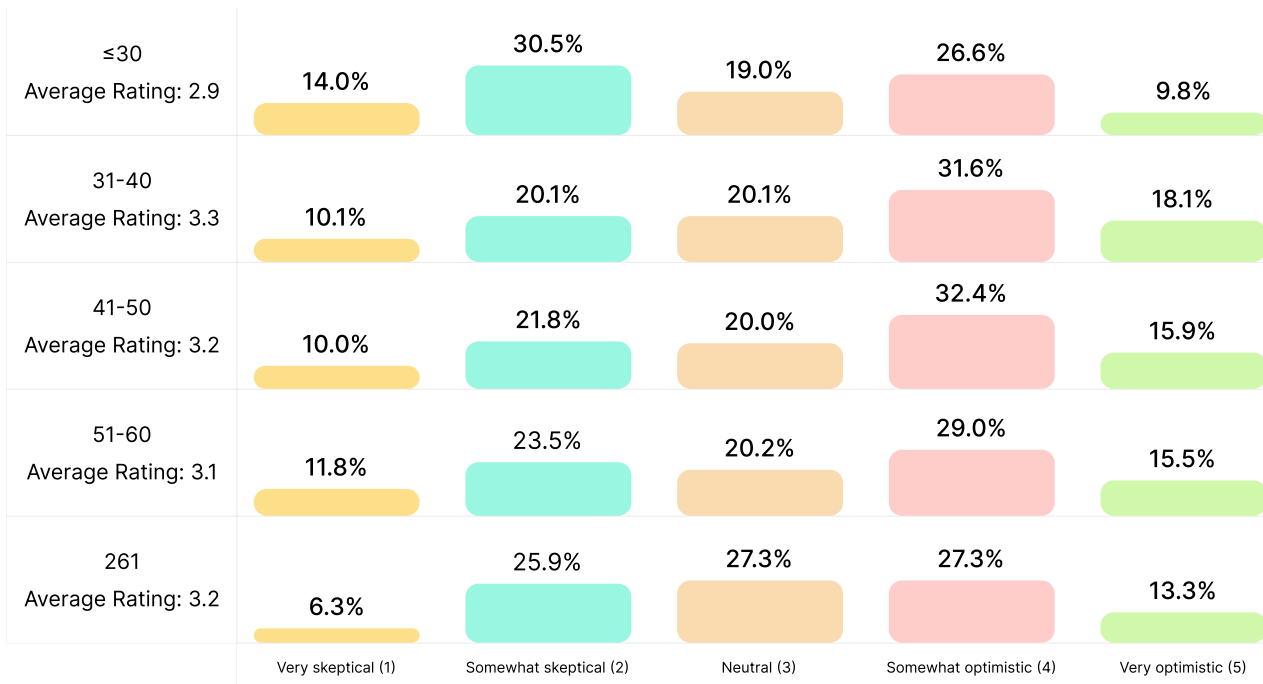
Younger participants exhibit a comparatively higher level of skepticism towards the integration of AI within veterinary medicine

Among different roles, veterinarians and business executives were most enthusiastic about the adoption of AI in veterinary medicine. Additionally, respondents affiliated with government and academia demonstrated the greatest optimism towards AI. Relief and mobile veterinarians, along with employees of ER/Specialty hospitals, were notably optimistic as well.
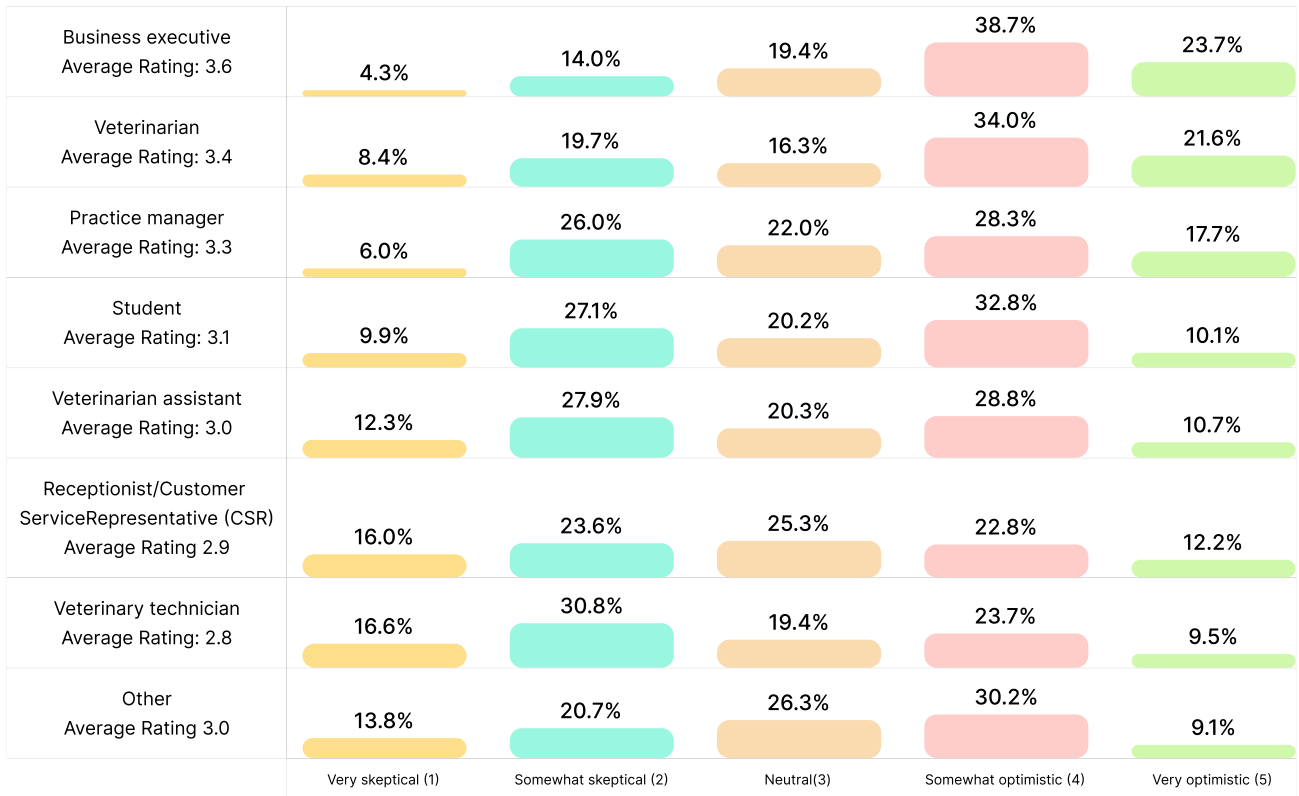
Conversely, veterinary technicians and respondents from general practice or shelter/non-profit organizations displayed relatively lower levels of optimism towards AI adoption.

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What is your current role at your organization?
x
In general, how do you feel about the adoption of AI in veterinary medicine?

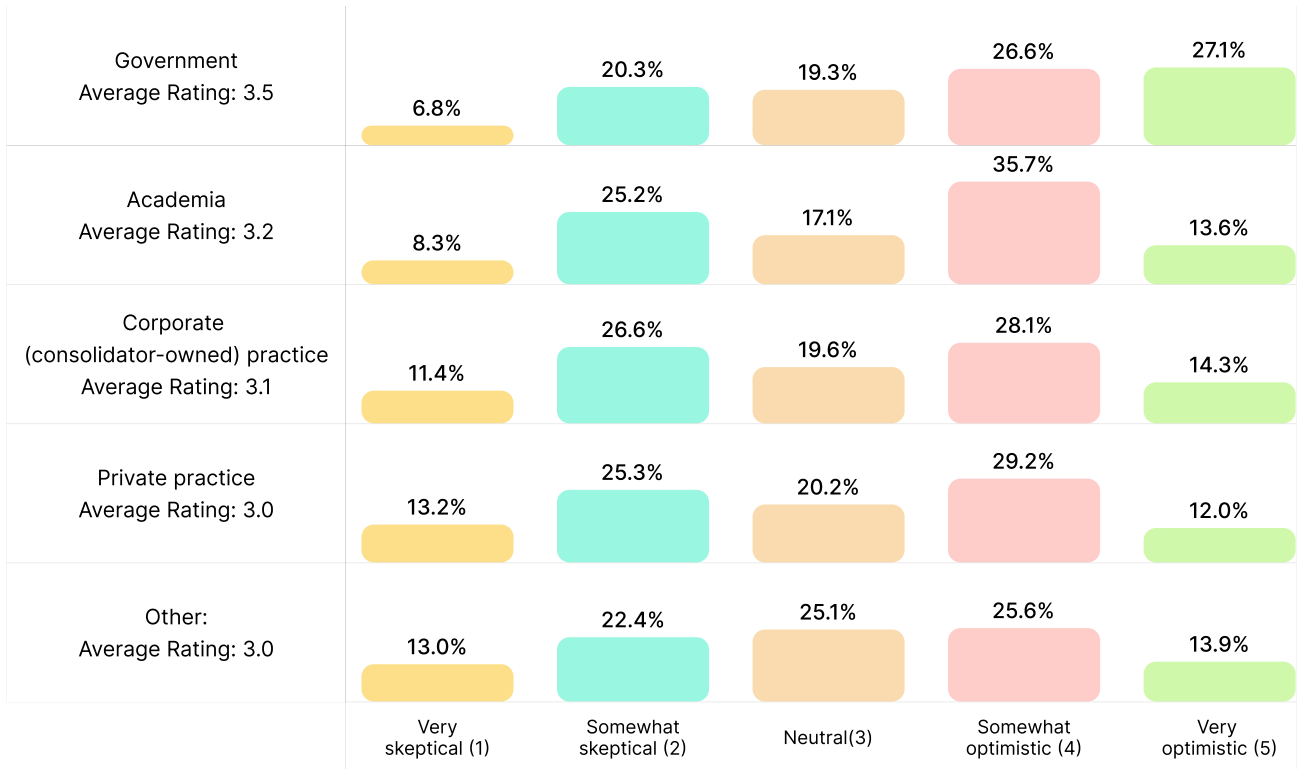|	Very skeptical (1)	Somewhat skeptical (2)	Neutral(3)	Somewhat optimistic (4)	Very optimistic (5)
Business executive Average Rating: 3.6	4.3%	14.0%	19.4%	38.7%	23.7%
Veterinarian Average Rating: 3.4	8.4%	19.7%	16.3%	34.0%	21.6%
Practice manager Average Rating: 3.3	6.0%	26.0%	22.0%	28.3%	17.7%
Student Average Rating: 3.1	9.9%	27.1%	20.2%	32.8%	10.1%
Veterinarian assistant Average Rating: 3.0	12.3%	27.9%	20.3%	28.8%	10.7%
Receptionist/Customer ServiceRepresentative (CSR) Average Rating 2.9	16.0%	23.6%	25.3%	22.8%	12.2%
Veterinary technician Average Rating: 2.8	16.6%	30.8%	19.4%	23.7%	9.5%
Other Average Rating 3.0	13.8%	20.7%	26.3%	30.2%	9.1%

Veterinarians and business executives show the highest levels of enthusiasm for incorporating AI into veterinary medicine

What type of organization do you work for?
x
In general, how do you feel about the adoption of AI in veterinary medicine?

	Very skeptical (1)	Somewhat skeptical (2)	Neutral(3)	Somewhat optimistic (4)	Very optimistic (5)
Government — Average Rating: 3.5	6.8%	20.3%	19.3%	26.6%	27.1%
Academia — Average Rating: 3.2	8.3%	25.2%	17.1%	35.7%	13.6%
Corporate (consolidator-owned) practice — Average Rating: 3.1	11.4%	26.6%	19.6%	28.1%	14.3%
Private practice — Average Rating: 3.0	13.2%	25.3%	20.2%	29.2%	12.0%
Other: — Average Rating: 3.0	13.0%	22.4%	25.1%	25.6%	13.9%

Respondents associated with government and academia exhibited the highest level of optimism toward AI

"AI can enhance research efforts by processing and analyzing vast amounts of data, leading to improved understanding of diseases and treatment options. Ultimately, these tools contribute to more efficient and accurate veterinary care, benefiting both animals and their human companions."
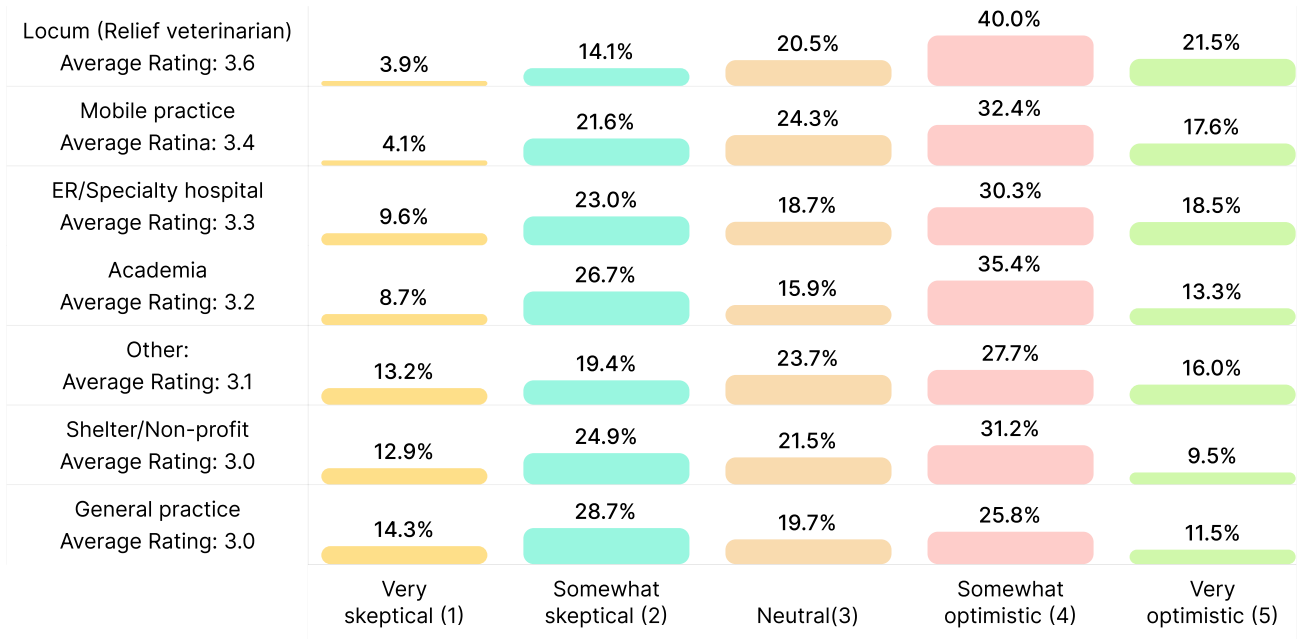
Veterinarian

What practice setting are you currently working in?
x
In general, how do you feel about the adoption of AI in veterinary medicine?

	Very skeptical (1)	Somewhat skeptical (2)	Neutral(3)	Somewhat optimistic (4)	Very optimistic (5)
Locum (Relief veterinarian) Average Rating: 3.6	3.9%	14.1%	20.5%	40.0%	21.5%
Mobile practice Average Rating: 3.4	4.1%	21.6%	24.3%	32.4%	17.6%
ER/Specialty hospital Average Rating: 3.3	9.6%	23.0%	18.7%	30.3%	18.5%
Academia Average Rating: 3.2	8.7%	26.7%	15.9%	35.4%	13.3%
Other: Average Rating: 3.1	13.2%	19.4%	23.7%	27.7%	16.0%
Shelter/Non-profit Average Rating: 3.0	12.9%	24.9%	21.5%	31.2%	9.5%
General practice Average Rating: 3.0	14.3%	28.7%	19.7%	25.8%	11.5%

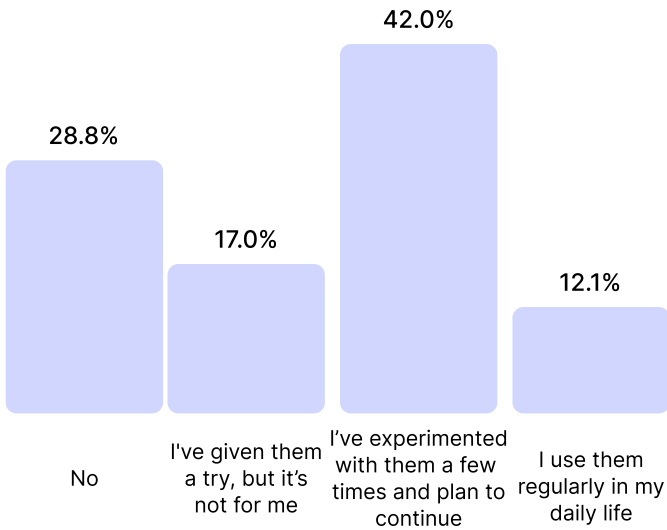*Relief and mobile veterinarians are notably optimistic about AI*

AI personal and professional adoption

The study delved into the utilization of AI tools across both personal and professional domains.
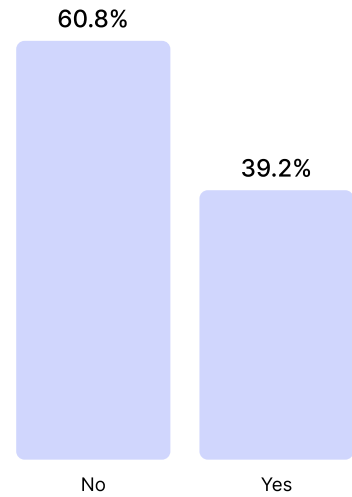
Among respondents, 45.8% either have never used AI for personal tasks or attempted such tools but found them unsuitable. Correspondingly, 60.8% reported not using AI at work.

Conversely, 54.1% of respondents either have experimented with such tools a few times and expressed intentions to continue doing so, or are already using AI technologies in their daily lives. In the veterinary setting, 39.2% of respondents reported utilizing AI tools for professional tasks.

Have you used AI tools or software for your own personal tasks or purposes?

42.0%

28.8%

17.0%

12.1%

No

I've given them a try, but it's not for me

I've experimented with them a few times and plan to continue

I use them regularly in my daily life

Have you used AI tools or software in your veterinary setting?

60.8%

39.2%

No

Yes

54.1% of veterinary professionals use AI tools for personal purposes; 39.2% apply AI tools to work tasks

"AI would save me so much time. I'd take advantage of it by focusing on other tasks that would've taken much longer to complete."

Veterinary student

Among respondents who have utilized AI tools in veterinary practice, 69.5% indicate using them on a daily or weekly basis.

How often do you use AI tools in your veterinary practice?
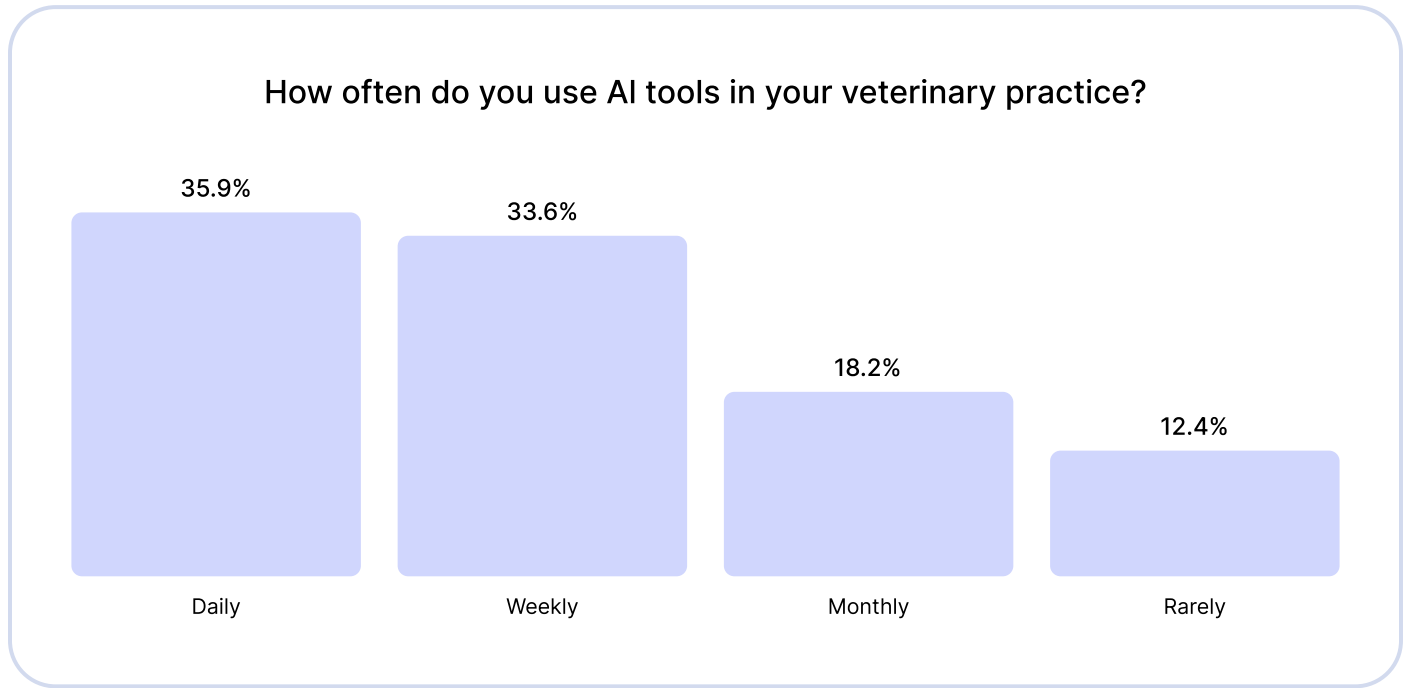
Those who have experimented with AI have consistently incorporated it into their regular practice

A significant correlation emerged through cross-analysis of responses to questions regarding the frequency of AI usage in veterinary practice and sentiments towards AI adoption in the field. Respondents who actively incorporate AI tools in their professional tasks demonstrated notably higher levels of optimism regarding AI's integration into veterinary medicine.

> *"We utilize it weekly when we need to develop new SOPs that pop up — the other day I used it to write an SOP on what to do with abandoned patients. It saved me hours of writing."*
>
> Practice manager

Using a scale from 1 to 5, with 1 representing extreme skepticism and 5 indicating strong optimism, respondents utilizing AI tools in their veterinary practice exhibited the highest optimism rating, averaging 4.1. Conversely, those who infrequently use AI tools leaned towards optimism but remained more neutral, with an average rating of 3.1.
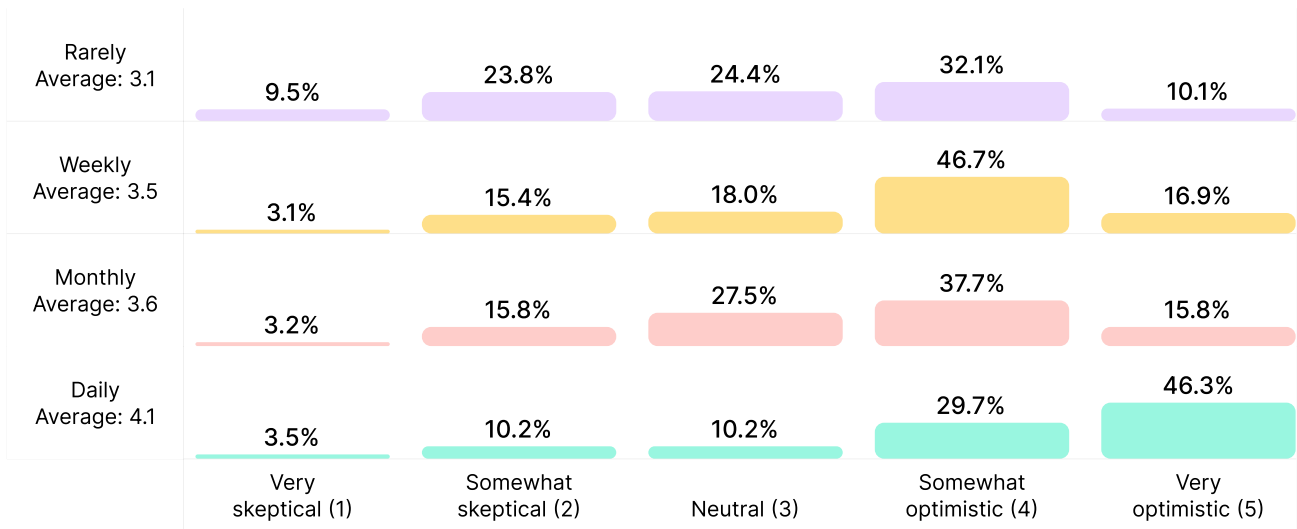
This finding underscores the influence of practical exposure and experience with AI tools on attitudes toward AI adoption. The positive correlation suggests that familiarity with AI technologies fosters trust and confidence, consequently driving greater acceptance and adoption within the veterinary community.

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How often do you use AI tools in your veterinary practice?
x
In general, how do you feel about the adoption of AI in veterinary medicine?

	Very skeptical (1)	Somewhat skeptical (2)	Neutral (3)	Somewhat optimistic (4)	Very optimistic (5)
Rarely Average: 3.1	9.5%	23.8%	24.4%	32.1%	10.1%
Weekly Average: 3.5	3.1%	15.4%	18.0%	46.7%	16.9%
Monthly Average: 3.6	3.2%	15.8%	27.5%	37.7%	15.8%
Daily Average: 4.1	3.5%	10.2%	10.2%	29.7%	46.3%

AI adoption in veterinary medicine is driven by practical exposure and experience with AI tools

> *"If AI can aid with record-keeping it will contribute to work-life balance and therefore aid in burnout. It could also field client questions to aid with work-life balance."*
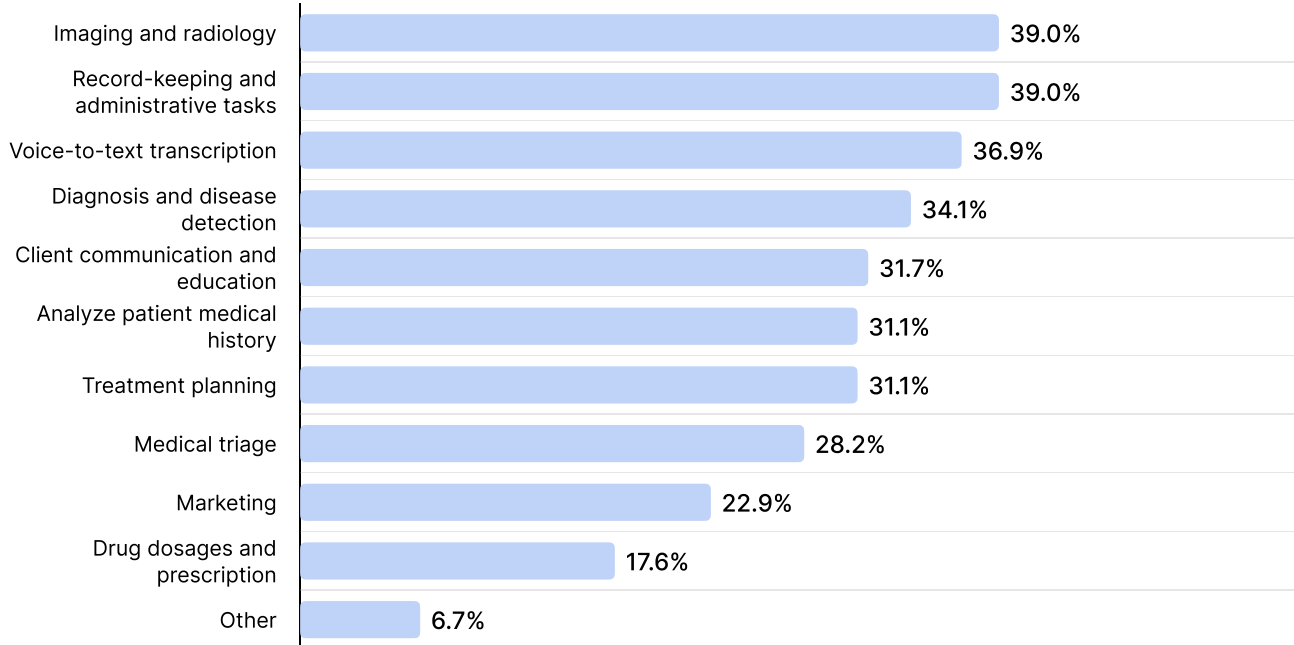>
> Veterinarian

Current and potential applications of AI

Respondents who utilize AI tools in their veterinary practice employ them across a diverse array of tasks and applications. Among these, the top utilization includes imaging and radiology, along with record-keeping and administrative tasks.

In which specific applications or areas have you used AI tools?
(Please select all that apply)

Application	Percentage
Imaging and radiology	39.0%
Record-keeping and administrative tasks	39.0%
Voice-to-text transcription	36.9%
Diagnosis and disease detection	34.1%
Client communication and education	31.7%
Analyze patient medical history	31.1%
Treatment planning	31.1%
Medical triage	28.2%
Marketing	22.9%
Drug dosages and prescription	17.6%
Other	6.7%

Asked only if the respondent
has used AI tools in veterinary practice.

Current typical AI applications include imaging and radiology, administrative tasks, and voice-to-text transcription

Other applications include diagnostic and laboratory analysis, research on medicines, drugs and veterinary-related topics, and creating templates such as SOPs and other protocols.

> *"I believe at some point, AI will become advanced and reliable enough to assist with diagnostics such as radiology, so that those with less experience reading radiographs and ultrasound will have assistance with secondary viewing of images when more experienced colleagues are unavailable for collaboration. Additionally, radiologists will have a screening tool to help streamline their workload, miss fewer abnormalities, and write more thorough and succinct reports. It's definitely not there yet, as it is unreliable at best and dangerously inaccurate at worst. Overall, increasing productivity and minimizing errors would be a tremendous benefit of utilizing such programs if they're able to become a reliable and accurate source of information."*

"Other" role

In exploring the day-to-day challenges faced by veterinary professionals, the study delved into identifying the most repetitive tasks that professionals wish to see automated. Common themes emerged through analysis of the responses, shedding light on the areas where automation could significantly enhance efficiency and workflow. Organized by frequency, the following consolidation encapsulates the sentiments expressed by respondents:

Client Communication and Appointment Management

This category encompasses tasks related to client interactions, scheduling, and follow-ups, indicating a desire to streamline client communication processes.

Medical Records and Documentation

The high number of responses in this category underscores the need for automation in recording patient information and managing records.

Prescription and Medication Management

Automation in this area is seen as crucial for tasks such as refilling prescriptions, calculating dosages, and managing medication-related paperwork.

Practice Management Tasks

Respondents express a need for automating various administrative tasks, including inventory management and billing.

> *"I see AI greatly increasing the role that veterinary nurses/technicians play in the field, giving them greater opportunities for growth and skill development/ usage. I think that AI will also help build the confidence of new grads as they enter the field, giving a "second opinion" when a colleague is not available to confer with and to help focus on patient care and treatment more so than charting and other focus-dividing, time-sucking tasks."*
>
> Veterinarian

Data Entry and Processing

Automation is desired for tasks involving data entry, processing, and record-keeping, emphasizing the importance of efficient data management systems.

Patient History and Intake

Streamlining the process of gathering patient histories and intake information emerges as a key area for automation, aiming to improve the efficiency of patient intake procedures.

Report Generation and Analysis

Professionals express a need for automation in generating reports, visualizing data, and conducting analyses, highlighting the importance of data-driven decision-making in veterinary practice.

Task-Specific Automation

Specific tasks, such as triage, patient intake, and creating discharge notes are highlighted for potential automation to enhance operational efficiency.

Miscellaneous Tasks

Respondents also mention a range of miscellaneous tasks, indicating a desire for automation in day-to-day operational chores such as cleaning and equipment maintenance.

Overall, these findings suggest that through the usage of AI, veterinary professionals are seeking to automate tasks, improve workflows, and reduce repetitive manual work. Ultimately, they aim to minimize administrative burdens to focus more on direct animal care and other critical aspects of their practice. Some respondents emphasized that due to the hands-on nature of veterinary medicine, automation should not be incorporated into any aspect of the profession.

> *"I can see how working alongside AI could make for a more productive and less stressful day. It could free us up to focus on the areas we don't always have time for."*
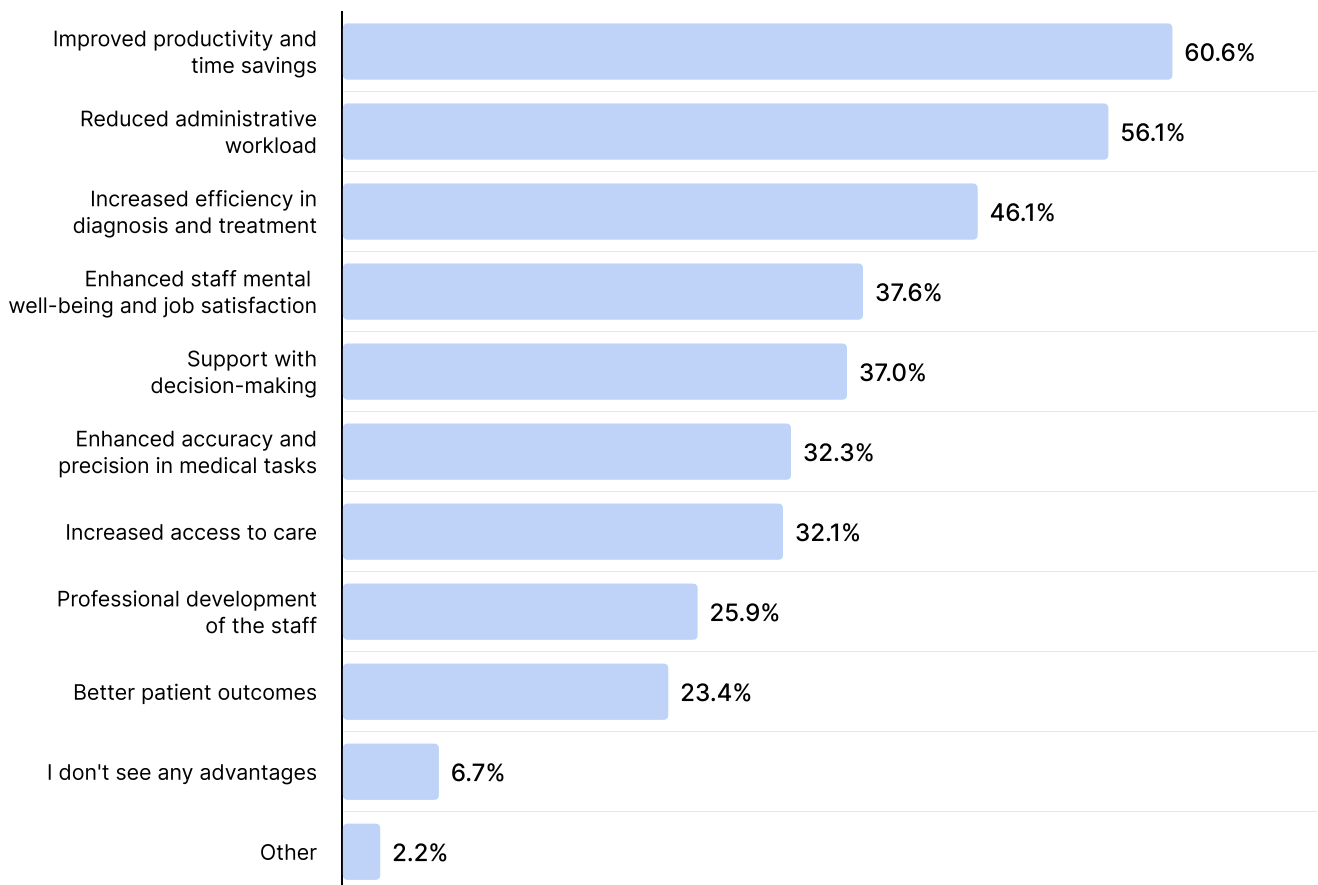>
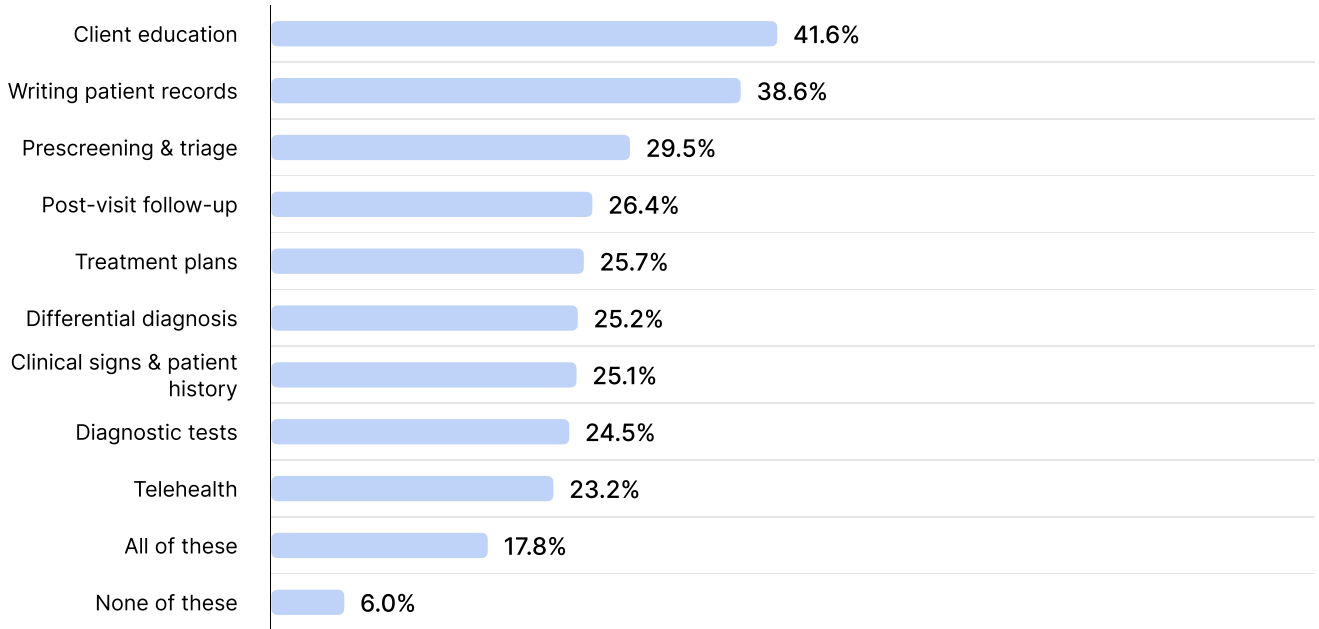> Veterinarian

Perceived benefits of AI tools

Veterinary professionals perceive AI as holding significant promise, particularly in areas such as client education, patient record management, and medical triage. These applications would lead to such benefits as improved productivity and time savings, reduced administrative workload, and increased efficiency in diagnosis and treatment. 6.7% of respondents indicated they didn't see any advantages in using AI in veterinary practice.

What do you consider the main advantages of using AI tools in veterinary medicine? (Please select all that apply)

Category	Percentage
Improved productivity and time savings	60.6%
Reduced administrative workload	56.1%
Increased efficiency in diagnosis and treatment	46.1%
Enhanced staff mental well-being and job satisfaction	37.6%
Support with decision-making	37.0%
Enhanced accuracy and precision in medical tasks	32.3%
Increased access to care	32.1%
Professional development of the staff	25.9%
Better patient outcomes	23.4%
I don't see any advantages	6.7%
Other	2.2%

The top advantages cited by respondents are improved productivity, reduced administrative workload, and increased efficiency in diagnosis and treatment

What aspects of veterinary practice do you think AI can benefit the most? (Please select all that apply)

Category	Percentage
Client education	41.6%
Writing patient records	38.6%
Prescreening & triage	29.5%
Post-visit follow-up	26.4%
Treatment plans	25.7%
Differential diagnosis	25.2%
Clinical signs & patient history	25.1%
Diagnostic tests	24.5%
Telehealth	23.2%
All of these	17.8%
None of these	6.0%

Veterinary professionals envision AI as most promising for client education. record management, prescreening and triage.

"Onboarding and training of new teams can be significantly improved with the help of AI in my opinion. I also anticipate more access to care through reduced inefficiencies and manual effort."

Business executive

In exploring the broader advantages of integrating AI tools into veterinary medicine, respondents provided additional insights into how AI can positively impact veterinary care. The following is a consolidation of responses, organized to highlight the most frequently mentioned advantages first:

Time Efficiency and Management

Many responses underscore AI's capacity to save time and streamline workflows, facilitating quicker processing, efficient administrative tasks, and improved patient notes management.

Improved Accuracy and Decision Support

Respondents recognized AI's potential to enhance accuracy in diagnostics, providing reliable results and serving as a supportive tool for decision-making processes.

Client Communication and Education

AI is perceived as a valuable resource for enhancing client education and improving communication channels.

Staff and Workflow Optimization

Respondents highlight AI's potential to optimize staff utilization, delegate routine tasks, and streamline clinical operations, ultimately fostering a more efficient workplace environment.

Research and Development

Respondents acknowledge AI's contribution to research endeavors, protocol development, and diagnostic trend identification, furthering advancements in veterinary medicine.

Enhanced Patient Care

AI is associated with comprehensive patient care, personalized treatment plans, and improved patient triage and screening processes.

Support for Veterinary Staff

AI is viewed as a supportive tool for staff development, stress reduction, and minimizing manual workloads, thereby contributing to staff well-being.

Financial and Business Advantages

Respondents recognized the financial benefits of AI, including cost savings, potential for increased profit margins, and reduced dependency on human resources.

Client Satisfaction and Engagement

AI's potential to enhance client satisfaction and engagement through efficient appointment scheduling and aftercare communication is acknowledged by some respondents.

> *"Opportunities to use staff hours more productively as qualified staff are harder than ever to find. Also, this technology has the opportunity to contribute to revenue even when the hospital is closed, with virtual booking and AI marketing campaigns."*
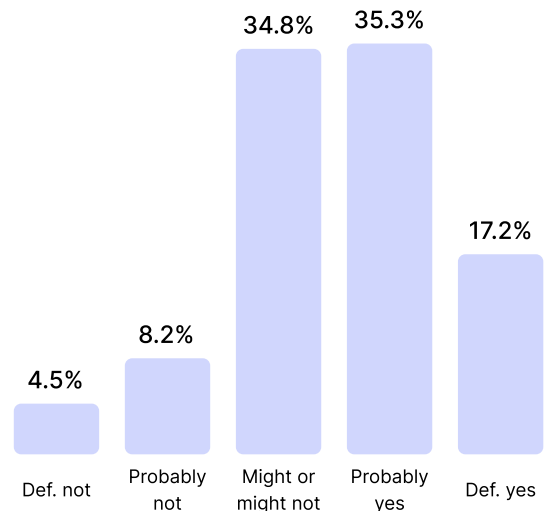>
> Practice manager

These findings suggest that respondents harbor high expectations regarding the positive impact of AI on the business performance of their veterinary hospital. They believe that AI has the potential to enhance efficiencies and streamline administrative tasks, thereby contributing to revenue growth, employee satisfaction, and client retention. The majority of respondents agreed that embracing AI technology may give their hospital a competitive advantage.

How do you anticipate AI adoption can positively influence your practice's business performance?
(Please select all that apply)

Streamlining administrative tasks for more efficient resource allocation	73.0%
Boosting client satisfaction and loyalty	59.2%
Increasing revenue by seeing more patients	57.7%
Enhancing employee retention and job satisfaction	51.0%
Reducing operational costs	47.1%
Adding new services and revenue streams	46.7%
Other (please specify)	1.7%
It would not positively influence our business performance at all	1.0%

Do you believe that adopting AI could give your clinic a competitive advantage?

Def. not	Probably not	Might or might not	Probably yes	Def. yes
4.5%	8.2%	34.8%	35.3%	17.2%

Respondents anticipate that AI adoption can enhance the performance of their organization

"AI can help with the diagnosis of diseases in animals, which can be challenging for veterinarians. AI tools can analyze medical images, like X-rays and CT scans, and can detect patterns that might be difficult for a human to spot. This can lead to faster and more accurate diagnoses, which can be lifesaving for animals. Additionally, AI can help with tasks like monitoring animal behavior, analyzing animal movement patterns, and even predicting the likelihood of disease outbreaks."

Veterinary assistant

Concerns and barriers to adoption

The findings reveal the primary concerns and barriers to adopting AI in veterinary practice as reported by respondents. The most prevalent concern, cited by 70.3% of veterinary professionals, is the reliability and accuracy of AI systems. Following closely behind are concerns regarding data security and privacy, with 53.9% of respondents expressing apprehension in this area. Other notable barriers include the cost of implementation (42.6%), lack of training and knowledge (42.9%), fear of job displacement (36.1%), and regulatory or legal issues (42.1%).

What are your primary concerns or barriers to adopting AI in your veterinary practice? (Please select all that apply)

Category	Percentage
Reliability and accuracy of AI systems	70.3%
Data security and privacy	53.9%
Lack of training and knowledge	42.9%
Cost of implementation	42.6%
Regulatory or legal issues	42.1%
Fear of job displacement	36.1%
Other	4.5%
None	3.2%
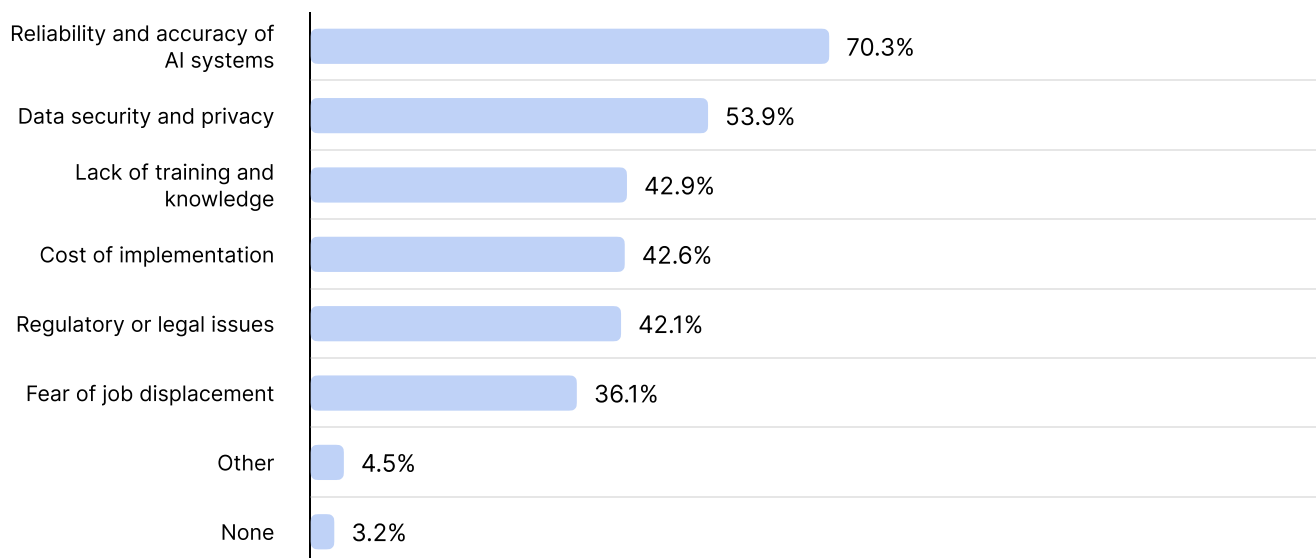
Challenges perceived by veterinary professionals span from technical and financial considerations to ethical and regulatory concerns

In addition to providing structured responses, respondents to the survey were given the opportunity to leave additional comments regarding their concerns or barriers to adopting AI in their veterinary practices. The study analyzed and categorized these qualitative responses from veterinary professionals, aiming to uncover overarching themes and patterns in their concerns.

> *"Public perception of utilizing such systems as a method of "cheating" [is a concern]. Additionally, the potential loss of the human aspect of veterinary medicine and the practicing of learned knowledge going by the wayside in favor of punching a problem into a computer for an easy answer. [...] Loss of faith in the practicing professionals may lead to further distrust in the veterinary field."*
>
> "Other" role

The ensuing categories are organized according to the frequency of related comments, with the most prevalent concerns highlighted first.

Ethical and Professional Concerns

- Fear of AI replacing human jobs and reducing the human touch in veterinary care
- Concerns about AI's lack of intuition, compassion, and ability to physically examine patients
- Worry that AI might lead to a loss of manual skills and professional judgment
- Distrust in AI's decision-making ability and the potential for it to miss diagnoses or recommend incorrect treatments
- Potential for AI to be used unethically or without proper authorization, leading to misinformation or incorrect advice
- Concerns about AI being a "plagiarism machine" or using data without permission
- Ethical issues around client and patient trust and the perceived value of veterinary professionals

> *"Clients already have a hard time trusting us as is. Most people do not see DVMs as real doctors, most people do not see RVTs or CVAs as real nurses. If clients find out that we are replacing something with AI, that will give clients another reason to complain."*
>
> Veterinary assistant

DIGITAIL

Reliability and Accuracy Issues

- Skepticism about AI's ability to accurately diagnose or interpret complex medical situations
- Concerns about incorrect data or information recording
- Fear of AI generating misleading or harmful advice, potentially leading to lawsuits or harm to patients
- Concerns about AI's accuracy and reliability, especially in cases of misdiagnosis or incorrect information

Client Relationships and Public Perception

- Fears that AI could damage the personal relationship between veterinary teams and their clients
- Concerns about client mistrust or misunderstanding regarding the use of AI in veterinary practices
- Anxiety about public perception and acceptance of AI in veterinary care
- Worry about client trust in AI and the potential loss of personal client-veterinarian relationships
- Concerns about public perception of AI as a form of "cheating" or devaluing professional knowledge

> *"The adoption of AI requires veterinary professionals to have certain technical knowledge and data analysis capabilities. Therefore, providing adequate training and educational resources to ensure that veterinarians can effectively use and interpret AI tools is a key challenge."*
>
> Veterinary technician

Technical and Practical Limitations

- Issues with AI not being up to date or having limited applicability in certain areas (e.g., large animal practice)
- Challenges in integrating AI into existing veterinary workflows and systems

Infrastructure and Accessibility

- Lack of functioning internet or technical infrastructure in some practices
- Concerns about the cost of developing and maintaining AI tools, especially for smaller or less financially robust practices

Legal and Regulatory Concerns

- Uncertainty about liability if AI makes a mistake
- Concerns about the ownership rights of AI-generated data and patient records

Employee and Organizational Challenges

- Resistance to change among staff, especially those who are not technologically inclined or who are skeptical about AI
- The need for training and skill development to effectively use and interpret AI tools

> *"AI needs to be built into the software to improve flow."*
>
> Veterinarian

Miscellaneous Concerns

- Various other concerns, including AI's impact on patient safety, the potential for AI to be used unethically, and the general skepticism about the effectiveness of AI in veterinary medicine

Drivers of adoption

Regardless of their current use of AI, all survey participants were asked if they would like to incorporate AI tools in their practice in the near future.

A relatively small percentage (8.6%) of respondents express a strong affirmative stance, indicating a definite desire to incorporate AI in their practice. However, a larger proportion (30.1%) express interest in AI adoption but with reservations, suggesting some degree of cautious optimism or uncertainty regarding its implementation.

A significant portion of respondents (45.8%) report feeling unsure about incorporating AI, indicating a need for further exploration, education, or clarification on the potential benefits and challenges associated with AI adoption.

Conversely, 15.5% of respondents express a clear reluctance or opposition to incorporating AI in their veterinary practice in the near future.

Would you like to incorporate AI in your veterinary practice in the near future?

15.5%	45.8%	30.1%	8.6%
No, not at all	Unsure	Yes, but with reservations	Yes, definitely
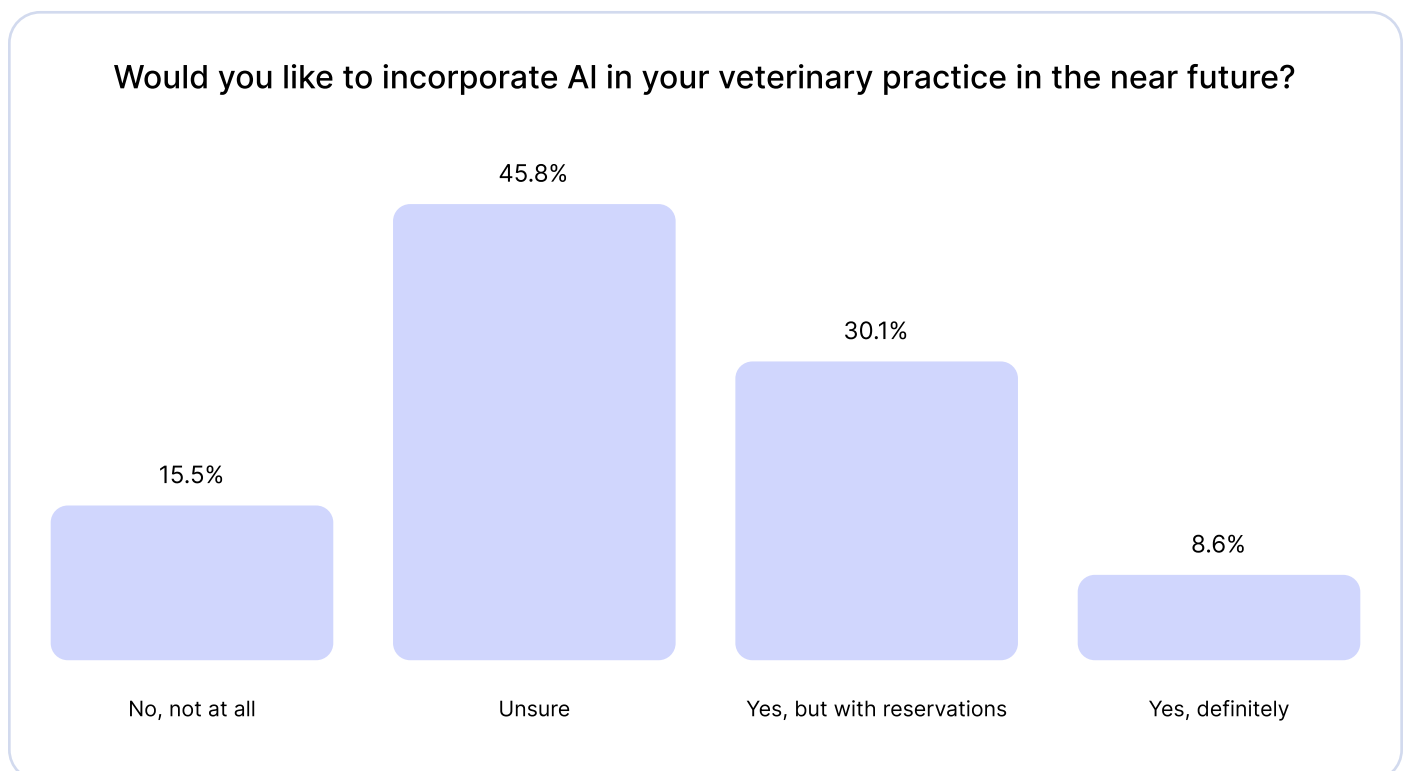
38.7% of veterinary professionals are interested in incorporating AI tools in their practice in the near future

"More accessibility of AI tools in the veterinary practice and profession would assist the most."

Receptionist/Customer Service Representative (CSR)

The survey also explored factors that may encourage veterinary professionals to incorporate AI tools more in their veterinary practice.
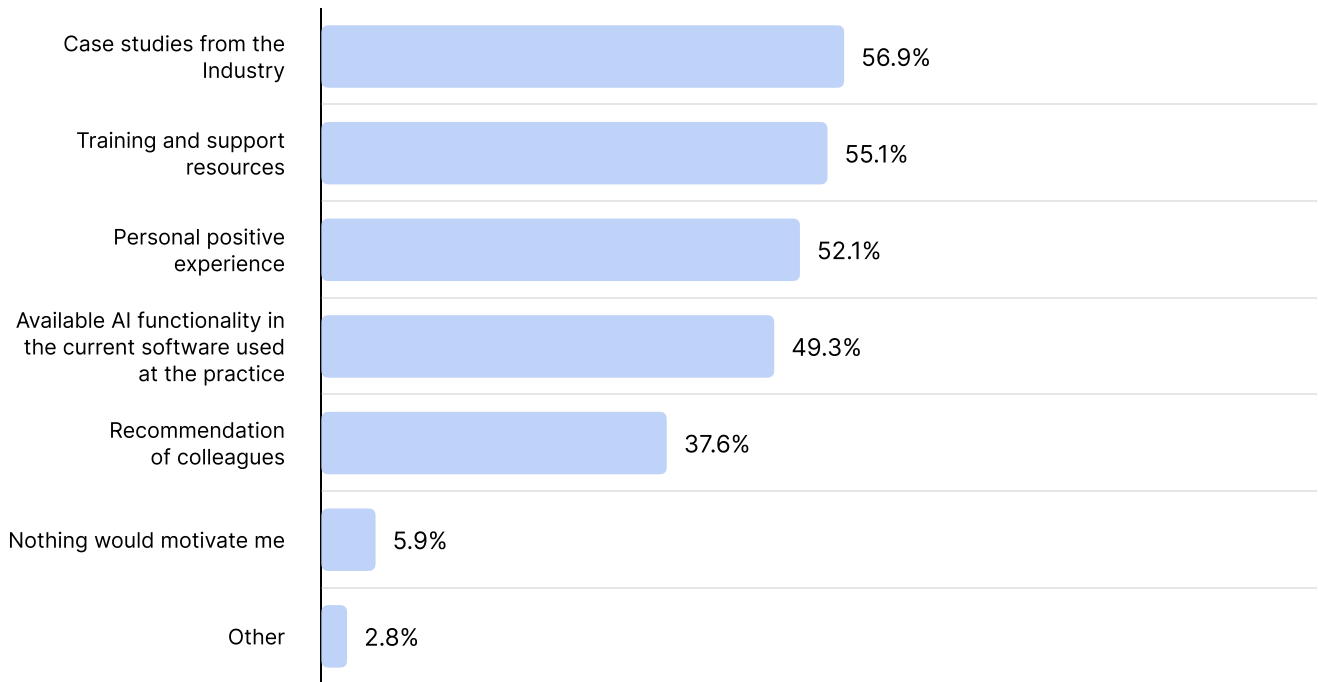
The most commonly cited argument is the availability of case studies from the industry (56.9% of respondents). This indicates the importance of real-world evidence and success stories in influencing perceptions and driving confidence in AI adoption.

Following closely behind is the availability of training and support resources (55.1%), underscoring the significance of access to educational opportunities and technical assistance in facilitating successful AI implementation and utilization within veterinary practices.

Another notable motivator is personal positive experience, with 52.1% of respondents indicating that their own positive encounters with AI tools would encourage further integration. Additionally, the availability of AI functionality within the current software used at the practice is seen as a motivating factor (49.3%), highlighting the importance of seamless integration and compatibility with existing systems and workflows in driving AI adoption.

A
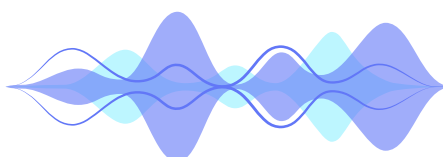
What factors would motivate you to incorporate AI tools more into your veterinary practice?
(Please select all that apply)

Case studies from the Industry	56.9%
Training and support resources	55.1%
Personal positive experience	52.1%
Available AI functionality in the current software used at the practice	49.3%
Recommendation of colleagues	37.6%
Nothing would motivate me	5.9%
Other	2.8%

Real-world evidence, training, and personal positive experience are major drivers of AI adoption

> *"I do not believe that AI, at this point, should be hastened into professional settings. I believe that removing the human aspect from certain tasks will do more harm than good and will encourage disregard for others in the name of productivity. I would not use AI in my practice if I had the choice unless it was a highly tested tool developed specifically for the veterinary field."*
>
> Veterinary assistant

In further exploration of the factors motivating the increased incorporation of AI tools into veterinary practice, respondents provided additional insights. Organized by the frequency of related comments, the following consolidation represents the collective perspectives of respondents, highlighting the most prevalent motivations first:

Regulation and Liability Concerns

Respondents express the need for clear regulations at federal and state levels, alongside laws ensuring relief from liability for AI-related mistakes. Heavy regulation by the federal government and guarantees of job security are also emphasized.

Efficacy and Reliability of AI

Concerns about AI's efficacy and reliability drive the need for more studies demonstrating its effectiveness and improvement in technology for better accuracy.

> *"If the vendor would certify that no "hallucinations" could occur."*
>
> Veterinarian

Understanding and Training

Respondents seek more understanding and clarity on AI's use, advocating for simple, practical implementation and training methods.

Specific Applications and Limitations

Motivations include identifying appropriate realms where AI is useful, ensuring AI does not replace human judgment in critical areas of veterinary medicine, and focusing on reliability.

General Uncertainty or Skepticism

Respondents express general uncertainty or the need for more information, alongside doubts about AI's current capabilities and concerns about AI acting independently of its intended purpose.

Cost and Economic Factors

Factors such as reasonable cost, cost-effectiveness, and low-cost implementation are highlighted as important considerations for increasing AI adoption.

Corporate and Managerial Support

Obtaining managerial or corporate approval and support for AI implementation are mentioned as important factors influencing adoption.

Miscellaneous

Corporate input, suggestions for AI's use in other fields, and considerations of AI's abilities in other professions are also mentioned as potential motivations.

> *"In the past, calculators or even blueprint design programs were considered as cheating or not as good practices for professional purposes. Solving problems or designing were tasks for really skilled people, so using programs would tell the work was not well done. Nowadays, all of these tasks - from solving mathematical problems or designing car pieces - are completed using the programs, the apps, the use of AI tools! It is required to have the knowledge and skills to be professional, of course, but AI can help reach outcomes much faster, and give different perspectives than a normal human cannot think of at first sight. Maybe that time that could be saved getting the diagnosis could save the loved animals on our planet which are dying every single day!"*
>
> Veterinarian

Discussion

AI Sentiment and Professional Experience

The study revealed a potential correlation between familiarity and optimism: veterinary professionals who use AI tools at work regularly are more enthusiastic about AI in veterinary medicine and more inclined to implement it in their veterinary practice. Conversely, those who have less hands-on experience with AI tools tend to be more skeptical.

This finding suggests that consistent use of AI tools may cultivate a greater sense of trust and confidence in technology's ability to positively impact veterinary practices. Directly engaging with AI to experience efficiencies firsthand, experimenting with different applications, exploring opportunities for personalization, and learning to leverage AI to optimize the outcomes, translates into a more optimistic outlook on the role of this technology in advancing veterinary medicine.

This finding highlights the importance of training and education on AI within the veterinary field, supported by the voices of the survey respondents. Providing veterinary professionals with opportunities to familiarize themselves with AI tools and actively engage with them in their practice settings can help bridge the gap between skepticism and enthusiasm, especially among younger veterinary professionals who, relative to other respondents, emerged as the most skeptical group in the study. By offering training programs that enable hands-on experience with AI applications, veterinary professionals can gain the confidence and skills needed to effectively integrate AI into their daily workflows.

AI as a Productivity Tool

Based on AI's current applications and expectations from this technology, veterinary professionals primarily see AI as a tool to alleviate administrative burdens and streamline manual, repetitive tasks within veterinary practices. This emphasis on optimizing processes and workflows reflects a pragmatic approach to integrating AI into daily operations, prioritizing efficiency and time-saving measures. However, this focus on administrative functions rather than the core practice of veterinary medicine may also indicate a cautious approach to AI adoption, particularly regarding its potential impact on clinical decision-making and patient care.

This hypothesis is supported by the overwhelming concerns regarding AI's ability to deliver accurate and clinically relevant insights, as expressed by the survey participants.

While AI holds significant promise for workflow optimization, its potential extends far beyond voice-to-text or generative functions. To inspire confidence in the broader potential of AI, further research and case studies showcasing successful applications in these areas are essential. By demonstrating AI's efficacy in supporting clinical decision-making, improving diagnostic accuracy, and enhancing treatment outcomes, veterinary professionals can gain greater confidence in embracing this transformative technology as a valuable asset in their practices.

AI and Staff Mental Well-Being

A notable insight lies in the potential positive influence of the efficiencies gained through AI on staff mental well-being. Work overload and repetitive and under-challenging tasks – known contributors to burnout among veterinary professionals – can be automated with AI, allowing the team to focus more on the fulfilling, creative, and intellectually stimulating aspects of their roles. This shift can lead to a reduction in burnout rates and an improvement in overall staff well-being and work-life balance.

> "A fulfilling life in most cases, includes fulfilling work and veterinary medicine can be among the most fulfilling career paths. However, the moments of meaning and joy that can come alive in a veterinary job are often suppressed or blocked by the mundane or tedious tasks that are, unfortunately, essential elements of our work. This might include administrative duties, medical records, and the like. Artificial intelligence has the potential to lessen the load of the tedious and mundane, increasing the opportunities for veterinary professionals to find connection and purpose in their work."

Josh Vaisman
MAPPCP, CCFP, Co-Founder of Flourish Veterinary Consulting

"These findings support what I see and hear directly from the veterinary professionals our team serves. Short staffing, high client demand, and the burden of paperwork leave teams feeling very short on time. The effective use of AI and technological services reduce workloads which allows teams to be more productive and able to focus on direct patient care."

Crystal Stokes
MA, LMFT #121354, Founder & Managing Director of Full Circle Lab.

AI and Financial Performance

Veterinary professionals acknowledge the potential financial benefits that come with integrating AI into veterinary businesses. Beyond the immediate gains of increased patient throughput and more efficient resource allocation, AI serves as a powerful tool in leveraging practice data. By harnessing AI-driven analytics, hospitals can gain deeper insights into operational metrics, patient trends, and client behavior, unlocking opportunities for further optimization and revenue growth.

However, it's essential to acknowledge the flip side of this coin — the initial investment required for implementing AI technologies — a concern voiced by survey respondents. Such costs remain unclear, highlighting the need for greater awareness and transparency regarding the financial implications of integrating AI into veterinary practices.

AI and Access to Care

Many respondents indicated that AI has the potential to improve access to care. By automating administrative tasks, such as appointment scheduling and record-keeping, AI can free up valuable time for veterinary professionals to focus on patient care. This increased efficiency could translate to shorter wait times for appointments, faster response times to client inquiries, and overall improved access to veterinary services. AI's translation capabilities can also make pet care more inclusive and help overcome language barriers, ensuring that essential information is accessible to a more diverse demographic.

Additionally, AI-enabled communication tools, such as chatbots or virtual assistants, can offer instant support and guidance to pet owners, addressing common questions and concerns in real time. By enhancing client education and support services, AI has the potential to foster a more informed and engaged pet owner community, ultimately contributing to improved access to care and better health outcomes for pets.

Concerns and Barriers to AI Adoption

The primary concern, expressed by a significant majority of respondents, revolves around the reliability and accuracy of AI systems. The fundamental skepticism about AI's ability to perform complex medical tasks reliably and accurately, particularly in the context of veterinary diagnosis and treatment, emerges as one of the key areas requiring additional research and supporting evidence.

Fears of job displacement and regulatory or legal issues further compound the challenges associated with AI adoption, emphasizing the potential necessity for clear guidelines and regulatory frameworks to govern the ethical and responsible use of AI in veterinary medicine.

Veterinary professionals also highlight multiple ethical, technical, and organizational concerns surrounding AI adoption. These encompass worries about the potential erosion of human touch and professional skills in veterinary care, challenges in integrating AI into existing workflows, and resistance to change among staff. Concerns about the lack of training and knowledge among veterinary professionals underscore the importance of addressing educational gaps and providing resources for upskilling in AI technology.

"First, I have to say that I'm a bit smitten with the fact that people are concerned about the safety/security of AI and its reliability. I feel like I've been sitting on my soap box for years all by myself. It gives me hope. I can't really speak to the accuracy of medical diagnosis concerns as I'm not a DVM. However, we do see in human health that there is a strong push for AI to be included in reviewing cases and a potential for it to be malpractice if a doctor does not. Thus, living in a tort-happy society, the fact that people are leaning towards having to use AI to avoid lawsuits tells me that in other health-related fields the accuracy is there. However, this is still all just speculation at this point.

The worries regarding the potential client mistrust for hospitals using AI is actually interesting to me. I feel that the younger generation expects a lot more technology-wise from the modern vet hospital, and yet the average hospital is slow to adopt.

I share the concerns regarding the ownership rights of AI-generated data and potential liabilities in case AI makes a mistake. Currently, there is no transparency in AI especially with the middle layer that controls the outputs and how that filter is being managed and by who."

Clint Latham

J.D., Founder of Lucca Veterinary Data Security

Takeaways

The survey insights suggest the necessity for comprehensive efforts involving all stakeholders within the veterinary industry. These initiatives should focus on fostering understanding of AI technologies, offering evidence-based guidance on their application in veterinary medicine, and ensuring their ethical and effective implementation.

Educational Initiatives

There is an urgent call for targeted education and training initiatives aimed at equipping veterinary professionals with the knowledge and skills necessary to effectively leverage AI tools in their practice settings. As AI adoption in veterinary medicine continues, it should be integrated into the curriculum of veterinary schools and training programs to ensure future professionals have essential AI skills, including ethical applications of such tools.

Case Studies and Evidence

There is a pressing need for comprehensive case studies to assess the effectiveness and impact of AI tools in real-world veterinary contexts. By offering valuable insights into the practical challenges and benefits of AI adoption, such studies will empower veterinary practices to make informed decisions about AI implementation.

Ethical Guidelines and Regulation

The development of ethical guidelines and regulatory frameworks governing the use of AI in veterinary medicine will help address concerns about patient privacy, data security, and the responsible use of AI tools in clinical practice.

Collaboration and Knowledge Sharing

Enhanced collaboration and knowledge exchange among veterinary professionals, AI developers, and researchers are crucial. This collaborative approach will foster innovation, share best practices, and tailor AI solutions to the specific needs of the veterinary industry. Integrating AI functionality into existing veterinary hospital software will facilitate seamless adoption.

Mindset Shift

Fostering a culture of openness to innovation and providing support for organizational change management can help mitigate resistance to AI adoption within veterinary practices.

Beyond the Tech, AI is the Fulfillment of Our Professional Oath: A Veterinarian's Reflections on the Findings

Dr. Tancredi is a veterinarian and the owner of Old Ridge Veterinary Hospital in Chadds Ford, Pennsylvania. He's an experienced small animal clinician and entrepreneur with a tremendous personal and professional interest in generative Artificial Intelligence (AI). He has lectured on AI and its use in veterinary medicine to the IVPA, VHMA, and private veterinary organizations and has published a number of articles for Substack, TVP, dvm360, and other publications. Visit his blog Doc's FIRE: Facts, Insights, Research, Education.

William Tancredi

DVM

Introduction

"Gentlemen, progress has never been a bargain. You've got to pay for it. Sometimes I think there's a man behind a counter who says, 'All right, you can have a telephone; but you'll have to give up privacy, the charm of distance. Madam, you may vote; but at a price; you lose the right to retreat behind a powder-puff or a petticoat. Mister, you may conquer the air; but the birds will lose their wonder, and the clouds will smell of gasoline!'"

Jerome Lawrence; Robert E. Lee. Inherit the Wind (p. 93). Random House Publishing Group. Kindle Edition.

Thomas S. Kuhn's seminal 1962 work, The Structure of Scientific Revolutions, popularized the phrase, "paradigm shift," and so memorable was it that its use has come to be sadly banal and trite in decades of overuse since. Other adjacent words and phrases have lost their glimmer beneath the dust of habit as well. "Innovative" and "revolutionary" and "disruptive" have been so widely and imprecisely applied that they rarely still rouse the excitement of their true meaning in the reader's mind.

And yet, when it comes to the recent advances in artificial intelligence, these words certainly apply. They're nearly unavoidable despite their fading potency. In a wordsmith's effort to evoke in readers the kind of powerful emotion once drawn by these words, I likened the widespread and pluripotent applications of artificial intelligence to a tectonic shift rather than a paradigm shift. A "paradigm shift" is a more appropriate subtitle for a professional white paper, but it feels too small, too narrow to describe what is happening. AI will change things even for those who do not consciously employ or understand it. It will do more than change the way we think, it will change the way we see the world and navigate it. This technology will change and shape the foundations of the way we work and live. The changes will broadly improve many aspects of our lives, will inevitably destroy a few others, and will be utterly irresistible to those of us experiencing it.
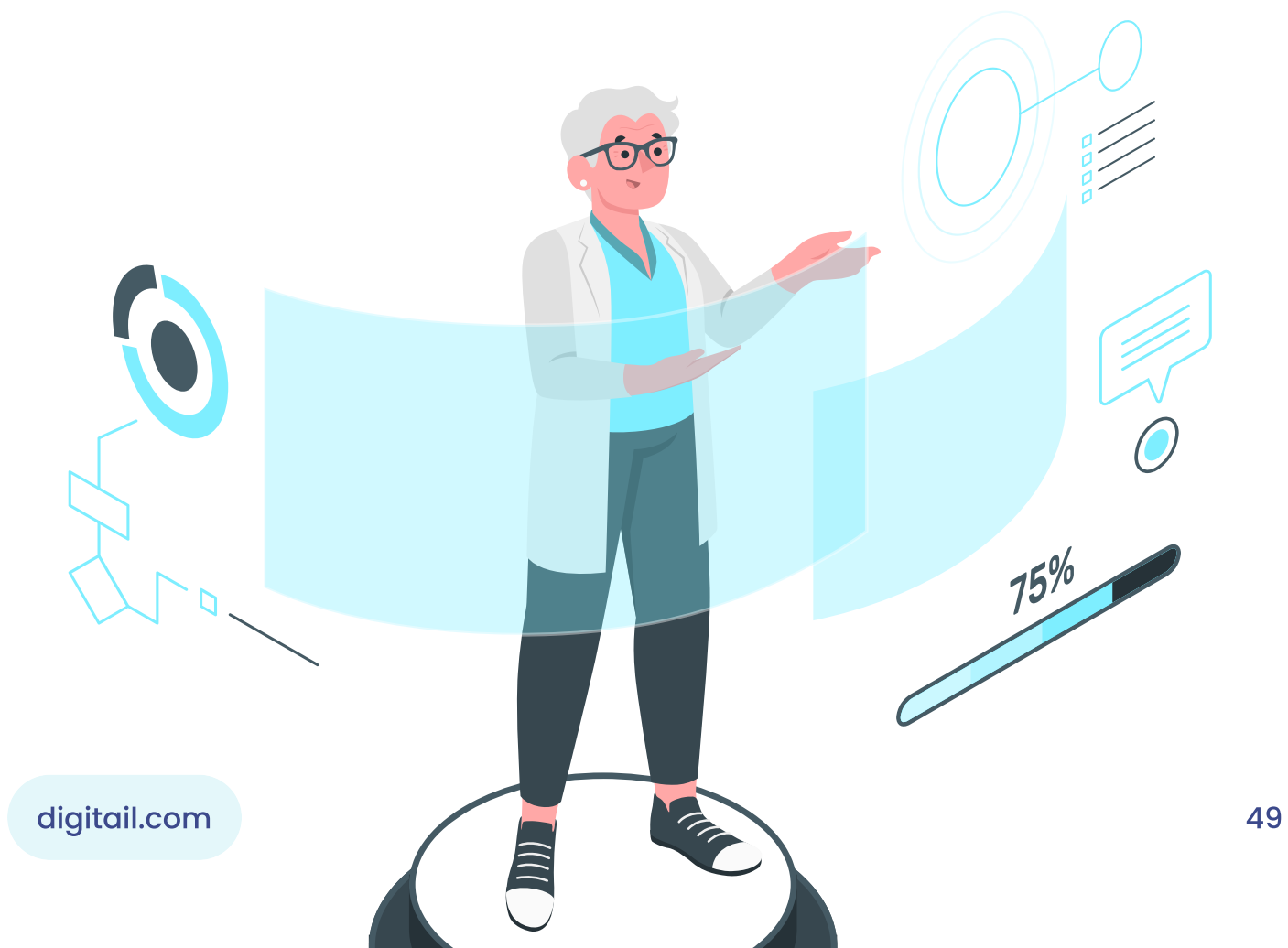
A little more than a year ago, I learned what a large language model (LLM) was. And I knew I needed to learn a lot more. The potential applications of LLMs in veterinary medicine are hard to exaggerate, and other forms of artificial intelligence, like deep neural networks and convolution neural networks, hold tremendous potential as well.

What are these clever bits of software that have the world all up in arms? Why are people wondering if AI will take over the world? Why are some worried that AI will take our jobs? What are the ethical concerns? And the practical ones?

Artificial intelligence differs from traditional software most significantly in its problem-solving approach. Where traditional, deterministic software operates based on predefined rules and logic set by programmers, AI software, especially those with machine learning, learns from its own data. AI is designed to mimic human cognitive functions like learning, problem-solving, and decision-making. AI is probabilistic rather than deterministic.

This difference makes AI software highly flexible and adaptable. It can adjust its outputs based on new inputs, making it much more suitable for tasks where the requirements frequently change or are not fully known in advance. If you ask an LLM to reply to an email, it will take the data upon which it has been trained and use it to predict your response to an email. Some LLMs have been trained on relatively modest amounts of data, while others, like OpenAI's ChatGPT or Google Bard, have been trained on massive amounts of data. Because of its more extensive training, its prediction results are better.

One of the challenges facing AI is acquiring and processing that training data. Traditional software relies on specific algorithms and predetermined logic; it will do exactly and only as it was programmed to do. AI needs bigger, more complex datasets for meaningful training, and until recently, such compilations and processing were nearly impossible. Even now, the computing power required by an AI LLM is still a limiting factor in its use. That's partly because the AI software is processing the data — often in real-time — a crucial aspect of its decision-making processes.

All this means that artificial intelligence has use cases in diagnostic imaging, disease detection and prediction, remote patient monitoring, genetic analysis, pharmaceutical development and testing, and much more. There is almost no aspect of our work that will not be affected by artificial intelligence, which is why this study from Digitail and the American Animal Hospital Association is so exciting.

In just the past year, there have been dozens of animal health companies and thousands of providers newly employing artificial intelligence in their work. The results show just how widespread the use is already, and indicate that its spread will continue rapidly.

It's perhaps a bit mismatched that I find the results indicating rapid adoption of technology because of what it represents to a venerable but fundamental piece of veterinary medicine: the Veterinarian's Oath.

Being admitted to the profession of veterinary medicine, I solemnly swear to use my scientific knowledge and skills for the benefit of society through the protection of animal health and welfare, the prevention and relief of animal suffering, the conservation of animal resources, the promotion of public health, and the advancement of medical knowledge.

I will practice my profession conscientiously, with dignity, and in keeping with the principles of veterinary medical ethics.

I accept as a lifelong obligation the continual improvement of my professional knowledge and competence.

In the adoption and use of artificial intelligence, I see veterinarians honoring the promises of this oath. Through the application of AI and weaving it into their practice of medicine, I see veterinarians using their scientific knowledge and skills to benefit society, protecting animal health and welfare, preventing and relieving animal suffering, conserving animal resources, promoting public health, and advancing medical knowledge. I see them practicing conscientiously and with dignity while honoring and elevating our ethical principles. And, most importantly, I see them committed to their lifelong obligation of continually improving their knowledge and competence.

I know relying on an "oath" with all the archaic connotations carried with the word verges on the maudlin, especially when touting software usage statistics. But I stand by it, because in it I see in the statistics, the pursuit of better medicine, and a demonstration of the ferocious passion that so many of us have to do right by our patients.

Adoption and Sentiment

> *"Ingenuity is often misunderstood. It is not a matter of superior intelligence but of character. It demands more than anything a willingness to recognize failure, to not paper over the cracks, and to change. It arises from deliberate, even obsessive, reflection on failure and a constant searching for new solutions."*
>
> Gawande, Atul. Better: A Surgeon's Notes on Performance (p. 9). Henry Holt and Co.. Kindle Edition.

The adoption of and sentiment towards artificial intelligence is impressive. While the group may have self-selected for those with an interest in AI, the findings are nonetheless substantial.

An astonishing 83.8% of veterinarians are familiar with AI and its applications, with a predictably higher rate of familiarity in younger veterinarians. Interestingly, younger veterinarians also reported relatively high skepticism toward artificial intelligence and associated tools.

The cynical among us may have a reflexive instinct to assume that "familiarity" and "skepticism" are at odds with one another, but I don't believe that's the case. Just as it's the experienced driver, rather than the novice, who leaves an extra car length of stopping room in heavy traffic, it's those familiar with technology who are able to act with the wisdom of skepticism. In using any technology in the practice of medicine, especially a probabilistic and imperfect one, it's important not to fall asleep at the wheel.

More attention-getting is the number of respondents who have tried the tools for professional tasks, with roughly 39.2% of respondents reporting use and 69.5% of those reporting daily or weekly use. The study also found a direct correlation between the usage of AI tools in the professional setting and the level of enthusiasm towards this technology.

I believe in this technology's real-world applications, so learning about its widespread use is deeply encouraging. In less than a year, veterinarians report a level of adoption similar to computer programmers. I've occasionally heard that veterinarians are slow to adopt new technology, but it would seem that this is not the case when the technology is pluripotent, affordable, and accessible.

Current Applications and Perceived Benefits

> *"Now I'm using an electric guitar. Which, of course, is a big improvement over the old steam-powered or gasoline-powered guitars."*
>
> James Taylor

Veterinarians are already using a variety of AI models for a variety of use cases, including diagnostic imaging, administrative tasks, and voice-to-text transcription. Respondents further identified areas where AI has the most positive impact as client education, patient record management, and medical triage. Incorporating AI into hospital workflows could contribute significantly to profitability, revenue growth, employee satisfaction, client retention, and, of greatest import, patient care.

While the existing technology is imperfect and far from omnipotent, it is pluripotent, allowing an almost unlimited number of use cases. I believe the ability of AI to lift the "bandwidth burden" on veterinarians is among its most valuable impacts. An LLM can ease the weight of emotionally heavy communication, it can aid the conveyance of a complicated idea, it can overcome language barriers, it can facilitate not just understanding but empathy as well.

That benefit cannot be understated. In a professional experiencing crises of both mental health and productivity, the potential to broaden the veterinarian's individual bandwidth is powerful. With more to give, such a veterinarian will have an opportunity to be a better doctor, a better leader, and perhaps even a better person.

Barriers to and Drivers of Adoption

"For this discovery of yours will create forgetfulness in the learners' souls, because they will not use their memories; they will trust to the external written characters and not remember of themselves. The specific which you have discovered is an aid not to memory, but to reminiscence, and you give your disciples not truth, but only the semblance of truth; they will be hearers of many things and will have learned nothing; they will appear to be omniscient and will generally know nothing; they will be tiresome company, having the show of wisdom without the reality."

Socrates to Phaedrus, relating the fable of the invention of writing, from Thamus to Thoth. Plato; Original Thinkers Institute. Phaedrus: The Madness of Eros, and Ideal Love (Grapevine edition) (p. 111). Kindle Edition.

There are legitimate concerns regarding the use of artificial intelligence, although again, I find myself untroubled by the study's findings. Concern and caution are not solely reflections of timidity or fear but can also simply be manifestations of wisdom and understanding.

The most prevalent concerns about artificial intelligence are the reliability and accuracy of the AI system (70.3% of respondents) and data security and privacy (53.9% of respondents). As an advocate for AI use, these numbers don't worry me because they represent an understanding of how the software works as well as at least a broad sense of the importance of data security.

Artificial intelligence is not deterministic software, it's probabilistic software. That means that in addition to profound versatility and what passes for creativity, it will get things wrong occasionally. Its potential for hallucination is important for users to know, and at least 70.3% of the respondents to the study are correctly wary of its capacity for error. I do not think this is truly a barrier to its use any more than the potential for a car accident is keeping some people from driving. Sure, there are those who will be unconvinced, but many more have already seen AI's value and learned the risks.

The concerns about data security are legitimate as well, but they again demonstrate an understanding of technology, not just AI. That concern is a valid one for anyone using the internet, cellular phone, or bank. It's not paranoia, it's just good sense. Early adopters aren't only made up of those who casually tossed caution to the wind; it's also those who did their due diligence and decided what was a safe way to use new technology.

I'm not yet convinced that valid concerns are truly barriers to adoption; rather, I feel that they reflect an understanding of the risks of the technology as well as its benefits.

Future Outlook

> *"Almost every foundational technology ever invented, from pickaxes to plows, pottery to photography, phones to planes, and everything in between, follows a single, seemingly immutable law: it gets cheaper and easier to use, and ultimately it proliferates, far and wide."*
>
> Suleyman, Mustafa. The Coming Wave: Technology, Power, and the Twenty-first Century's Greatest Dilemma (p. 19). Crown. Kindle Edition.

Artificial intelligence in veterinary medicine is not a future possibility but rather a present reality. The impact is already observable and veterinary medicine is not immune to the same forces that impact the economy as a whole. I believe that AI will become as ubiquitous as WiFi, smartphones, internet access, and a litany of other technologies became ubiquitous. I contend that while it is our professional obligation to experiment with and employ this technology, it is also our responsibility as adults to endeavor to observe and seek understanding about the world in which we live.

A mere 15.5% of respondents expressed clear opposition to AI. Whether that opposition is borne of understanding or ignorance is not clear, but rarely does innovation and evolution come from outright rejection. The overwhelming majority of veterinarians (>85%) are either currently using or interested in using AI. Incorporating AI into hospital workflows could contribute significantly to profitability, revenue growth, employee satisfaction, client retention, and, most importantly, patient care.

Conclusion

> *"James,"* he said in a gentle voice, *"there is one fundamental rule in our job which transcends all others, and I'll tell you what it is. YOU MUST ATTEND. That is it and it ought to be written on your soul in letters of fire." He raised a portentous forefinger. "YOU MUST ATTEND. Always remember that, James; it is the basis of everything. No matter what the circumstances, whether it be wet or fine, night or day, if a client calls you out, you must go; and go cheerfully."*
>
> Herriot, James. All Creatures Great and Small (p. 71). Open Road Media. Kindle Edition.

Siegfried Farnan's mandate to James Herriot is an impactful one. It is a powerful reminder of the importance of the work we do and the necessity of doing it well. We must be active in our pursuit of improvement and learning. While it is sometimes the case that lessons are given to us, more often, is it necessary to seek them out and learn them for ourselves.

As we stand on the precipice of a major technological advancement in veterinary medicine, it's clear that AI is not just a fleeting trend but a profound shift that promises to reshape our profession. This journey, as our survey indicates, is not without its challenges. The skepticism and concerns about AI's reliability, accuracy, and data security are valid and demand our attention and thoughtful resolution. Yet the overwhelming enthusiasm and rapid adoption of AI tools among veterinary professionals speak volumes about the potential of this technology.

In integrating AI into our practice, we aren't just adopting a new tool, we are upholding the Veterinarian's Oath. We're committing to using our knowledge and skills for the betterment of animal health and welfare. By embracing AI, we're not discarding our traditional values; instead, we're enhancing our capabilities to meet the evolving demands of veterinary medicine.

As we move forward, our focus should be on balancing the excitement of innovation with the hard-earned prudence of professional responsibility. It's about harnessing the power of AI to amplify our impact while remaining vigilant about the ethical and practical implications of these advancements. The future of veterinary medicine, as painted by AI's current trajectory, is not just about technological proficiency; it's about blending science with compassion, innovation with ethics, and progress with sustainability. Education, experimentation, and research are all crucial to its continued success.

The journey ahead is as exciting as it is uncertain and perhaps made more exciting by its uncertainty. But one thing is clear: the integration of AI in veterinary medicine is not a possibility; it's a reality that's unfolding around us. As professionals dedicated to lifelong learning and improvement, our task is to navigate this change thoughtfully, ensuring that as we employ these advanced tools, we continue to prioritize the health and welfare of the animals in our care, honor our ethical obligations, and push the boundaries of medical knowledge.

In the end, the adoption of AI in veterinary medicine is more than just a technological upgrade; it's a commitment to better medicine, to our patients, and to the oath that defines our profession. The road ahead is unmapped, but it is one that we, as a community of passionate and dedicated veterinary professionals, are well-equipped to navigate.

Research group

About Digitail

Digitail is the veterinary software solution that elevates every aspect of your practice. Designed with both veterinary professionals and pet parents in mind, it maximizes productivity while simplifying the entire pet care journey. The first cloud-based Practice Information Management Software (PIMS) with built-in AI capabilities, Digitail consolidated multiple tools into a single solution, allowing your team to manage operations from any location. Automating routine administrative tasks and cutting down your staff's workload, lets them focus on what they do best — provide exceptional care. At the same time, the Digitail app puts essential pet care information into the hands of pet parents, improving communication, increasing compliance, and modernizing the client experience from start to finish. Elevate your veterinary care with Digitail — where efficiency and quality go hand in hand.

For more information, visit https://digitail.com

About the American Animal Hospital Association

Since 1933, the American Animal Hospital Association has been the only organization to accredit veterinary hospitals throughout the United States and Canada based on standards directly correlated to high-quality medicine and compassionate care. Accreditation in veterinary medicine is voluntary. The AAHA-accredited logo is the best way to know if a practice has been evaluated by a third party.

For more information, visit https://www.aaha.org/.

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