


The future of carbon capture

If energy-from-waste is going to help power our towns of tomorrow it needs to be joined by carbon capture and storage. Let's look at where the technology is now, and where it needs to get to in the future

24 By: Sarah Kidner





Energy from waste (EfW) is a cornerstone of the circular economy. A 2020 Policy Connect report described it as 'the best available option' for disposing of the 50 per cent of the UK's waste that isn't recyclable, while experts are agreed that the technology currently plays a vital role in the race for net-zero.

The technology is steadily growing: just under 14 megatons (Mt) of residual waste was converted to energy in 2020, up 11.1 per cent from the 12.6Mt processed in 2019. But before EfW can be found in every town and city, there are obstacles to overcome.

Dr Adam Read, President of the CIWM and Director of External Affairs for SUEZ, which operates nine EfW plants across the UK, agrees. 'You've got to have the infrastructure,' he says.

'I wouldn't want to be in Italy's position a few years ago, where rubbish was piling up on the streets in Naples.'

Read also points out that energy-from-waste technology has a serious image problem, which is stopping the technology from delivering all the benefits that it could. 'Most people don't want an EfW plant in their backyard, but if it's not in their backyard then they won't get the benefit of cheap local heat that comes with it,' he says.

Feeling the heat

It's a good point. The benefit of the cheap heat that an EfW can provide through local heat networks can't happen if the incinerator is hundreds of miles away.

'The big issue with Energy from Waste is incinerators,' says Natascha Engel, Chief Executive Officer for Policy Connect. 'Nobody wants to live near an incinerator; everyone thinks EfW is a great idea until it lands on their doorstep.'

This means waste often needs to be transported to remote, out-of-town facilities. SUEZ, for example, operates an EfW plant on the outskirts of Bristol that takes waste from West London, more than 100 miles away. The company uses rail at night, when the lines are under-used. 'It's quite a carbon-efficient form of transport, significantly better than lorries in and around London,' says Read. 'And, of course, the land prices in London mean you would never get a facility like that built in town these days.'

New towns, new tricks

But there are examples where EfW is already working well. One only needs to look at the many 'new town' developments across the UK, to see how EfW plants are already providing energy and heat directly to residents.

The Millerhill Recycling and Energy Recovery Centre (RERC) in Scotland is a good example. This 'heat-off' EfW plant aims to heat the nearby 4,000-home development of Shawfair, lowering the carbon footprint of the residents living there.

When waste arrives at Millerhill RERC, recyclable materials are first recovered and removed. What remains is then thermally treated to produce electricity and heat. In addition, it brings the temperature of the heat supply down to 50°C, making it easier to incorporate heat pumps.

These lower temperature heat systems are cheaper to operate than traditional gas heating systems and 'represent a major step towards decarbonising heat supplies to buildings in the area', according to Dr Paul Moseley, associate director at the Scottish Futures Trust.

Midlothian Council has signed a 40-year agreement to provide heat to nearby public buildings in Shawfair. The project is the first of its kind from Energy Services Company (ESCO), which the council owns jointly with Swedish energy company Vattenfall.

Another example of a community powered by EfW is the Energy Recovery Facility (ERF) in Sheffield – owned by Sheffield City Council and run by Veolia. This centrally located plant can handle 225,000 tonnes of municipal solid waste

each year, generating up to 19MW of electricity for the National Grid. That's enough to power up to 19,000 homes. It also supplies up to 60MW of heat energy to the 140+ buildings connected to its local heat network. These include offices, leisure facilities, hotels, and houses.

Despite the success of EfW projects like those in Shawfair and Sheffield, centrally located heat-off solutions remain rare. 'One of the big problems is the non-existence of heat networks,' says Engel. 'Something like two per cent of homes are on heat networks, and that makes it difficult to feed them from an Energy from Waste plant.'

Policy Connect's paper, *No Time to Waste*, says the UK is a long way behind the rest of Europe when it comes to using EfW heat in towns and cities. 'Historically, UK policy has favoured the adoption of gas networks for heating and was, until recently, the world's largest market for boilers,' it finds. The paper also says that while most modern EfW plants follow a Combined Heat and Power (CHP) design in anticipation of finding a heat customer, only eight of the UK's 40 EfW facilities were actually operating in CHP mode, as of 2018.

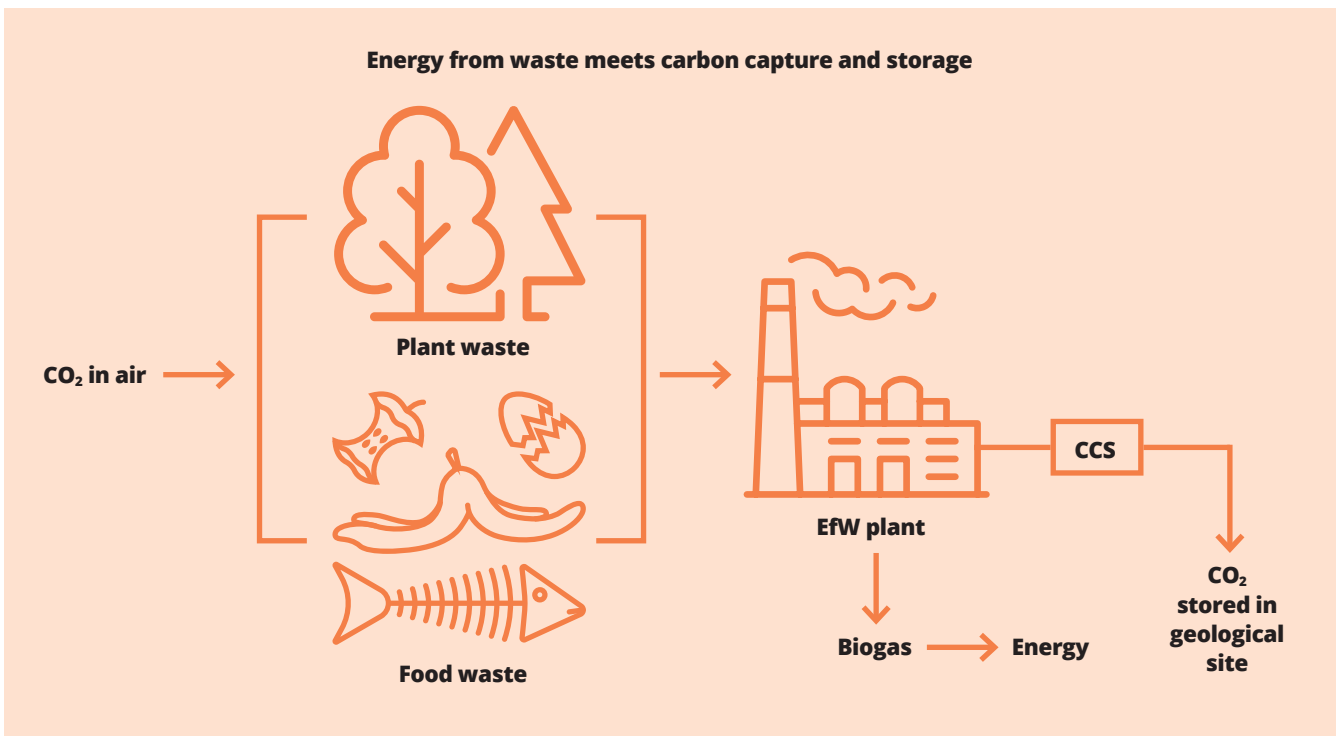
Decarbonising emissions

EfW is undoubtedly part of the solution to greenhouse gas reduction but, ultimately, incinerators still produce CO₂ – according to some estimates 11Mt every year, with proposed and under-construction EfW plants adding an extra 9Mt.

To address this problem, Read says a massive technological step forward needs to be taken. 'Carbon capture and storage will be the next big technology innovation to decarbonise emissions [from EfW],' he says.

Indeed, carbon capture and storage (CCS) is something that interests Read and his colleagues at SUEZ very much. SUEZ is a crucial player in the East Coast Cluster, a government-backed initiative to deploy CCS across the Humber and Teesside regions. It's one of the UK's first carbon capture usage and storage clusters (CCUS) and aims to remove nearly half of all UK industrial cluster CO₂ emissions –

● ●
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including those from EfW plants.

Additionally, in November 2020, SUEZ signed a memorandum of understanding with BP to explore Net Zero Teesside, the UK's first decarbonised industrial hub. The agreement paves the way for carbon capture solutions at one of the four EfW facilities SUEZ operates in the Teesside area. The company aims to use a solvent-based system to capture CO₂ from flue-gas emissions. This will be sent to the Zero Teesside CCUS project, from where it will be transported and kept permanently in geological storage beneath the North Sea.

And SUEZ isn't the only player innovating with CCS. Cory, which operates in London and the Southeast, also plans to apply CCS to its existing EfW operations.

In a bold statement, Cory says it will deliver the 'world's largest single-site EfW decarbonisation project' and capture 1.5Mt of CO₂. The savings will include 90 per cent of Cory's existing EfW plant emissions plus

emissions from a new facility, expected in 2026.

The plan also highlights the strategic importance of the river Thames, which could be used to ship CO₂ from industrial facilities in the region to North Sea geological storage sites.

Dougie Sutherland, CEO of Cory, is excited about the technology's potential: 'Cory's carbon-capture project could be game-changing. Not only would it be one of the largest CCS projects in the UK, but it would lead the way in using existing, natural infrastructure.'

Cory also hopes to create one of the largest district heating networks in the UK, working in partnership with Vattenfall. The

network would channel otherwise-wasted heat produced in the capture process to local homes.

While the combination of EfW and CCS has the potential to radically alter how we create energy, no such plants yet operate in the UK, leading many to wonder when, or if, we will see such technology in operation. But there is light at the end of the tunnel.

Carbon capture and storage will be the next big technology innovation to decarbonise emissions

In March 2022, SUEZ's Teeside plant progressed to Phase 2 of the government's carbon capture utilisation and storage cluster sequencing process. Any CO₂ captured at its four EfW process lines could be transported to the East Coast cluster and stored 'from the mid-2020s'.

Similarly, Cory says it will deliver its 1.5 million tonne CO₂ saving by 2030 and has notified the Planning Inspectorate that it will submit a Development Consent Order application.

This gives real hope that CCS from EfW plants could begin to make a welcome contribution to the government's ambition to capture and store at least 50 million tonnes of CO₂ per annum by 2035. Retrofitting existing EfW plants could save even more CO₂, and let's not forget that actually creating energy from waste in the first place avoids 200kg of CO₂ for every tonne of waste diverted away from landfill.

Read describes CCS as a 'needs-must' scenario. 'It's a way of making the residual waste issue more acceptable – after all it's a technology that reduces emissions,' he says.

In the future, we may even be able to put the CO₂ captured from EfW to good use. Although there is too much of it in the atmosphere, there is often a shortage of CO₂ in the food-industry – particularly when natural gas, which is used in industrial CO₂ synthesis, is in short supply. Captured CO₂ could not only make up any shortfall, but could also replace the environmentally unfriendly natural-gas route.

Other uses of CO₂ include the manufacture of cement, plastics and fibres. Future processes could even use it as a starting point for jet fuel.

Transforming CO₂ from public enemy number one to a useful commodity would be a triumph of the circular economy. As 13 cross-party politicians say in Policy Connect's *No Time to Waste*: 'We must no longer simply bury or export the problem. Instead, we should, as other European economies do, treat residual waste as a valuable resource. Energy from Waste (EfW) is not the perfect long-term solution...[but] it is an essential part of the net-zero transition ahead of us.' ●





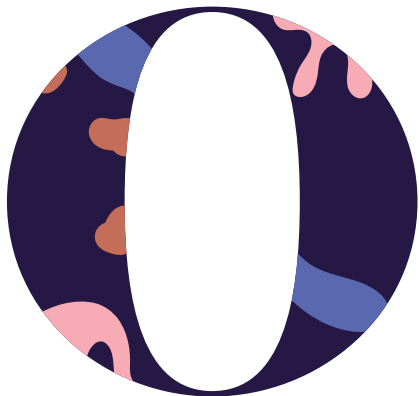
Beautiful

on the

inside

Marketers and brands are embracing diverse communities in their campaigns. However, if we're really going to turn the tide then change has to start on the inside

BY SARAH KIDNER



ut-of-the-box thinking is at the core of the creative ad industry. But, when it comes to diversity, the box we were thinking out of has been stereotypically white, Caucasian, heterosexual and male. Ads feature twice as many male characters as women, according to the Geena Davis Institute on Gender (founded by the Academy Award winner and *Thelma and Louise* star). The Institute found that 25% of ads feature men only compared to 5% that feature women only, and men voice 18% of ads compared to 3% women. Little has improved in a decade (the Institute studied ads from 2007 to 2017).

However, we are now living in a post #MeToo world. It is a world that must embrace gender equality, gender fluidity, same-sex relationships and ethnic diversity. And it is beginning to do just that.



Global brand Unilever, ran a campaign called #ShowUs in a bid to shatter beauty stereotypes. The aim was to create a stock library showing women as they are, and not how others think they should be. Working with Getty Images and Girlgaze, a network of 200,000 diverse and inclusive female-identifying photographers, it has produced a library of more than 5,000 images.

116 Girlgaze photographers shot the pictures, which represent a diverse global community of women, non-binary and female-identifying photographers. For the first time, the 179 women featured defined the search descriptions and tags for their images, which the ad industry can license for campaigns.

“The Talk sought to embrace diversity through a moving two-minute video that shows ‘the talk’ that black parents have with their children to warn them about the prejudice they may face because of the colour of their skin”



Unilever has also created All Things Hair, a community of editors, stylists and influencers aiming to share “honest, diverse, inclusive and creative hair inspiration.” The channel features transgender couple Jake and Hanna Graf talking about their experience transitioning in a Q&A style video interview. It has cast cancer survivors and junior doctors alongside models on the channel.

P&G’s campaign The Talk sought to embrace diversity through a moving two-minute video that shows ‘the talk’ that black parents have with their children, warning them about the prejudice they may face because of the color of their skin. Both P&G and Unilever are members of the Unstereotype Alliance, which aims to eradicate stereotypes from the advertising industry.

Rebranding diversity: how do you hit the right tone?

Mars, another founder member of the Alliance, is responsible for an iconic UK ad campaign for chocolate brand Maltesers that put disabled people front and center. It has been Mars Chocolate UK’s most successful campaign for ten years. The ad’s tone is pitch-perfect. It uses humour and shows disabled people in universally awkward situations. “We’re just shining a light and telling a story in a light-hearted way,” says Michele Oliver, global corporate brand and purpose director for Mars and the creative force behind the campaign. “One of the biggest barriers is fear. People are scared of getting it wrong. We worked with Scope, the UK disability charity at every single step. If you don’t live and breathe this space go and find people who do and seek their counsel.”

There's also a risk that ads ditch one stereotype for another. "We swan from stereotype to stereotype because we think it is a shorthand," says Kate Stanners, chairwoman and global chief creative officer, for Saatchi & Saatchi. Both she and Mars' Oliver prefer the term inclusivity to diversity. "It is about creating content that includes. That means the white middle aged man all the way through to the minorities in society," says Oliver.

Stanners cites the example of a recent campaign Saatchi & Saatchi worked on for Luvs diapers in New York. The concept is that people are still learning with their first child, and more confident by the time their second arrives. Luvs' most recent campaign shows same-sex couples. "People loved the fact that it was not making a point that people were same sex but that they were first kid second kid and it felt like an incredibly inclusive campaign showing African Americans, women bosses expressing their milk—it wasn't making a point it just drew on that in its casting," says Stanners.

It's just as essential to tackle male stereotypes. P&G's ad for Ariel shows men "sharing the load," Swiffer shows dads cleaning and dusting while Pampers shows them changing diapers.

Beauty is only skin-deep: inclusivity on the inside

However, the industry will only become genuinely inclusive when it has diverse representation within agencies and creative departments as well as in the ads that it makes. "We will only get to this being a natural behaviour when we have more diverse talent," says Stanners. "You have to have people who instinctively and naturally lean into that world."

In a bid to drive change, D&AD (the Global Association for Creative Advertising and Design) runs a programme called Shift to attract young

"The industry will only become genuinely inclusive with diverse representation within agencies and creative departments"

people from different communities. "You find they are from backgrounds where their family and friends don't think of the design, advertising and marketing communities as a proper job, or they see a lot of white people, or they see work that doesn't talk to them and assume that it's an industry that

doesn't want them."

Inclusivity in advertising matters; as Oliver says, "we exclude or accept people by the content we put on our screens." And it can drive positive change. Feminine hygiene product Always, for example, has changed the meaning of the phrase 'like a girl' worldwide; 76% of people now consider "like a girl" a positive expression, compared to 19% before the campaign.

Christena J. Pyle, executive director at Time's Up, agrees that the ad industry needs to be inclusive. "As storytellers and culture shapers, the advertising industry has both the opportunity—and the responsibility—to drive narratives that illuminate our humanity, tell the truth about who we are and what we value, and inspire people as diverse as the world around us," she says.

Inclusivity also makes good business sense. When P&G's Gillette started a conversation about what it means to be the best men in today's world, the film received 100 million views worldwide. The brand also told the story of Samson, a transgender man, who learns to shave from his dad. Research commissioned by Dove has shown that 67% of women are calling for brands to step up and start taking responsibility for the stock imagery they use. A third of women say they are more likely to trust brands that embrace diversity. A quarter said that diversity is more likely to increase the chances of them buying a product or service.

Failure to adopt a diverse and inclusive brand strategy is costly. Almost a quarter (23%) of consumers have boycotted a brand, even if only temporarily because they felt that brand didn't represent their identity.

It's time we started thinking outside of the stereotypical box.



Demand

more

With consumers flocking to Over the Top TV services, the opportunity to deliver targeted, data-driven ads has never been greater

BY SARAH KIDNER



Consumers in the US are demanding more from their small-screen experiences. For many, that means cutting the cable and dumping expensive subscription services. Instead, consumers are turning to so-called Over The Top (OTT) services. These include platforms ranging from streaming sticks and boxes to game consoles and smart/connected TVs.

“Commonly it [OTT] is defined as Live TV streamed over an OTT device. Sling TV is one of the largest, as is Hulu; YouTube TV is another key player,” says Scott Worthem, ComScore’s VP of business development. “Younger people are switching to OTT because of cost and convenience, and because they don’t need 500 channels.”

ComScore has already tracked over 70 OTT platforms in the US, which include Amazon, Apple TV, Chromecast, Netflix and YouTube. Already, more than half of all Americans have an OTT service, and the market is predicted to grow 16.2% by 2024.

Going over the top:

What can OTT platforms offer?

There is a range of services on offer. OTT heavyweights Amazon and Netflix are (for now) sticking to their subscription-based models. Meanwhile, PlutoTV has an established ad-supported model. Hulu's hybrid model offers consumers a choice of subscription or ad-based services with prices from \$5.99 per month for an ad-based service and up to \$50.99 per month for no ads and Live TV. "Content owners, consumers and advertisers are all trying to figure out how to move forward in this growing but changing world," says Worthem, who helps content distributors maximize the value of their content and ad inventory.

Despite consumers favoring ad-based services—54% of US consumers said they'd prefer one—advertisers have demanded little of the platform to date. The ad industry spent \$70 billion on TV ads in 2018, but only \$2 billion on targeted ads and less than 5% of the total spent on advertising went to OTT. The potential is huge. On average, OTT consumers watch more content than those watching traditional TV; 15% of them never watch Live TV. "There isn't a huge amount of OTT advertising happening at the moment, but these platforms can provide an

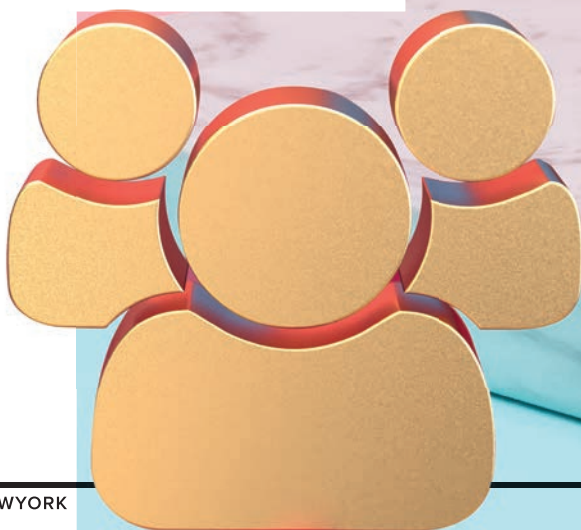
extraordinary amount of reach," says Adam Rubins, CEO of global communications agency Way to Blue, which represents Domino's and Swatch.

"There isn't a huge amount of OTT advertising happening at the moment, but these platforms can provide an extraordinary amount of reach"

A key benefit of OTT is that it provides instant access to a specific audience. "It used to be that you put the ads out there and hoped that you catch people in the 'fishing net,' now it is going to be much more about understanding audiences' behaviors and habits and hitting them with the right message on the right channels and the right platforms," says Rubins.

Rather than advertising for a cable TV slot, OTT lets you create targeted, data-driven ads. "Most OTT services have subscribers and so the people that run services know who those people are and can use data to describe those audiences. There can be better ads matched to those with the correct attributes so, for example, renters versus home-owners could be a very simple segregation that they can do based on what they know. Geographic segmentation is easy, and they can overlay third party data sources to know who drives a luxury car or has an appetite for travel," says ComScore's Worthem. "With the ability to target an audience, I am targeting a smaller group of people. However, these are people that you want to advertise to, and so you get a higher value out of that," says Kevin Hunt, senior VP of New York-based video ad-serving platform SpotX.

There's more chance of ads turning into sales, too. While the overall spend is comparatively low, OTT ads have proven surprisingly effective, with 72% of OTT consumers saying they can remember seeing an ad and 40% of those who have seen one saying that they paused to buy or learn more about a product. "Imagine, you are watching a video ad, you click on the video ad, it jumps you out to a DTC [Direct to Consumer] brand, you click on a link ... you have the ability to click, put it in your cart, authenticate it with your face or your fingerprint and have it [shipped] to your doorstep in two days," says Hunt. "With digital comes the ability to know for sure that the ad you distributed resulted in sales at the register," he adds.



**Consumer demand:
In OTT advertising, less is more**

Advertisers will need to adapt to the OTT landscape. Potentially, that means shorter ads for intolerant consumers who've become accustomed to 'skippable' ads on YouTube and elsewhere.

"Tech first allowed us to define an audience, but we need to focus on the consumer experience, and that means asking what the consumer is tolerant of," says Hunt. "How many videos do we play and do we allow you to skip over those ads? How many should we play per hour or per 30 minutes before you turn off your tablet or slam the case to your laptop," he adds.

One trend emerging for OTT is toward shorter four, six and 15-second ads as well as traditional one-minute or 30-second commercials.

"With those smaller ads we can thread together a set of commercials that carry a brand message through the entire time that someone is watching a piece of video-on-demand content," says Hunt.

"You have to capture people's attention quickly, and so it has changed the way that people create ads," says Rubins. Hulu, for example, is testing 'pause' ads. The ads appear on screen whenever watchers decide to pause their video selection, in the hope they will engage consumers who have grown tired of the traditional commercial break. If successful, the ads could be a great way of reaching binge-watchers. Hulu is working with brand heavyweights Procter & Gamble and Coca-Cola, the latter once used the slogan "the pause that refreshes" in its ads. Hulu wants to see how people react to static ads when they choose to pause the action.

"Changes in viewing habits mean that 80% of OTT providers, content owners and advertisers surveyed by SpotX said they are looking to achieve cross-platform audience reach, with 100% saying it is the biggest change for them"

**Services on-demand:
Embracing OTT advertising**

The OTT phenomenon isn't going away, and advertisers ignore it at their peril. "Netflix has been around for ten years, and OTT services with ads for at least four. If advertisers aren't embracing it yet, they need to at least start testing it," says Worthem. "Everyone involved in advertising now is more sophisticated than a couple of years ago. They have data science teams to help make better decisions about the campaigns. Everyone is asking thoughtful questions about where their dollar is going," says Hunt.

Many are looking to take a cross-channel, campaign-based approach that embraces linear TV as well as OTT services. Changes in viewing habits mean that 80% of OTT providers, content owners and advertisers surveyed by SpotX said they are looking to achieve cross-platform audience reach, with 100% saying it is the biggest change for them. With OTT ad revenues predicted to top \$31.5bn maybe it's time advertisers look to OTT and demand more.



Your account

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Is it safe to let my dog off-lead? What to know before you take your pup to the dog park

Written by Napo HQ 14th Apr 2022 6 min read



Summary

If your dog has great recall and is in a safe space, feel free to let them off-lead. But if you encounter another dog on a lead, livestock, or busy areas, you should keep them on a leash for everyone's safety. Loose lead walking is a great way to build your

dog's on-lead etiquette.

Dogs love to run, chase things and hunt down scents in the town and country, and part of being a dog is running free.

"There are many benefits of letting a dog off a lead; quality of life, welfare and exercise, " said Jane Williams, Secretary of ABTC (Animal Behaviour and Training Council).

Although being off lead is fun and freeing for your dog, it isn't always safe for them or the other people and animals around them. In this article, we'll walk you through the etiquette of on and off lead dog walking, including the times your dog must be on a leash and when they can run free.

Controlling your dog when it is off the lead

Good recall is vital when allowing your dog off lead. "It very much depends on the dog. If you have a good recall, that makes a huge difference," said [Blue Cross](#) animal behaviourist Rachael Myers.

Experts advise starting early with recall training. "We should promote good training from an early age among owners so that their dogs have a good recall," said Williams.

"People are reluctant to let young puppies off the lead, but puppies are naturally inclined to follow us," said Myers.

Kerry, who owns two young dogs, practised during the lockdown. "It was great fun for Finn and me," said Kerry of Finn. "I would have treats in my pocket that he would know were there. I would run and say, 'Where's mommy?' and he would chase me and get a treat."

She added: "As Finn got older, the integration of a ball on a walk helped loads. In the house and garden, he'd play with a ball a lot and always brought it back all excited, so we introduced the ball on a walk, and he'd bring that back and get lots of treats and fusses. It was the same for Farrah. Now, their

recall is amazing!”

Controlling your dog when they are on a lead

However, there’s no guarantee that dogs on a lead are “under control”. Dogs on a leash can feel vulnerable and lash out, said Zoe Blake, the vet behind a campaign to [Respect The Lead](#). “People don't understand that when a dog is on a lead, they don't have the same ability to escape [perceived] danger,” said Blake.

“The natural thing for them [a dog] is to run away, which is what a dog would do in a fight or flight situation,” she added. If a dog can’t run, it may fight. So, Respect The Lead encourages owners to recall dogs and leash them before approaching a dog on a lead.

Rachael Myers, an animal behaviourist for Blue Cross, agrees. “If someone has a dog on a lead and your dog is off lead, it's good etiquette to put a dog on a lead,” she said.

“You don’t want to worry another person,” she added.

How to train your dog to walk on a lead

You should train your dog to be on a lead, and starting young is a good idea.

“Start from the very beginning, from the moment you get them at eight weeks; what it feels like to have a harness or a lead,” said Williams.

“Training not to pull is important.”

“Dogs naturally walk faster than us, and there are scents and people to meet, and they are inclined to pull forward on a walk,” said Myers.

“So, have something to compete, such as a high-value treat.”

“Use loose lead walking and teach the dog where to be in terms of the owner. Use a cue and reinforce it; that’s all essential,” said Williams.

Williams also cites negative behaviours to avoid: “What we don't do are lead

jerking and lead popping. Those behaviours can be quite harmful to the dog's physical and emotional wellbeing of the dog; you can damage their necks by pulling the lead hard."

Lead walking: a harness or a lead?

Both experts favour a harness over a lead. "We would always promote a harness rather than a collar," said Williams. "Dogs can wear collars to put ID tags on. In terms of control harnesses, and where they're necessary head collars."

"We recommend harnesses that enable them to turn their head more freely," said Myers.

Where to keep your dog on a lead: Environmental matters

Where you are matters in deciding whether to leash your dog. In the countryside, you may want to let your dog run freely but be aware of wildlife and animal stock.

Blake, for example, keeps her rescue dog on a lead because he "likes to chase deer." Dogs should not be allowed to "worry" livestock. That means chasing them, but the presence of a dog could worry sheep in lamb, so it's good etiquette to leash them anyway.

No blanket law says your dog must be on a lead in public spaces in the UK. However, there are a series of orders you should know, which may mean you need to leash your dog in areas such as children's play parks and beaches. Many local authorities, for example, have Public Spaces Protection Orders that mean you need to walk a dog on a lead.

Watch out for signs, as there may be a fine if you don't comply.

Also, consider the safety of your dog and the people around you. "In terms of safety, if you are near roads, on a cycle path keeping your dog under control is a good idea. It can cause an accident meandering in front of a cyclist quite quickly," said Myers.

Will it harm my dog if I keep it on a lead?

While dogs love to run, they can also enjoy a lead walk," said Myers. "Smell is the dogs' strongest sense, and we want to go to beautiful areas, but what

they often want is to have a conversation by sniffing and peeing, so sometimes streetwalking is appropriate."

For more information, check out our handy tips on [how to train your dog on and off-lead](#).

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The Pet Perspective 22 min listen

Podcast #3: Breeding Ethics, Not Aesthetics



ETHICS BY DESIGN

Bias in artificial intelligence has its origins in human assumption rather than computer code, argues Dr Rumman Chowdhury, Global Lead for Responsible AI at Accenture

The worst thing that happened to AI was to call it artificial intelligence. So argues Dr Rumman Chowdhury, whose job at Accenture is working with the C-suite at top companies to make sure AI is ethical, explainable and transparent.

To think of AI as artificial intelligence is to perhaps give the technology more humanity than it deserves. “We use these very human words; we call it computer vision as if it [technology] can see. It doesn’t. Algorithms don’t see,” Chowdhury says. By using phrases such as ‘computer vision’ to describe how systems interpret and understand the real world, we anthropomorphize, ascribing human attributes to a technology that is, as the ‘artificial’ part of the moniker suggests, a sophisticated mimic of our own capabilities.

“[Today, what we call] AI is an evolution of traditional analytics, which now includes prescriptive and predictive technologies,” explains Chowdhury, who is a practicing data scientist with a background in quantitative data science, as well as a degree from Massachusetts Institute of Technology (MIT). “What that means is that we have evolved beyond a world of retrospectively looking at purchase behavior or quarterly results. Instead, we are using models that can predict behavior with some degree of uncertainty.”

These models are applied to more than potential human behavior; indeed, AI is at work in nearly every industry – optimizing supply chains, providing predictive maintenance alerts in manufacturing, assisting with drug discovery and enhancing customer support. However, they do not operate in a vacuum. They are created by humans, trained on human-curated data, and may reflect some of the

societal biases of the world we live in, without the self-awareness, intelligence and tools to recognize these flaws on their own, as humans might.

The drive to use AI as a tool for good, and acknowledge the human responsibility in designing and deploying these systems, goes to the heart of Chowdhury’s role at Accenture. While an algorithm is simply maths translated into code, unconscious bias can creep in.

MITIGATING AGAINST BIAS

For data scientists, bias is structured, it exists in the data, is often quantifiable and therefore treatable. However, even with perfect data, Chowdhury argues that we still have to consider the societal bias reflected in the information we collect. People may have assumptions that we, as individuals or a society, consider to be unfair and incorrect. However, we still act on those biases, consciously or unconsciously, with those actions then reflected in our data.

To that end, in 2018 Chowdhury spearheaded the launch of Accenture’s Fairness Tool, designed to detect and mitigate bias in AI models. Recognizing and addressing these issues is a

AI reflects some of the societal biases of the world we live in, without the self-awareness and tools to recognize these flaws



We use these very human words; we call it computer vision as if it can see. It doesn't. Algorithms don't see”

RÉSUMÉ: DR RUMMAN CHOWDHURY

- 2017** Appointed Senior Principal, Global Lead for Responsible AI, Accenture
- 2017** Named as one of the BBC's top 100 Women
- 2017** Awarded PhD in Political Science from University of California, San Diego
- 2016** Senior Data Scientist, Metis
- 2015** Wins Strata/Hadoop Data Impact Award
- 2014** Worked as an analytics scientist and a manager of data science at Quotient Technologies, CA
- 2006** MS in Quantitative Methods of the Social Sciences, Columbia University, NY
- 2003** BS in Political Science, and BS in Management Science, Massachusetts Institute of Technology (MIT)

▮▮ Systems don't just exist in a bubble. They exist as part of a system of human beings and AIs interacting with each other"



- ▶ critical step, Chowdhury notes, but bias mitigation goes hand-in-hand with creating a responsible framework for how AI systems are developed, implemented and governed.

"Systems of governance exist to help us ensure we are building thoughtfully and responsibly," she says. "Is the data powering our models being used in support of the purpose for which it was collected? Were we transparent in how it would be used? What are the systems of redress in place should the model not perform as expected, or lead to potentially harmful unintended consequences?" Thinking through and codifying governance structures for a variety of organizations is a key focus of the work Chowdhury does with clients.

Addressing societal bias is harder, but can be done if we "embrace diversity in all its forms", according to Chowdhury. "These systems don't just exist in a bubble. They exist as part of a system of human beings and AIs interacting with each other. Identifying flaws in your implementation or your data requires a diverse perspective."

Chowdhury makes that point that this type of bias is mostly unintentional. "People aren't maliciously trying to make bad things. They're coming in with the best of intentions. Their blind spots are what may lead to unintended consequences, so part of the work we do with clients is to help illuminate and anticipate those blind spots."

While the technology is new, the questions we ask – about inclusion, fairness, systemic bias – are not

EMBRACING DIVERSITY

The key to eliminating bias is to recognize that it exists, and to work with diverse communities while creating algorithmic models and implementing AI.

"What it boils down to is addressing these problems, or potential problems, with impacted communities. So thinking through who this AI might touch, followed by its impact, and how you incorporate a community's voice into what you're building," says Chowdhury. "The answer here is user-driven design development. Much of what technical teams are grappling with is how to get these voices in the room."

Chowdhury emphasizes that while the technology is new, the questions we ask – about inclusion, fairness, systemic bias – are not. "We've asked many of these questions before, but AI asks us to examine them slightly differently. Rather

“To serve humanity, we don’t just need people who know how to program and code; we need people who can unpack the complexity of the human condition”

DR RUMMAN CHOWDHURY, ACCENTURE

than ‘explainability’, I push for ‘understandability’, which encompasses the decisions made by the algorithm but, importantly, explains clearly to an individual why the AI made them.”

Understandability goes hand-in-hand with agency, which is the ability to take action if there is a problem with the algorithmic output of the AI technology. This is where good governance comes in, with the ability to address and redress problems a critical component.

CULTURAL CHANGES

Business is waking up to the notion of understanding bias in AI. Chowdhury has been working with a traditional bricks-and-mortar business that has a family-friendly reputation. The business had acquired an AI startup and was concerned about how the acquisition might impact the larger organization.

“They are a hundred-year-old company, not very technical, and were trying to merge their culture with that of a small, scrappy, pure analytics AI startup. Leadership was worried about how using AI might impact their reputation or their brand. So we worked with their general counsel to think through their principles of the ethical use of data and ethical use of AI technologies,” says Chowdhury. “They hired us to broker a merger of cultures.”

This cultural element is fundamental to Chowdhury’s work and career. “To serve humanity, we don’t just need people who know how to program and code; we need people who can unpack the complexity of the human condition.”

It is this ability to find patterns in the world and to “right patterns of human behavior” that attracted Chowdhury to the field of data science. She discovered the importance of ethics working in Silicon Valley and explains that some companies

People aren’t maliciously trying to make bad things but their blind spots can lead to unintended consequences



TRUST IN AI

In a bid to dispel concerns regarding AI as an existential threat that will see machines rising up to destroy their masters, Thales revealed an approach at the 2019 Paris Air Show that places humans at the center of any AI initiative. Called ‘TrUE AI’, the approach embraces Transparent AI, where users can see the data used to arrive at a conclusion; Understandable AI, that can explain and justify the results; and an Ethical AI, that follows objective standards protocols, laws, and human rights.

clearly thought the role of technology was to fix people. “There are a lot of problems with how technology gets used. It’s more important to think of these technologies as serving people. How we build it should wrap around what humanity needs.”

Conversely, studying at MIT taught Chowdhury to ask questions. “[MIT] sparks an independent growth spirit. It teaches you how to ask questions and how to interrogate intelligently. I appreciated a culture where a lot of brilliant people were approaching problems in novel and unique ways.”

IMAGINED WORLD

Recently, Chowdhury has found inspiration in literature, having discovered the science fiction writings of Roquia Sakhawat Hossain, a feminist author who – like Chowdhury – had Bangladeshi roots. “Just yesterday, I found out that the first female scholar to ever talk about a feminist sci-fi future was this woman who is from where my family is from,” she says. “[Hossain] wrote this imagined future of a world in which technology is used for empowerment and knowledge and not for personal gain.”

It sounds like a utopian dream. However, with the right team in place at Accenture, Chowdhury believes it is possible. “I once asked somebody why we are so willing to spend billions of dollars on this notion of colonizing Mars, but we’re not willing to spend that money on making sure the entire world is educated or making sure everybody has clean water or enough food to eat. Many of these things can be mediated by technology.” ■

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10 things you need to know about adopting a rescue dog in the UK

Written by Napo HQ 22nd Apr 2022 5 min read



Summary

Rehoming a rescue dog means taking on the responsibility of providing a forever home for your new furry friend. It's also the reward of changing an animal's life for the better. Adoption costs around £150-200 depending on the charity. Although some dogs do end up in shelters after cases of neglect, there are many reasons why dogs need to be rehomed. A reputable charity will assess dogs

Why dogs need to be rehomed. A reputable charity will assess dogs to make sure they're suitable and safe for adoption and will only suggest pets fit for your home and lifestyle.

Adopting a dog from a shelter means you're committing to giving a dog a forever home. More dogs than ever are waiting for one. An estimated 664,000 dogs enter UK shelters each year and the number of stray dogs that local authorities are taking in is increasing.

Demand for dogs is high. The renowned Battersea Dogs Home fielded over 40,000 applications between April and June 2020 – an increase of 53% over the previous three months. Charities, including the Dog's Trust, warn that people are returning dogs bought during the pandemic, reinforcing that you shouldn't adopt without careful consideration.

Our FAQs will guide you through the process of adopting or rehoming a dog in the UK. We'll bust a few misconceptions about rescue pets and give you the facts about where to find your new furry friend, how much adoption costs, and what to consider when rehoming a dog.

10 FAQs on adopting a dog in the UK

1. Why should I adopt a rescue dog in the UK?

Adoption means giving a dog a loving home. As an RSPCA spokesperson told us: "Giving a rescue dog a second chance at happiness is incredibly rewarding, and you could change a dog's life for the better." Adopting from a UK rescue home also means you're freeing up space for one of the tens of thousands of strays UK local authorities take in every month.

2. How much does it cost to adopt a dog in the UK?

The RSPCA typically charges £150 to adopt a dog, including vaccinations and microchipping (a legal requirement in the UK). The Dog's Trust charges around £200 to adopt an adult dog and takes care of vaccinations, microchipping, and neutering. The cost is higher for a puppy (£260) and includes a dog school fee for early puppy training.

3. Will my rescue dog have behavioural issues?

Behavioural issues are a common concern for people considering adopting a rescue dog, but as the Dogs Trust points out, 80% of *all* puppy owners seek support for their puppies in the first year. "There is a common myth that rescue dogs are challenging and difficult, but every dog is unique regardless of what they have been through," said a spokesperson.

That said, some rescue dogs will have issues, but a good rescue centre will know the personality and temperament of their dogs and consider these traits when matching a dog to your circumstances. RSPCA staff assess the dog's temperament and reactions to people and other dogs. Although the RSPCA admits that it "may never know the dog's full history."

4. Where can I adopt a dog in the UK?

Several national, recognised charities rehome dogs, including Battersea Dogs and Cats Home, Blue Cross, Dogs Trust, and the RSPCA. The Dogs Trust and the RSPCA have tools on their sites to help you find a rehoming centre near you (listed below).

Battersea Dogs and Cats Home has three centres across the UK, and you can [register to adopt](#). The Blue Cross charity also [lists dogs for adoption](#) across the UK.

- [Dogs Trust Rehoming](#)
- [RSCPA find a pet](#)

5. Where can I adopt a dog locally?

You may also discover local, independent rehoming centres near you. Where you don't know the rescue home, ask questions to determine that they have the dog's welfare at heart. For example, how much can it tell you about the dog's history, including medical checks? Dogs should have received vaccinations and a microchip. What happens if things don't work out? Will they find another forever home for the rescue? A good rehoming centre will also ask questions about your home situation to ensure it gets the best match.

6. What type of rescue dog should I adopt?

As with any dog, you need to match the breed to your lifestyle, home environment and personal circumstances. Think about the type of dog to suit your family. For example, if you have plenty of time for training, a puppy

may serve you better than an older dog. Similarly, a large dog may not be the best choice if you have a small garden, or live in a flat.

7. Have all rescue dogs been mistreated?

The backgrounds of rescue dogs specifically will vary. As an RSPCA spokesperson said: "Some may have suffered neglect and cruelty and need more patience and understanding than others. Some may have been born in our care and have only known kindness from staff or fosterers but need extra help adjusting to life in a home." All rehoming centres will work with you to find your perfect match.

8. What should I consider when adopting an older dog?

Older dogs will have some training already. However, they may require medications and have some pre-existing health conditions.

9. Can I adopt a puppy from a rehoming centre?

Yes, you can. Charities such as Blue Cross, Dogs Trust and others have puppies that need rehoming as well as older dogs. However, consider whether you have the time to invest in training your puppy and settling it into your new home.

10. Can I adopt a retired service dog?

Another adoption route is to rehome a retired service dog. Guide Dogs for the Blind trains dogs to work with visually impaired or blind people, but occasionally, it doesn't work out. Dogs that don't make it into service can make great pets. You can find out more about adopting on the [Guide Dogs for the Blind](#) website. Note that the rehoming fee is £500, so double the cost charged by the other charities mentioned. The dogs aren't suitable due to various factors, including separation anxiety, poor lead recall, or other issues.

Similarly, [Hero Paws](#) works to rehome and retrain military and working dogs through rehabilitation and retraining. The dogs for adoption tend to be middle-aged or older dogs who have finished their military service. The [London Retired Police Dogs Trust](#) also has dogs for adoption.

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The Pet Perspective 22 min listen

Podcast #3: Breeding Ethics, Not Aesthetics





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The new law on cat microchipping - what does it mean for me and my cat?

Written by Napo HQ 20th Apr 2022 6 min read



Summary

In 2023, it will become the law that all cats in the UK must be microchipped by five months old. Failing to do so could result in a fine for owners of up to £500. Microchipping usually costs less than £20, carries no known health risks, and can help you to be reunited

with your cat should it get lost. Owners should always remember to update their pet's microchip details if they change their telephone number or move house.

Cat lovers know their cats love to wander. "Cats do what they want; they pack their bags and can go away for about eight weeks, and then they come home like, 'hi, I'm back,'" said [Dr Louisa Lane](#), from White Cross vets and owner of a three-legged rescue cat, Oreo.

We've all seen posters on lampposts seeking a missing cat and local Facebook posts pleading for their return. Of course, putting your details on your cat's collar is the quickest way to have them returned to you, but collars do come loose, and the wrong fitting collar on a cat can also be potentially, very dangerous.

And that's where [microchipping](#) comes in.

Legal requirements for microchipping your cat

In 2021, the government announced plans that make it a legal requirement to have microchipped a cat by the time it reaches 20-weeks (five months) old.

The law comes into force in the UK in 2023. Once implemented, owners who haven't microchipped their cats will receive 21-days to get them chipped, and if they don't, they'll face a £500 fine.

According to Cats Protection, over a quarter (26%) of UK cats or 2.8 million cats aren't microchipped. Plus, 4% of people are unsure if their cat has a chip.

Why should I microchip my cat?

While it will become law, the main reason to microchip your cat is to help reunite you if it's lost. A government consultation found that 99% favoured making it mandatory, and there is also resounding support from experts. "I think you'd be hard-pressed to find a vet that didn't think it's an excellent

idea,” said Louisa.

She added: “We get many missing cats, especially in the summer when cats want to mate and look for other cats. It will make a huge difference to encourage responsible pet ownership and traceability.”

Ed Hayes, Head of Public Affairs at The Kennel Club, agrees: “We’ve been chipping cats for years, and the benefit to the animals is overwhelmingly clear. It helps reunite people with their lost pets,” he said.

How does cat microchipping work?

A vet implants a microchip about the size of a grain of rice under your cat’s skin, which links to a database containing your details. When someone finds your lost cat, scanning the chip reveals these details and helps to reunite you.

Louisa has seen owners reunited after several years. “We had a lady who came in with a cat seeking treatment. We checked the microchip, and this cat wasn’t registered to this particular owner who’d been looking after it for over five years.”

Louisa rang the original owner, who took the cat back. “So, it was lovely for the previous owners to get their cat back but upsetting for the lady,” Louisa said.

Your vet can insert the microchip for you. Louisa recommends getting a microchip as part of a routine appointment. “We see cats at their first and second vaccinations from eight weeks old. Then, at four to five months, they should be coming in to get neutered. So, you can microchip at any of those appointments.”

Microchipping costs between £15 and £20. However, many vets offer a wellness plan covering initial vaccinations, worming, and microchipping, which may be cheaper. In addition, some charities provide free or low-cost microchipping.

Microchip databases: What happens if I move house?

Significantly, the microchip is only as good as the information linked to it.

Many different databases hold an owner's personal information. So, when a cat is lost, a vet scans the chip and accesses a database that contains your personal information.

But what happens when you move house?

You should have paperwork that lets you know which database holds your details. However, if you've lost the paperwork or are unsure of the database, don't worry, as The Kennel Club's Ed Hayes explains.

"If you have no idea, take your pet to a vet and ask them to scan the chip and locate the correct database. The unique number will help identify it. Then, contact the database and update your details following some security checks," he said.

As the owner, you are responsible for updating personal details.

Does cat microchipping hurt?

As a cat lover, you might be wondering, 'will it hurt?' Microchipping isn't painless, but the chip is small – as we've said, around the size of a grain of rice.

"A needle pierces the skin to insert the chip. Although the pain, I suspect, would be similar if you get an injection done yourself, it'd be a short-lived, unpleasant sensation, said Ed. "The lifelong benefits far outweigh the moment of discomfort."

Vet Louisa agrees: "We wouldn't do it in a conscious cat if it were too painful. Many cats are easily distracted by food."

Are there other risks of cat microchipping?

Cat microchips can migrate under the skin and migrate along a cat's leg. There are no health risks, but it does mean if a vet is scanning a lost cat, they should check the legs and behind the shoulder of a cat.

As Louisa said: “Whenever I scan a chip, I wouldn't just go between the shoulder blades. I do go down the legs as well. It's important to let the owners know, ‘oh, your microchip has gone down a little bit. We have to

raise awareness for vets and nurses, but most of the time, the chip stays put.”

Infections can happen but are rare. “It’s the potential with any injection. You can get things like injection site reactions. It's the same as with a scratch,” said Louisa.

In ten years, Louisa has never seen an infection resulting from a microchip. Another rare risk is a sarcoma, although, similarly, Louisa has never seen one.

Should you microchip your cat? The simple answer is “yes”. It increases the chances of keeping your cat safe and finding it when it does wander.

Plus, it will soon become a legal requirement.

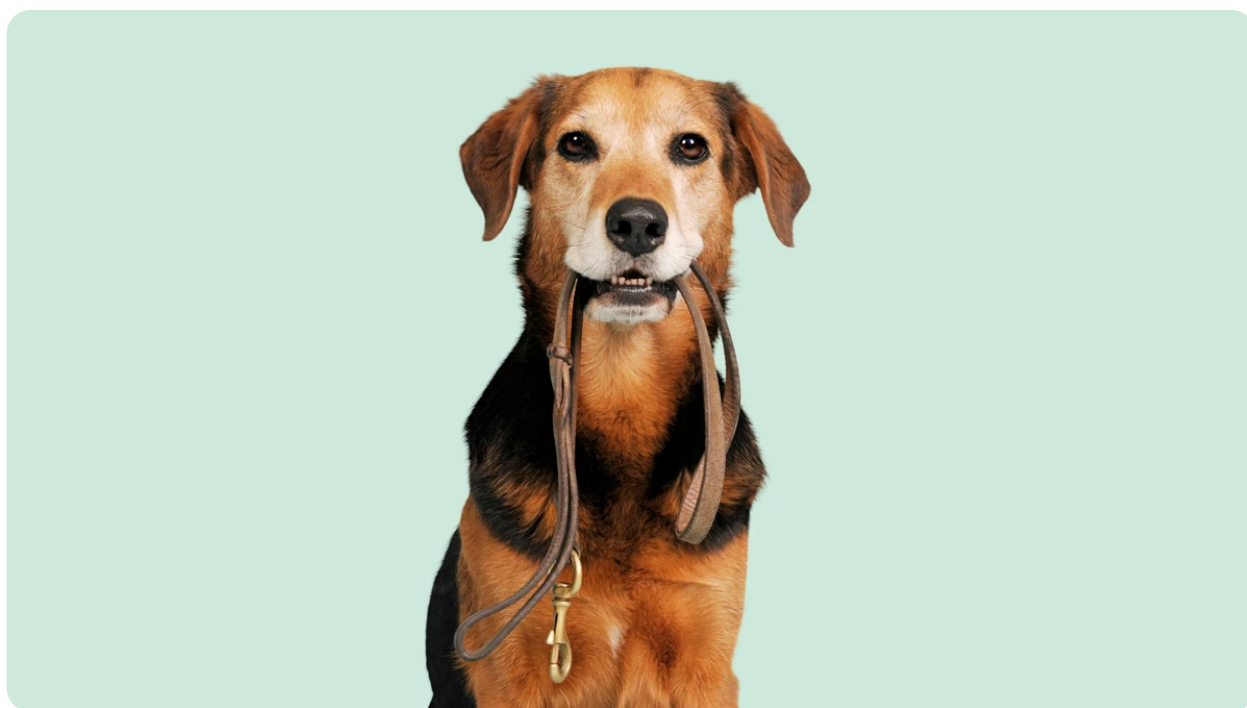
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Top tips for training your pup on and off-lead

Written by Napo HQ 14th Apr 2022 3 min read



1. Lead by example

When another dog-walker has their dog on a lead, it may be for a good reason. If your dog's recall is not great, it's good etiquette to put your dog on a lead and restrain it from saying 'hello' until you pass.

2. Make lead training fun

Just because a dog is on a lead doesn't mean it can't be happy. Try loose-lead walking and allow your dog plenty of freedom to spend time sniffing its environment.

3. Reinforce good behaviours with treats and praise

While [training](#), reward your dog for good behaviour with high-value treats and lots of praise. This is important whether you are teaching it to walk on the lead, or come when you call them. Never get angry at your pup for spending too long to come back to you - this will only make him more reluctant to come to you next time!

4. Start with a long lead

Before letting your pup off-lead completely in the park, start with them on a long, slack lead. This is a good way to give her some freedom, while still being able to reign her in, if necessary. We recommend using a slack lead, and not a retractable lead, which is much harder to give freedom with.

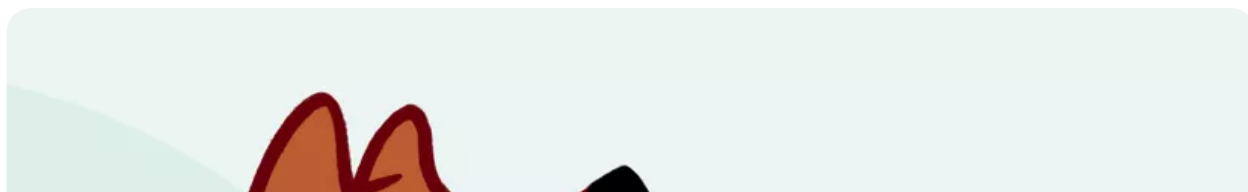
5. Practise good recall

Eventually, your dog should enjoy time off-leash. Practising good recall in advance will mean that you're confident your dog will be safe and come back when you're out and about.

6. Training should be consistent, and life-long!

Unfortunately, training your pup is not always a linear process, and many dogs will 'forget' learned behaviours - or learn new, unexpected ones! - throughout their life. It's always good to keep reinforcing good behaviour in your pup both at home, and at the park, no matter their age or experience level.

Jump to



Free the music

The real villains of the on-line music saga are the record companies. It's time they woke up and faced reality, argues Sarah Kidner

The music industry owes Napster a debt of thanks. The maverick pop-swapping service is largely responsible for the creation of the on-line music market; in just two years the company's user base has grown from zero to a staggering 64 million, giving rise to scores of other similar businesses. Scour.com allows users to share film and music clips, Gnutella lets users exchange music using bulletin boards and relative newcomer Aimster uses AOL's Instant Messaging service as a means of sharing music over the Web. The Napster model is a hit.

Its success is due to the simple, yet effective nature of the software utility. Napster works using P2P (Peer-to-Peer file sharing) where consumers put their MP3 files in a shared folder. Napster's server holds an index of all these files. If you're looking for a particular song or artist you simply type it into the software and it looks up the index and locates a PC which holds what you're looking for. Anyone can download the utility from the company's Web site and get instant access to millions of artists and songs.

Commercially, the Napster model is a success. Users of networked music sharing technologies are 45 per cent more likely to increase their music purchases than non-users, according to research by Jupiter MMXI. 'When we conducted our survey, we found that Napster usage is one of the strongest determinants of increased buying,' says Aram Sinnreich, an analyst with Jupiter.

But the music industry continues to demonize Napster. Artists claim that Napster has stolen its copyright and that the music industry has lost millions of dollars in terms of unpaid royalties and lost sales. And now the music business is heralding an important victory after a US Court of Appeal ruled to uphold a temporary injunction against Napster. 'Napster knowingly encourages and assists its users to infringe the record companies' copyrights,' says the court. 'It is time for Napster to stand down and start building their business the old-fashioned way, by asking permission first,' says Hilary Rosen, president and CEO of the Recording Industry Association of America.

To its credit Napster is trying to do just that and is in the process of establishing a more legitimate business model. At the end of last year the company forged an alliance with BeCG, the e-commerce arm of Bertelsmann AG. Since then, the companies have been working towards a subscription-based model which would enable Napster to pay royalties. At the time of writing Napster/BeCG were announcing a breakthrough. Together with Bertelsmann subsidiary Digital World Services it has created a solution, which while maintaining the P2P structure of Napster, allows restrictions to be placed on what can be done with files such as limits on the ability to burn music files onto CDs.

Napster is also trying to make good royalty payments to the music industry. The company has proposed a licensing deal offering the five major record companies \$150 million (£104 million) to split plus a further \$50 million (£35 million) to be divided annually between the major labels, but the music industry is refusing to meet Napster half way. The labels dismiss the offer of royalties as a 'publicity stunt'. 'It is Napster's responsibility to come to the creative community with a legitimate business model. Nothing we have heard suggests that it has yet been able to accomplish that task,' says Universal Music Group in a statement. Fair enough.

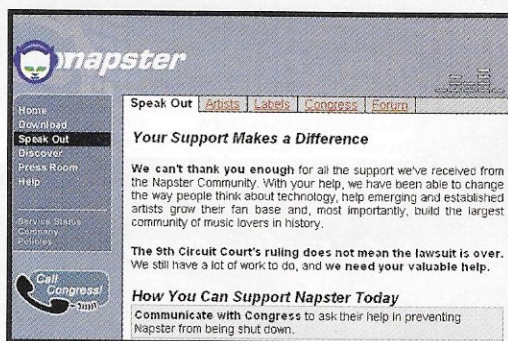
The music industry is as much a part of the problem, if not more so, than Napster. Failing to develop its own digital distribution model the music industry has again laid the blame at Napster's door. 'Recording companies have been working diligently over the last two years to bring a new digital market to consumers. But Napster's continuing give-away has threatened not only the creators of the traditional creative community, but also the innovative businesses of new on-line companies. Because no matter how creative

you are, it is tough to compete with free,' says Rosen. Others say it's the recording industry, which has held back development. 'The industry was too slow to develop a legitimate alternative. The initiative from Bertelsmann came from the e-commerce group and not BMG,' says Mark Mulligan, an analyst for Jupiter MMXI.

Similarly, the failure of Napster to create a 'legitimate' business model is down to the music industry. Napster's agreement with Bertelsmann puts it in a great position. Unfortunately, it can never hope to please all

content creators since this would give BMG, through Bertelsmann, too much control in the eyes of its competitors. 'If Napster was the industry standard [for digital music distribution] it would give it [Bertelsmann] an unfair advantage to which the rest of the industry is reluctant to accede.'

Napster is a victim of its own success. By allowing its service to be used for free, it has proved there's a market for on-line music in much the same way that Microsoft established its browser presence. The Napster model is proven technology, which is easy to understand and use by consumers. In addition, the company has a user base of 64 million, who are unlikely to go away for the sake of a nominal subscription fee. But it doesn't have the market sewn up – Napster's success has spawned competitors, creating a whole new market in under two years. It is the music industry that's holding things back, because Bertelsmann's competitors want their own share of the market – despite having made little progress so far. It's time the music industry started working with Napster to create what could be a viable industry for all concerned.



Napster's Web site, though currently under threat from the US courts, has already spawned a host of imitators

“

The failure of Napster to create a 'legitimate' business model is down to the music industry

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HIT THE ROAD

Making your workers mobile can reduce your overheads and increase profit margins. Sarah Kidner explains how

Recently, some businesses have been bombarding companies with images of happy, more effective employees working from home (BT), sitting in a leafy park with their laptop at lunchtime (Microsoft) or finishing work before they reach the office (Nokia). Mobile working is the new buzz phrase for companies looking to get their staff out of the office and dealing directly with customers. Of course, there's nothing new with this; what is new is the ability to remain connected with your office and its systems through improving and cheaper mobile technology.

However, some fundamental questions have to be answered before you, too, can implement mobile working arrangements. Can it really make your company more effective? Is it the right solution for your business? How much will it cost and how can you be sure you're getting a reasonable return on your investment?

Mobile workers fall into three distinct categories: flexible workers, the wireless workforce and the truly mobile. The first category, flexible workers, is epitomised by companies such as BT, where employees are given the opportunity to work from home or in the office using

a laptop and a fixed modem. Wireless workers, by comparison, are more likely to be on the road, visiting clients. Wireless, as the name suggests, simply means without wires and encompasses emerging technology such as Bluetooth (see Telecommunications, page 56), which allows workers to connect to the internet or the office from anywhere, regardless of whether there's a telephone line. The truly mobile are making the most of ultra-portable technology such as personal digital assistants (PDAs) and smartphones; we'll explain what these are later.

WHY MOBILE MATTERS

The relatively low cost of technology is one reason for going mobile. Advances in telecommunications, the internet and e-mail, cheaper laptops and the arrival of devices such as PDAs, make it easier to make the change. Five years ago if you wanted to create a new branch office it was a costly experience. Today an office could consist of a single employee with a telephone line: a high-speed connection can be provided by a broadband or asymmetric digital subscriber line (ADSL) or broadband that allows faster, 'always on' access to company information, the internet and

e-mail, at the same time providing a telephone connection.

Customers are another, perhaps more pertinent, reason to go mobile. Being mobile offers the possibility of getting closer to your customers. It reduces the number of visits per transaction because staff can call on and collate information on the move, and thus offer a better service and a competitive edge. Employees can also drive companies towards a more flexible workforce. Changing demographics, such as the increasing number of female workers with family commitments, now makes a more flexible approach a tool for retaining key staff.

There are other financial rewards, too. IT consultancy Twin Systems Plc, for example, introduced a flexible workforce and cut its office space from 7,000 square feet to 2,000 square feet in a year. "High overheads start to build up inside a small to medium sized company because you're building an infrastructure based around an old model," says chairman, Steve Songaila.

ORGANISATIONAL ISSUES

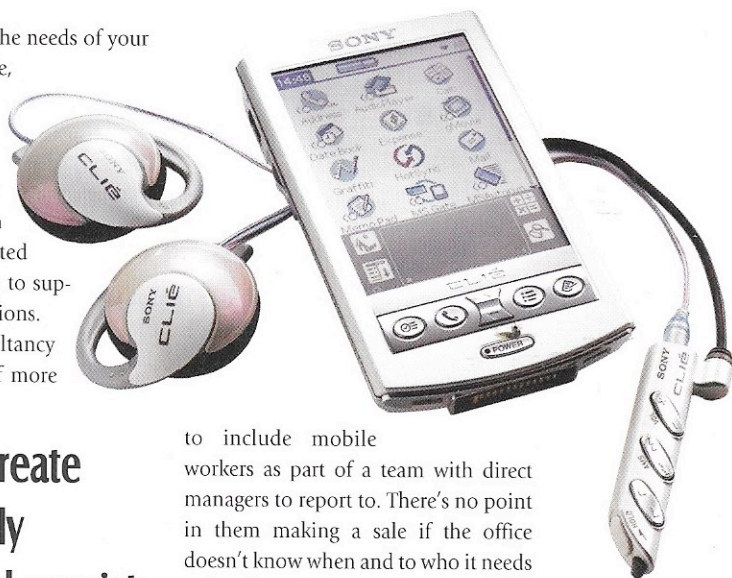
But going mobile involves more than just doling out laptops and PDAs. You will only achieve true mobility if it is part

of a carefully planned strategy. Mobile devices do not have the capacity of a desktop computer so you need to make sure you give tailored access to the information pertinent to the user. A finance director, for example, needs access to outstanding invoices but may not be so concerned with monthly sales targets.

It's hard work, as accountancy firm Shorthouse & Martin will testify. The company's mobile workers were not happy with the remote access to the

will tailor support to the needs of your business. For example, IBM has a team dedicated to the needs of the smaller business. However, it is worth noting that even the most sophisticated helpdesk may struggle to support 40 different locations.

Palm has a consultancy arm and a network of more



Five years ago if you wanted to create a new branch office it was a costly experience. Today an office could consist of a single employee with a telephone

firm's specialist accountancy software. They complained it was cumbersome and wanted to return to the office to re-run accounts. "It meant increased cost so the client would end up with a bigger bill, or, as was often the case, we had to absorb it," says company partner, Les Shorthouse.

Managing mobile workers efficiently is another unforeseen hurdle. Traditional job descriptions centre on actually being in the office nine to five, not on specific productivity targets. In the first six months of having a flexible workforce, Twin Systems discovered its productivity was down because there was a mismatch between what the employees thought they should be doing and what the company thought they should be doing, says Songaila.

Running costs are another consideration. It's all very well having a virtual branch in North Wales but you'll need to consider how you can support your remote worker from the other side of the country and how much this will cost.

GET THE BALANCE RIGHT

Getting it right requires a subtle mixture of the right technology, management and support that will get you closer to your customers without losing the connection with your mobile workforce. A general rule of thumb, whether you're equipping a home office or a fully mobile worker, is to buy from a recognised brand name, such as Compaq, Toshiba, IBM or Hewlett-Packard. It may cost more, but larger companies

than 165,000 developers who specialise in finding ways to bridge the gap between desktop computers and its own handheld devices without re-designing whole systems. It says the key lies in recognising the individual needs of your employees, such as the need to have access to those outstanding invoices, and displaying them via a series of simple, dropdown menus on a PDA, for example.

Shorthouse & Martin sought outside help to resolve its hardware/software conflict. Its chosen consultancy, Positive Computing, recommended that it move to Microsoft's Windows and Office XP (see box, page 58). Following what Shorthouse & Martin describes as a "seamless" transition, the company's employees now have remote access to the accounts, which they're happy to update while away from the office.

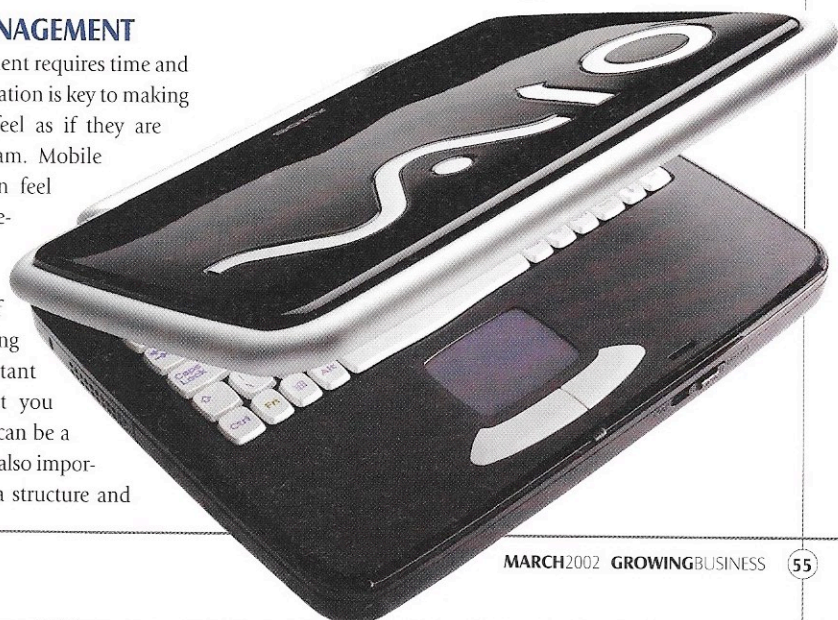
REMOTE MANAGEMENT

Remote management requires time and effort. Communication is key to making remote workers feel as if they are still part of a team. Mobile workers can often feel isolated, but something as simple as a telephone call to your staff ahead of a meeting with an important client to say that you hope it goes well can be a real motivator. It's also important to maintain a structure and

to include mobile workers as part of a team with direct managers to report to. There's no point in them making a sale if the office doesn't know when and to who it needs to be dispatched. Mandatory monthly meetings for the whole team are also essential.

You also need to redefine employee objectives in terms of mobile workers. Without the distractions of an office environment employees should be more effective but in Twin Systems' case, productivity actually went down. To rectify this, each employee was set an agreed, obtainable and measurable target based on their job description. For example, customer service representatives must deal with enquiries in a reasonable timeframe.

Communicating company objectives and ethics is also important. These happen by osmosis in an office environment so they need to be replicated in the virtual world. Twin Systems communicates by way of its company intranet which it uses as an electronic noticeboard for information such as sales figures and company performance. The company also runs a fantasy league where employees earn points for gaining customer compliments and taking the





► Mobile technology is changing fast. These Ericsson concept products show how it may be used very soon

THE MOBILE WORKER'S TOOLKIT

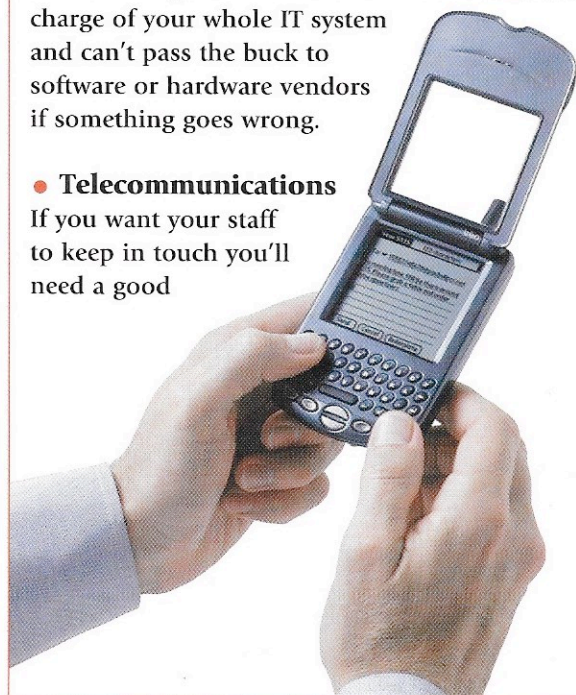
There's no black magic involved in creating a technological infrastructure for your mobile workforce. It's merely a question of mixing and matching the right hardware, software, telecommunications and support. We've put together some guidelines to help you make the right choice for the needs of your workforce.

● Support

Whenever you're buying equipment, whether it's a handheld PC, laptop or an operating system, it's important to make sure that you get a high level of support. If you're using specialist software or want an independent company to advise you on your next move, it's advisable to follow the lead of Shorthouse & Martin and look for a consultancy. The advantage of this is that the consultants are in charge of your whole IT system and can't pass the buck to software or hardware vendors if something goes wrong.

● Telecommunications

If you want your staff to keep in touch you'll need a good



telecommunications infrastructure, both fixed and wireless. Fixed telecommunications covers the humble telephone line, which will let users get on-line using a modem, an asymmetric digital subscriber line (ADSL) or broadband, which will give your employees faster, 'always on' access to the internet, and e-mail. Broadband is an emerging technology, and so comes at a premium. BT Openworld, for example, charges £75 for installation, plus a monthly fee of £14.99 per month. Laptops can get on-line using a PC card modem and any telephone line.

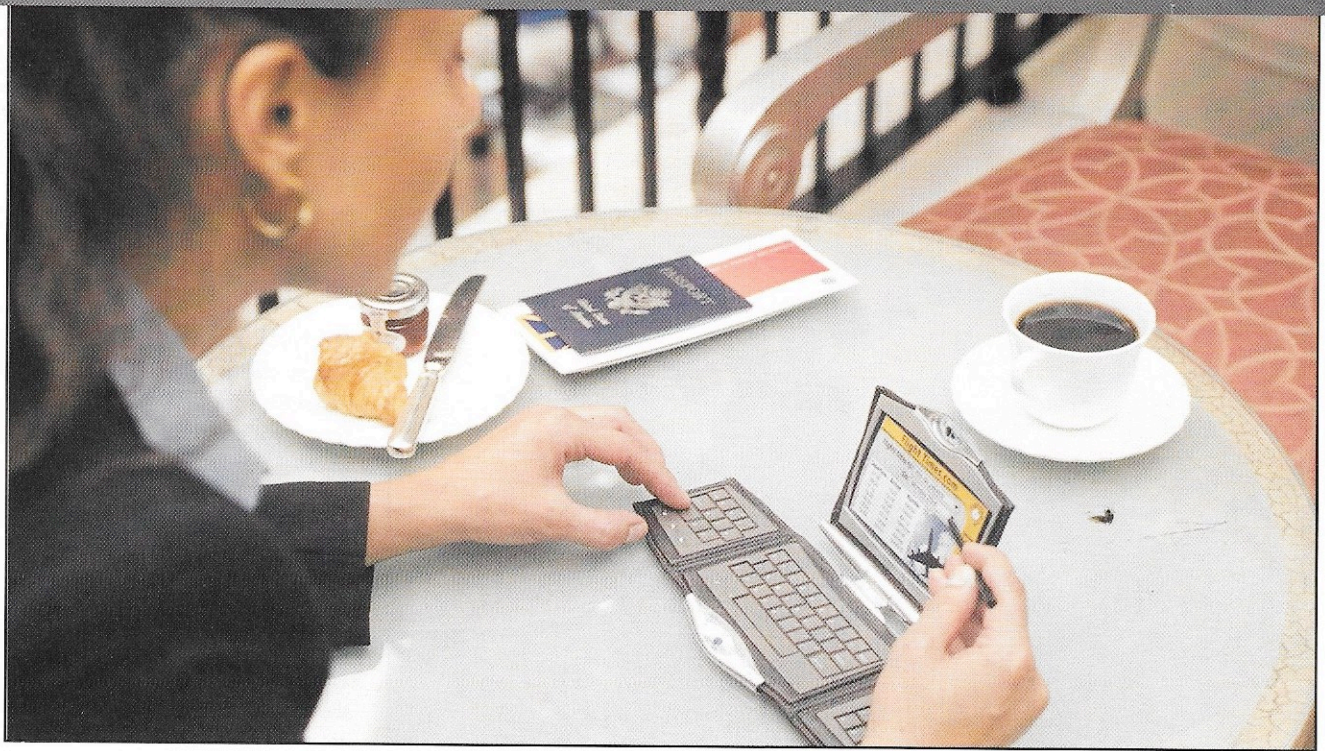
Truly wireless communication is still in its infancy. The majority of today's laptops are fitted with an infrared port, which can connect a user via an infrared telephone. In the next year or so, telephones and other wireless devices will be able to connect via a general packet radio service (GPRS), which, like broadband, will provide a continuous internet connection. Bluetooth is the latest wireless standard and will let devices such as telephones, PDAs and laptops talk to each other if they have a special chip.

● Internet service provider (ISP)

An ISP can give companies access to the internet or to a company intranet. ISPs come into their own when you're running a mobile workforce, because they can provide remote access to company information, e-mail and the internet. There are literally hundreds to choose from and it is worth shopping around, but some of the better-known companies include Demon Internet, Pipex, UUNet, BT and PsiNet.

● Laptop

Laptops vary according to their usage, from ultra-portable devices, which are small and light and ideally suited to the frequent traveller, to desktop replacement machines, which are as powerful as a



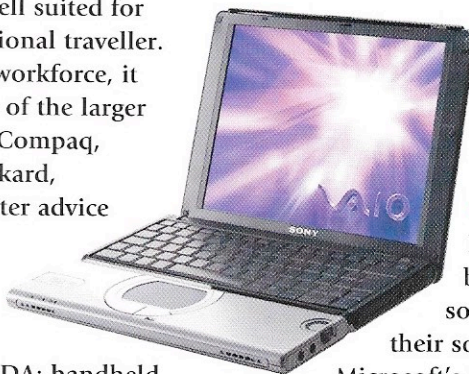
desktop computer and are well suited for home workers and the occasional traveller. Whatever the needs of your workforce, it is advisable to buy from one of the larger manufacturers such as Dell, Compaq, Toshiba, IBM or Hewlett-Packard, simply because you'll get better advice and support.

● **Personal digital assistant (PDA)**

There are two categories of PDA: handheld and palm-sized devices. First made popular by British firm Psion, handheld devices resemble scaled-down laptops complete with keyboard. Manufacturers such as Casio and Hewlett-Packard now manufacture similar devices to those of Psion and these are based on Microsoft CE, a specially developed version of the software company's desktop operating system.

Handhelds offer everything you'd expect from a PDA (calendar, address book, memo and organiser) but because they've got a keyboard this makes them better-suited to the mobile worker who needs to gain access to, as well as work on, company information and write reports on the fly.

Palm-sized devices often have a touchscreen instead of a keypad for accessing and entering information. Palm pioneered this form, although a number of devices are now also available based on Microsoft's Pocket PC operating system. Palm-sized devices are ideal for managing contacts and, as many of these are now wireless-enabled, they are perfect for sending and receiving e-mail and SMS messages. Since there's no keypad, if you want your sales force to have access to company information you may have to give some thought



to how they're going to access and view it on a small screen. Both Palm and Microsoft have approved resellers that can help with the transition from large to small screen.

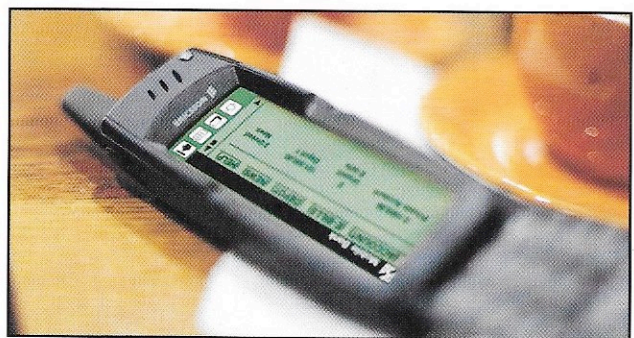
● **Software**

In the past couple of years there has been a marked shift in the attitude of software developers, and they now create their software with the mobile worker in mind.

Microsoft's latest operating system, Windows XP, is one example, and includes features such as a built-in firewall. However, it's worth bearing in mind that XP may not be the solution to your company's specific mobile needs.

● **Firewall**

Put simply, a firewall is a piece of software that controls who does and doesn't have access to your company computer. This is a must-have when you're allowing remote access to company information from outside the business. Without it you lay yourself open to hacking and the theft of sensitive company details. Firewalls are available from Novell, Symantec and Zone Labs, among others.





MICROSOFT'S MOBILE GAMBIT

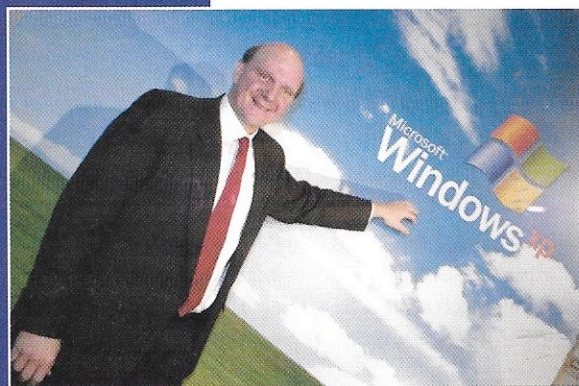
Mobile workers will benefit from Microsoft's latest operating system Windows XP (the software that manages your computer).

From the moment you start up your computer you should, according to the company, notice the difference, thanks to something called advanced configuration and power interface. This lets you put your computer to 'sleep' when you aren't using it, thus saving power, but lets it wake up in less than 30 seconds. Windows XP Professional also has a suspend mode, a deep sleep that saves even more power.

For companies with shared laptops, Windows XP Professional offers extra security features. Employees can encrypt files to protect them with a single click of the mouse or use smart cards to protect information.

But what if you want access to files back at the office from the road? Using a feature called remote desktop, users can tap into applications and files on office-based PCs, make changes and save them back to the office-based computer using their laptop. Taking important folders with you is simpler, too, using something called off-line files and folders. This enables you to access the files from a special folder within the operating system without having to connect to the internet or your company intranet first.

Wireless technology has also been embraced by Microsoft's latest operating system. If you are working from a hotel lobby, bedroom or an airport lounge, then connecting to the internet or picking up your e-mail is a much simpler process. The solution is a combination of Windows XP and wireless cards, which slot into your laptop. Using special connection ports, which Microsoft expects to become prevalent in 2002, you'll be able to connect without getting in a tangle with cables and wires.



least sick leave: the top four employees can spend their points on vouchers or extra time off.

MOBILE ADVANTAGE

Going mobile is unquestionably an investment for a business, but done properly it could net you a significant return – productively, financially and competitively. Do it right and you could also end up with a happier, more productive workforce. Twin Systems' strategy of setting its remote workers clear, achievable objectives has already paid dividends for the company: employee sickness has fallen to less than 1% and, Songaila claims, his staff are now better motivated because they are no longer distracted by any family commitments.

Mobilising your staff can reduce overheads as well. The latest statistics from the Department of Trade and Industry estimate that the average cost of simply setting somebody up with a desk within the M25 area is £2,950. Shorthouse & Martin believes the investment it has made in a new IT system has already paid dividends. Its IT consultancy, Positive

Computing, is able to gain access to its technology and also fix any problems remotely.

Perhaps the biggest benefit of going mobile is also the key motivator for doing so: becoming closer to your customers.

Creating an effective mobile workforce requires a significant investment, both in terms of finance and in the time it will take to manage it. But if it is properly managed and monitored it won't be long until your business reaps the rewards.

Before you go ahead, decide how you are going to measure the productivity of your mobile workforce. Is it the number of visits per problem resolution? Is it based on customer satisfaction or vehicle utilisation? Apply the business benefits of going mobile and work out how much it will cost you in terms of technology, management and support.

It's a simple, yet effective way of knowing whether a mobile workforce is the way forward for your business. Then you can ask yourself, is it time for my company to hit the road, Jack? **GB**

POWERING UP

New technology is bringing the holy grail of all-day portable computing ever closer. Sarah Kidner investigates.

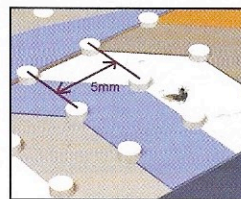
Power is your laptop's Achilles Heel. We all want smaller laptops with bigger, better screens, faster processors and lots of memory. Unfortunately, screens are one of the biggest drains on your laptop's power supply and faster processors are similarly power-hungry. Don't fret though, a number of technologies are about to emerge which could give you a day or two's worth of power, perhaps even limitless energy, from a single battery.

ANY OLD ION

Boosting battery technology is perhaps the most obvious way of improving your laptop's performance. For years the focus was on the progression from the Lithium-Ion (Li-Ion) batteries used in most modern laptops to Lithium-Polymer (Li-Polymer), which differs from Li-Ion in that it can be moulded into whatever shape you want. "Li-Ion and Nickel Metal Hydride (NiMH) batteries

are generally cylindrical in shape, which is why the Holy Grail of Lithium-Polymer was so interesting: it didn't have to be cylindrical," says Steve Crawley, a spokesperson for Toshiba. But the technology suffers from over-heating. "Hewlett-Packard brought out a polymer battery last year but it was so hot it burnt a hole in the keyboard: it wasn't their fault but it was their problem. Li-Polymer works well in a mobile phone where it isn't such a big chunky mass," says Crawley.

Toshiba hasn't given up on Lithium though. It's developed an Advanced Lithium Battery (ALB), which it claims could provide a 20 percent performance boost. ALB is a combination of Li-Ion and Li-Polymer, so the thickness of the cells can be decreased to as little as 1mm. Overheating isn't a problem because of an aluminium-laminate casing wrapped around the battery, which protects the rest of the machine.



Left: Philips' Lithylene batteries promise thinner, lower-cost batteries that will last longer

Electronics rival Philips has its own solution to the battery issue called Lithylene. Like Toshiba's ALB, it uses a polymer substance within a battery, but with a couple of crucial differences – Philips' own 'holes' technology and the type of polymer it's using. Part of the process involves making microscopic holes in the battery's components (the electrodes and separator) and pushing the special polymer through these holes.

Once the polymer sets hard it keeps the cells' active materials together so you don't need a conventional metal case to hold the battery intact – shaving 30

MRAM opens up possibilities ... PCs that turn on like TVs and laptops that run forever

percent off the size of the batteries. "The [Lithylene] batteries can be made into a flat shape so that you can use them behind your laptop's screen or in the casing of your PDA," says Hans Feil, who is general manager for Philips Lithylene. "The major benefit of the technology is the capacity of the batteries. You will get up to 40 percent higher performance with them," says Feil.

HERE COMES THE SUN

Solar powered batteries weren't an option for portable computing purposes because of their size and expense – until now. The Fraunhofer Institute in Germany has come up with a solar module which overcomes these obstacles. In addition, the battery will re-charge under office lighting, so it's possible that it will never run out of juice. A prototype is under construction, using a Casio handheld. However, it will be some time before solar powered batteries are commercially available.

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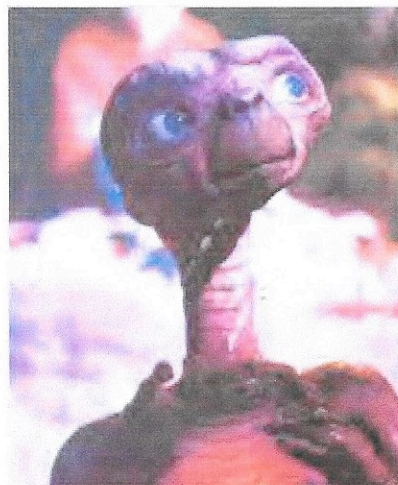
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Email messaging from Mars
25 May 2001 - by Sarah Kidner

Forget phoning home, soon ET will be able to email home using an interplanetary internet being planned by US scientists.

The proposal is being propelled into orbit by the InterPlanetary Internet (IPN) project (www.ipnsig.org), which wants to see a live test of the intra-space standards on-board the Mars mission in 2003.



IPN wants to create a re-usable communications network around the solar system for future voyagers. "They can use capabilities put in place by other missions," said Adrian J Hooke, manager of the DARPA (Defense Advanced Research Projects Agency www.darpa.mil) IPN project and co-author of the report.

The question is how? IPN's proposal is to use existing space traffic such as satellites, unmanned robots, spacecraft and crewed vehicles as the basis of an intergalactic internet.

But it warns that delays are inevitable. "We cannot assume that bits emitted by a source can travel delayed only by routing and transmission delays, to the destination. There may be physical reasons for this [for example] the source may be on the far side of the planet and can't communicate with anything," it said.

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What you need to know before buying a dog from a breeder

Written by Napo HQ 22nd Apr 2022 8 min read



Summary

Before buying a dog from a breeder, you must be able to see the puppy with its mother. A good breeder should ask you questions about your home and lifestyle, and they should gladly answer any queries you have about the pet and its parents. Look for the Assured Breeder's Scheme and make sure the puppy's parents are health tested. **Never pay for a pet before you take them home.**

Prices and demand for puppies skyrocketed during the pandemic; there was also an increase in first-time puppy buyers, according to a survey by the Royal Veterinary College (RVC).

The pandemic puppy boom led to “red flags for poor purchasing decisions that encouraged, unfortunately, puppy farming, puppy trading, puppy imports,” said Dr Rowena Packer, Lecturer in Companion Animal Behaviour and Welfare Science at the RVC.

With so many marketplaces online and hundreds of breeders of various qualities, it can be hard to understand what makes a “good” breeder, let alone find one. But with this detailed guide, you’ll be able to sniff out a brilliant breeder and the perfect pet in no time.

Choosing the right breed for you

The search for a breeder begins with finding the right breed, said Bill Lambert, health welfare and breeder services executive for The Kennel Club.

“There are 221 breeds registered with us,” he said. “And they all have very different characteristics. There is likely a breed that will suit your lifestyle. Puppy buyers should always research what type of breed is the right type for them,” he said.

Potential puppy parents should be wary of selecting a breed because it is said to need less exercise or help with behaviour. All dog breeds need taking out for [daily walking](#) and play, and it is important to always plan to put in adequate time and effort for stimulation and training.

Good breeding: Pedigree or crossbreed?

Buying a pedigree puppy does provide some assurances about what to

expect from the dog, said The Kennel Club's Lambert.

"The benefit of buying a pedigree dog is that they are a completely known quantity. For example, if you want to buy a Labrador, we can tell you all

about Labradors, their pedigrees, how big they will get, and their temperament. They're more predictable," he said.

Yet, there has also been a notable rise in people looking for crossbreed puppies.

"We're now seeing this phenomenon of designer crossbreeds. And we saw a huge surge in that during the pandemic; these intentional sorts of portmanteau crosses such as your Cavapoos and Cockapoos," said Dr Packer from the RVC. "Lots of people are looking for a hypoallergenic, non-shedding dog that fits in well into family life. But lots of these dogs aren't hypoallergenic; there's plenty of data that you can still be allergic to them," Packer added.

"There are lots of lovely crossbreeds. However, they are less predictable," agreed Lambert. "They will inherit 50% of their genes from their father – you may want the father's temperament but actually, what you get is the mother's."

Where to find a good puppy breeder

Having picked a breed, you need to find a good breeder. So, how do you do it?

An excellent place to start is with the Kennel Club's [Assured Breeders Scheme](#). Lambert describes the scheme as "the gold standard for what dog breeders should try and achieve."

Breeders pay £25 to apply and, if approved, £60 to join the scheme. The Kennel Club inspects all breeders. In addition, breeders must agree to a list of requirements, including registering all puppies with The Kennel Club, agreeing to rehome a dog for its lifetime, and ensuring that any potential buyer can see possible puppies in the company of their mother – a very important part of the process.

A list of [Assured Breeders](#) is available on The Kennel Club's website. You can search for breeders near you using your postcode.

Anna found her Shiba, Watson, through the site. "It [Kennel Club] has that whole Assured Breeders section, which takes the stress out of trying to find breeders that are licensed Shiba breeders. That helped make a shortlist of breeders," she said.

What types of breeders are available?

Like dogs, puppy breeders come in all shapes and sizes, and many are small-scale; 60-70% of Kennel Club Assured Breeders only ever register a single litter.

"The vast majority are not people making money out of breeding or who have a business breeding dogs," said Lambert, who, having bred around 14 litters, is "in the top 5% of breeders."

Website Tailwise was set up to counter the rise in puppy farms and has a list of vetted, smaller dog breeders. Chief Dog Officer, Beverley Cuddy, believes smaller breeders provide an excellent start for puppies. "If the dog is reared in a home by someone who loves mum and gives them a full life, the dog learns to be a valuable member of the family in the first eight weeks," said Beverley Cuddy, Chief Dog Officer for Tailwise.

Beverley added, "The person who breeds that litter will care as much about the home that the dog goes to as the person buying should care about the breeder."

Yet, there's no reason to be suspicious just because a breeder has multiple litters; for example, Guide Dogs for the Blind breeds high volumes, but has excellent welfare.

However, large-scale puppy farms do exist. "Yes, many highly commercial breeders go under the radar," says Lambert, adding that one red flag to watch out for is multiple breeds.

“Most breeders specialise in one or two breeds. If a puppy buyer is going somewhere where they have multiple breeds, it may be a warning sign that they are a highly commercial breeder and that profit rather than the puppies’ welfare is the motive,” said Lambert.

How to buy a healthy puppy

A reputable breeder will have health tested the puppies’ parents; it’s a requirement of the Assured Breeder’s Scheme and a pivotal question before any potential puppy purchase. “We now have lots of tests that we can do on parents to produce a far better chance of producing healthy puppies,” said Lambert.

That includes testing on Brachycephalic or flat-nosed dog breeds known to have had breathing difficulties. “We have developed a testing system so that breeders can then make choices. Their airways are listened to by a specialist vet, and those dogs are graded.”

The Respiratory Function Grading test (RFG) assesses the dogs’ capability, allowing breeders to decide whether to breed from the parents.

Having dogs health tested is very important; we know that up to 90% of Pugs and French Bulldogs suffering from Brachycephalic Airway Obstruction Syndrome. It is vital for owners to be doing research to make sure the puppy they’re buying has been bred in a healthy way.

And this isn’t any different for crossbreeds.

“We do know what breeds have a predisposition towards certain conditions. You may have heard pedigree dogs are less healthy than crossbreeds, but that’s not necessarily the case; we just have more data on pedigrees,” said Lambert.

Dr Packer agrees there are unknowns with crossbreeds. “There is this inherent assumption that they won’t have the same health issues as their pedigree parents because they’re crossed. But without health testing to check that their parent breeds don’t have problems, we’re potentially having a bit of a ticking time bomb there.”

Whether you’re buying pedigree or crossbreed, Lambert’s advice is to quiz

the breeder.

“If the breeder is a good breeder, they will know all about health testing and what tests they should be doing and what applies to their dogs,” he said.

A good puppy breeder will expect and welcome questions because they’ll have the puppy’s welfare at heart. Try and get a picture of their motivations. “How often are they breeding, and how much do they know about the breed? Do they specialise?” said Lambert.

If a breeder is averse to answering your questions, or is reluctant to show the necessary health testing documentation, beware.

What to expect from a good puppy breeder

Similarly, a good puppy breeder will ask you questions because they want the best for their puppy. Anna recalls checks before when she bought her Shiba during the pandemic.

“We spent an hour on the phone with the breeder. We had to do a little tour of a flat on video and explain our routines and lifestyle and how that would work, which made me feel loads better because they're invested in their puppies,” said Anna.

You should also be able to see the puppy with its mother, said Tailwise’s Cuddy. “The most important thing is to give mum a quality, full life. Dog's behaviour doesn't lie. It's very difficult to fake affection and a relationship,” she added.

The chance to make multiple visits before you buy is also critical to weed out bad breeders.

“The repeated visit element is vital,” said Dr Packer. “It tackles people who are trying to present as legitimate breeders. We know that is an unfortunate culture of organised crime groups and puppy dealers setting up stunt homes with stunt mums,” she said.

There have been reports of people using Airbnb properties for a couple of days.

“If your breeder is willing to let you visit that place twice before purchase, hopefully removing dealers who can't maintain visits over that period,” said Dr Packer.

Puppy contracts are becoming more common, and it's worth asking for one. A puppy contract will set out the dog's purpose, terms of sale, what the dog was bred for (for example, a show or working dog), details of health checks – it will typically also commit the breeder to rehome the dog for life if things don't work out.

Finally, don't part with any cash before the puppy is in your home.

There are various good breeders to help you find the perfect pup. “Breeders provide a fantastic service because we're a nation of animal lovers,” said Lambert.

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