

Plugged into pets

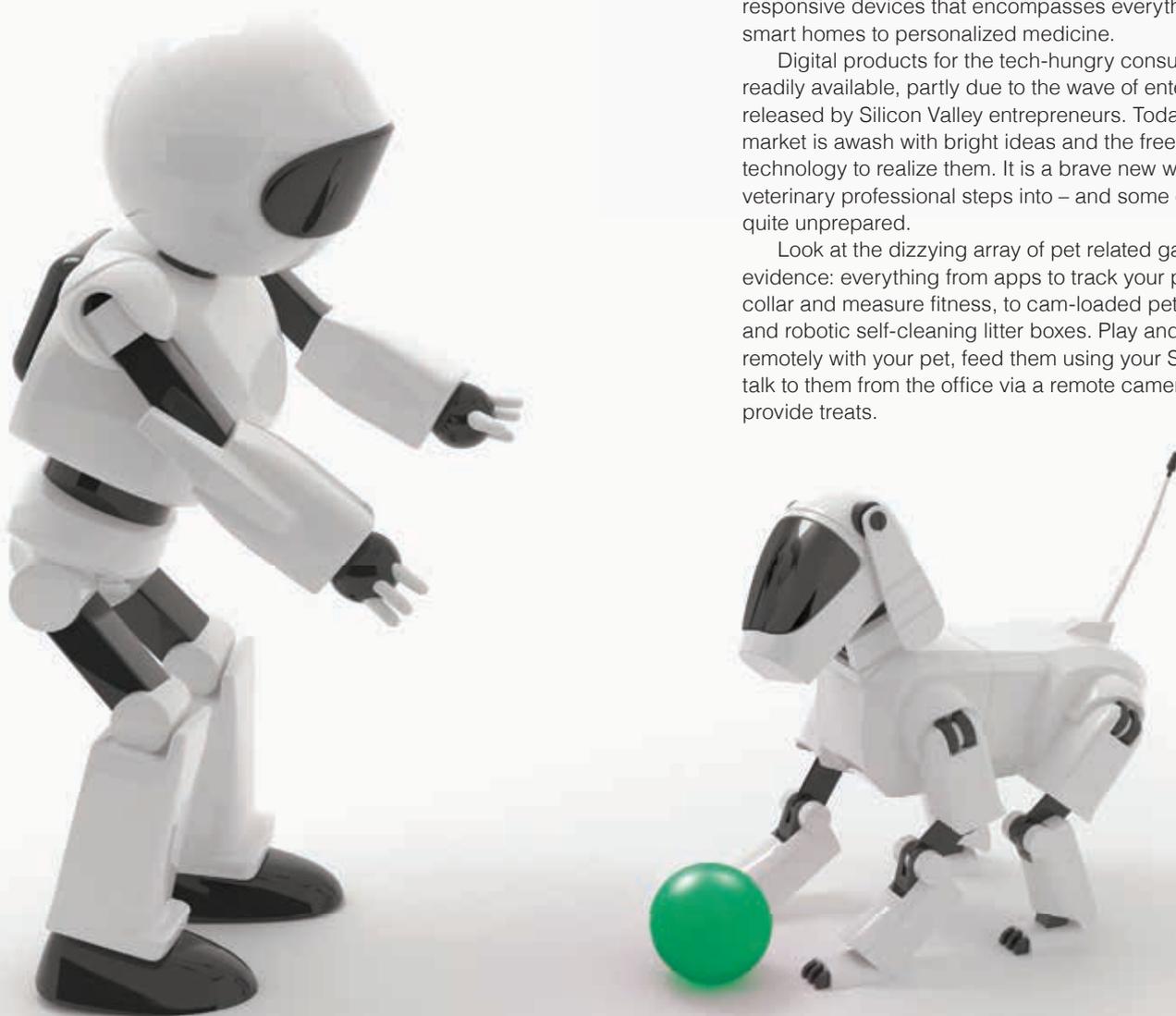
Robin Fearon explores the digital landscape and the opportunities this offers the veterinary profession

In the space of a decade, digital and mobile technologies have revolutionized the way we work and socialize. Over the past five years the rise of Twitter, Facebook's market consolidation, and novel mobile apps like Instagram have accelerated connectivity and digital literacy.

Unsurprisingly it has not stopped there. The next wave of connected technologies, tentatively labelled the 'internet of things', envisions a web of intelligent sensors and responsive devices that encompasses everything from smart homes to personalized medicine.

Digital products for the tech-hungry consumer are readily available, partly due to the wave of enterprise released by Silicon Valley entrepreneurs. Today's pet market is awash with bright ideas and the freely available technology to realize them. It is a brave new world that the veterinary professional steps into – and some of us do so quite unprepared.

Look at the dizzying array of pet related gadgetry as evidence: everything from apps to track your pet's GPS collar and measure fitness, to cam-loaded pet feeders and robotic self-cleaning litter boxes. Play and interact remotely with your pet, feed them using your Smartphone, talk to them from the office via a remote camera and provide treats.



Even the humble name tag has received an upgrade, sporting a QR code and GPS tracking to alert you when your pet has roamed too far. Pet owners have an arsenal of interactive toys to play with and this is only the beginning.

It may take a discerning mind to sift through the opportunities available to the profession. Vets and vet nurses are in the distinguished position of knowing what is best for animal health and welfare – so it is a good idea to bone up on technology to be in a position to advise clients.

The web of vets and pets

Many veterinary practices have taken up social media with enthusiasm and that interface is where many owner interactions first happen. Susie Samuel, managing director of VetHelpDirect and web 2.0 specialist, believes practices have quickly realized the benefits. "Social media is better suited for vets to use than any other profession or industry I can think of," she says. "Practices with Facebook pages have built up communities of local pet owners and they are right at the centre of it."

If it had casually escaped anyone's notice, pets are rampant on the internet. From cat Twitter accounts to canine Instagram streams or 'social networks', such as Catmoji, Dogster and Bunspace (for rabbits), the net is owned by furries. "It is everyone's favourite subject to talk about their animals," says Susie. "Vets have got a stream of material coming through their doors every day. We have been given the perfect gift."

Online, pet owners enthusiastically share images and thoughts about their companions in their millions. Cats and dogs monopolize the rich archive of internet memes – images repeatedly posted until they achieve cultural status – with Boo the Pomeranian, grumpy cat, singing huskies and catbeards as serial

performers. YouTube channel 'The Pet Collective' features everything from live puppy cams and animal facts to pet re-enactments of Hollywood blockbusters.

VetMart director Caroline Johnson says her first response to web-enabled pets was as a quirky emerging trend. "Two years on and that is still my view," she says. "What drives this behaviour is that owners are passionate about their pets. People who have common interests congregate online. The difference is that online communities can be on a massive scale."

As founder of an online marketplace for vets and owners, Caroline sees massive crossover potential for mobile apps, GPS-enabled devices and cams. "What they effectively do is deepen our understanding about animals and what they get up to when we are not around," she says. "Huge numbers of animal owners are curious about that."

"I also think apps that help with exercise and obesity are good for animal and owner. It helps to strengthen the



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Susie Samuel

human–animal bond. For vets it represents an opportunity to make a sale or, more importantly, to develop a service offering for owners."

Pet aids and devices will continue to emerge whether vets choose to provide owner advice or not. Forward thinking animal health and pet merchandising companies have already produced apps for making practice appointments, dog walking and even pet first aid.

Leading the way

Growth in pet spending in emerging markets and the world's largest pet consumer marketplace, the US, is rising to match this. Pet ownership in China is expanding based on an emerging middle class, as elsewhere in Asia, added to the growing number of couples who would rather own pets than have children. America is simply the world's most advanced pet and veterinary market,



One of the cats taking part in the University of Georgia & National Geographic KittyCam Project

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➔ kick-starting many of the trends registered worldwide. Annual pet spending in the US in 2012 was £32.4bn (\$53.33bn), or roughly half of pet product and service sales globally.

Even a cursory search into digital trends shows that the US is the launchpad for many products before their take-up in Europe and the UK. Another advanced market for pet products is Japan, the birthplace of the robotic dog Aibo and the humble Tamagotchi.

The Tamagotchi was a seminal development in pet tech taken up enthusiastically by the Western world. Ostensibly an electronic game on a keyring, owners had to feed their Tamagotchi, play with and take care of it by pressing the right buttons. As basic as it was, in some ways it offered potential pet owners an insight into animal welfare.

Several years later games developer Nintendo took the concept one stage further with the game Nintendogs for its

DS console. Players learned about dog care as an adjunct to playing with their digital canine friend. To date it is the second best selling DS game of all time. Canine charity Dogs Trust endorsed the product as a way for people to learn more about the commitment needed in pet ownership.

In research and in reality

Fast forward a few years and the advent of pet cams with night vision offer a cat's eye view of pet behaviour. Consumers and researchers both have access to the technology and thanks to projects run by the University of Georgia and the Bristol Vet School, cams have provided a window into both feline and canine behaviour.

Emily Blackwell is the Dogs Trust lecturer in canine behaviour and welfare at the University of Bristol. Her research into separation anxiety uses cameras extensively. "We use small and hidden cameras to see what goes on when dogs are left alone," she explains.

Channel Four's *Dispatches* on 13 January this year was one of three commissioned programmes involving Emily's group. Entitled 'Dogs: their secret lives', Emily worked alongside well-known vet Mark Evans to reveal details of domestic dogs affected by separation related behaviour. Hidden cameras captured the fear and panic unleashed when some owners go out to work.

Digital technologies such as the remote treat dispenser, with a built in camera and phone, do provide a way for owners to interact with their pet while at work, but Emily is not convinced that it offers a solution to separation problems. "I'm not sure how effective it is going to be, apart from getting a dog to sit in front of the box waiting for the owner to respond," she says. "It could be counterproductive."

Potential exists for remote digital control, especially in the area of play. Systems that offer the ability to interact with cats using a laser pointer are well received. More fanciful technologies such as owner holograms are less likely to hit the mark. "Again it does not appear to be a substitute for having the owner present," says Emily. "Though I have no doubt that there will be imaginative and inventive ways for technology to be incorporated into activities and enrichment for dogs."

Next stage technologies for environmental enrichment are in the pipeline. Giving pets the ability to affect their environment, allowing dogs to open doors or control temperature is being discussed by Dogs Trust. "Ultimately I'd like to see a rehoming centre where they could choose which individuals they were paired up with and when they interact with them," says Emily.

Having witnessed the large proportion of dogs with behaviour problems brought on by owner separation, suitably adapted houses could improve the lot of dogs left at home. "Predictability and control are the most important things to an anxious dog," says Emily. "If we can give them that



QR codes are replacing the humble name tag

through technology it would be a really positive thing.”

What about welfare?

Accepting that technology can increase our understanding as veterinary professionals or pet owners does mean making judgements about what is suitable for animals. Behaviourists raise real concerns about well intentioned products that play to human ideas about positive pet interaction.

University of Lincoln researchers, led by Professor of Veterinary Behavioural Medicine Daniel Mills, regularly use digital technology to assess the pet-owner relationship. “It opens doors,” he says. “Trying to understand the stresses they are under and how to resolve them is important. Technology can provide the basic information we need.”

Research projects underway at Lincoln include a GPS and camera study of feline wandering to assess risk taking, and a study of the effects of dog ownership on elderly people. As new technologies become available they help to fine-tune understanding. Video was a leap forward for behaviourists. “It has given us so much more confidence in the diagnoses we can make,” says Daniel.

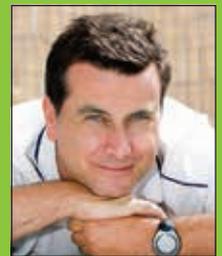
GPS and other wearable trackers help create a more rounded picture. “We are getting to the stage where we can use accelerometers to work out each animal’s gait,” says Daniel. “It allows us potentially to personalize veterinary medicine.”

Personalized medicine is allied to the idea of an ‘internet of things’. We already implant microchips for identity, so sensors to measure your pet’s vital signs or insulin levels could be next. Dutch company Sparked opened the way in 2011 by implanting dairy cows with sensors so farmers can assess herd and individual health.



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Daniel Mills



Where next?

‘Internet everywhere’ is the trend to watch. It is there already in exercise trackers. “Relating human activities to animal activity and benchmarking yourself against other owners, setting targets, I think will become really important,” says Susie Samuel. “Measuring heart rate or insulin levels, even if it is only the owner recording it in an app, could be just around the corner.”

Vets can wait for technology to drop into their laps, or they could be among the first to develop concepts in veterinary medicine. “There is no reason why vets could not drive the agenda,” says Susie Samuel. “From what we have seen so far early adopters get a head start. They should be horizon scanning.”

Being the first to talk about emerging technologies and taking part in social media does not make you frivolous, or a revolutionary, but it does make sound business sense, adds Caroline Johnson: “It is about sharing enthusiasm and developing that bond with owners. It also positions vets a little bit more at the front end, more cutting edge than the traditional practice.”

Working out which technologies are helpful, positive for pet health and welfare, harmless fun or counterproductive, will take time. Arriving early at the party at least provides veterinary professionals with a few discussion points.

If nothing else, the rise and rise of digital demonstrates that deciding whether to join the conversation is not optional. “It is a huge opportunity to join in the fun, to be amongst everybody while it is happening,” says Caroline. “Wherever your target audience gathers online, you would be mad not to join in.” ■

RESEARCH – PAINED EXPRESSIONS

The University of Lincoln is looking to recruit for a research project into feline facial expressions. Working with computer scientists, Daniel Mills and his team will use pictures of cats and visual learning systems to triangulate facial landmarks associated with pain. It is a four and a half year project sponsored by the charity Feline Friends. Anyone interested in more details can contact Daniel Mills – dmills@lincoln.ac.uk.

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