



Deposited via The University of Sheffield.

White Rose Research Online URL for this paper:

<https://eprints.whiterose.ac.uk/id/eprint/245410/>

Version: Published Version

Article:

Marvin, S. (2026) Pet-as-platform: domestic infrastructures and the digital governance of companion animals. *Digital Geography and Society*, 11. 100188. ISSN: 2666-3783

<https://doi.org/10.1016/j.diggeo.2026.100188>

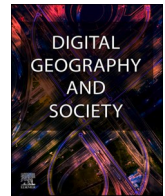
Reuse

This article is distributed under the terms of the Creative Commons Attribution (CC BY) licence. This licence allows you to distribute, remix, tweak, and build upon the work, even commercially, as long as you credit the authors for the original work. More information and the full terms of the licence here:

<https://creativecommons.org/licenses/>

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



Pet-as-platform: Domestic infrastructures and the digital governance of companion animals

Simon Marvin^{*}

Urban Institute, University of Sheffield, United Kingdom

ARTICLE INFO

Keywords:

Platform urbanism
Domestic infrastructures
Multispecies urbanism
Digital governance
Pet technologies

ABSTRACT

Across contemporary cities, digitally mediated infrastructures increasingly organise everyday life through systems of sensing, automation, and platform integration. Debates on platform urbanism have examined how these processes reshape mobility, logistics, and governance. Yet the home has remained comparatively under-theorised as an infrastructural node within distributed urban systems. At the same time, multispecies urbanism has paid limited attention to how companion animals are becoming integrated into digitally mediated environments. This paper addresses these gaps by analysing emerging pet technologies, including cameras, wearable trackers, biometric sensors, automated feeders, and app-based care platforms. The paper develops the concept of *pet-as-platform* to examine how companion animals are enrolled within infrastructures that capture behavioural data, automate intervention, and connect domestic environments to wider platform ecosystems. Drawing on an interpretive analysis of contemporary pet technology systems, interfaces, and associated infrastructures, the paper develops a framework organised around three dimensions: sensing and data extraction, automated care and intervention, and platform integration and infrastructural linkage. The analysis demonstrates how pet technologies reconfigure the home as a multispecies infrastructural node embedded within broader urban systems, including veterinary services, insurance platforms, and smart-home environments. In doing so, the paper extends debates on platform urbanism into domestic and multispecies domains, reconceptualises pet care as an infrastructural process, and highlights the emergence of new forms of data-driven multispecies governance. More broadly, the paper argues that understanding contemporary urbanisation requires greater attention to how digital infrastructures are reshaping intimate human–animal relations within the home and across distributed urban environments.

1. Introduction

Across contemporary cities, platform-based systems have become central to organising urban life. In mobility, housing and energy domains, the expansion of digitally mediated infrastructures has reshaped how urban processes are sensed, managed, and governed. Work on platform urbanism has been particularly influential in demonstrating how data extraction, algorithmic coordination, and corporate ecosystems reconfigure urban services and spaces. Yet despite this growing body of work, the home remains relatively under-theorised as an infrastructural node within these systems. While smart home technologies have been widely discussed, they are often treated as discrete consumer devices or lifestyle enhancements and not as integral components of distributed urban infrastructures.

This paper argues that the domestic sphere is being reconstituted as a

site of platform-based infrastructural operations, and that this transformation is most evident in the rapid proliferation of digital technologies designed for companion animals. Over the past decade, a wide range of devices including pet cameras, biometric trackers, automated feeders, and app-based care platforms, have emerged that monitor, regulate, and mediate the lives of pets within the home (see [Table 1](#)). Contemporary examples include:

- Systems such as the Furbo pet camera and Petcube interactive monitoring platform, which combine video surveillance, behavioural alerts, two-way audio, and remote treat dispensing within app-connected ecosystems.
- Wearable tracking devices such as Fi, Whistle, and FitBark continuously monitor movement, activity, sleep patterns, and location.

^{*} Corresponding author.

E-mail address: s.marvin@sheffield.ac.uk.

<https://doi.org/10.1016/j.diggeo.2026.100188>

Received 10 December 2025; Received in revised form 14 June 2026; Accepted 19 August 2026

Available online 20 August 2026

2666-3783/© 2026 The Author. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

- Automated feeding systems such as Petlibro and PetSafe synchronise care routines through cloud-based interfaces and mobile applications.

These systems do more than augment pet care. They are integrated into broader smart home environments that connect domestic pet care to subscription services, cloud infrastructure, and platform economies (Cox et al., 2023; Tuohy, 2024). Companion animals are enrolled into regimes of sensing, automation, and data circulation that extend beyond the household, connecting domestic environments to wider platform ecosystems including house rental markets, veterinary services, insurance systems, smart home infrastructures and ecosystem management.

Industry analysts suggest that pet technologies are rapidly consolidating into a significant global platform market, although estimates vary considerably depending on how “pet tech” is defined. North America currently holds the largest market share, driven by the expansion of subscription-based ecosystems that link GPS tracking, AI-enabled monitoring, insurance services, tele-veterinary platforms, and automated domestic devices. East Asian markets, particularly China, South Korea, and Japan, are often identified as the fastest-growing sectors, reflecting the integration of companion-animal technologies into broader smart-home, e-commerce, and platform urbanism ecosystems. European growth trajectories are shaped more strongly by regulatory and data governance frameworks, particularly around privacy, biometrics, and digital health infrastructures. Across these regions, industry reports consistently frame pet technologies as a rapidly expanding multi-billion-dollar sector (Grand View Research, 2025; Morgan Stanley, 2024). While such projections are often promotional and methodologically opaque, they nevertheless indicate the increasing incorporation of companion animals into broader circuits of platformisation, data extraction, subscription services, and infrastructural investment.

The paper develops the concept of **pet-as-platform**. This conceptualisation treats companion animals as nodes within platform-mediated infrastructures that organise data flows, automate interventions, and reshape practices of domestic governance. Empirically, the paper develops a conceptual-analytical reading of contemporary pet technologies, drawing on a range of device ecosystems, platform interfaces, and associated infrastructures. The analysis examines how these technologies function as interconnected components of a wider socio-technical system comprising sensing and data extraction, automated care and intervention, and platform integration across urban infrastructures.

In doing so, the paper makes three specific contributions. First, it extends analyses of platform urbanism into the domestic sphere, showing how the home operates as a distributed infrastructural node which is more than a bounded site of consumption. Second, it reconceptualises domestic pet care as an infrastructural process, in which sensing, automation, and platform integration reorganise the relations between humans, animals, and technologies. Third, it demonstrates how companion animals are enrolled into emerging forms of data-driven

governance that reshape the conditions of multispecies urban life.

The remainder of the paper proceeds as follows. [Section 2](#) argues that the home should be understood as a central site within platform urbanism where sensing, automation and platform integration are extended into multispecies infrastructures in digitally mediated domestic environments. [Section 3](#) develops a conceptual–methodological framework for analysing pet technologies as platform infrastructures. [Section 4](#) then examines how these systems operate across sensing, automation, and integration. [Section 5](#) considers the broader implications for understanding domestic platforms and multispecies urban governance. [Section 6](#) concludes by identifying the paper's contribution and its future research implications.

2. Domestic infrastructures, multispecies urbanism and digital mediation

The expansion of digitally mediated systems across urban life has been extensively theorised through debates on platform urbanism, which examine how platforms reorganise urban processes through data extraction, algorithmic coordination, and infrastructural integration (Gillespie, 2018; Kitchin, 2015; Plantin et al., 2018; Srnicek, 2017; Star and Ruhleder, 1996). Much of this work has focused on domains such as mobility, logistics, governance, and service provision, where digital platforms mediate flows of people, goods, and information across urban space. At the same time, scholarship on smart urbanism has highlighted the role of sensing technologies, automation, and distributed data infrastructures in reshaping how cities are managed and operated (Kitchin, 2014; Mattern, 2017). Yet despite these developments, the home has often remained relatively marginal within analyses of platform urbanism, typically framed through the narrower discourse of the smart home as a site of convenience, consumption, and lifestyle optimisation rather than as a component of wider urban infrastructures.

This framing risks underestimating the extent to which domestic environments are becoming integrated into distributed socio-technical systems that operate across urban scales. As a growing body of work on digital domesticity and home infrastructures suggests, homes are configured through interconnected systems of sensing, monitoring, and automation that extend beyond the household itself (Pink, Leder Mackley, et al., 2017; Pink, Sumartojo, et al., 2017; Strengers & Nicholls, 2017). Devices associated with energy management, security, health monitoring, and environmental control generate continuous streams of data that circulate through cloud-based platforms and service ecosystems. In this sense, the home is constituted as a node within wider infrastructural assemblages that connect domestic routines to corporate platforms, data infrastructures, and urban systems.

Understanding the home as an infrastructural node highlights three related transformations. First, domestic environments are enrolled into processes of continuous sensing and data generation. Smart devices monitor occupancy, movement, energy consumption, and environmental conditions, producing data that are aggregated and analysed

Table 1

provides illustrative examples of commercially significant pet technology platforms across key infrastructural domains rather than an exhaustive inventory of available systems.

Category	Example Products/Platforms	Key Function	Data Generated	Urban/Infrastructural Issue
GPS tracking collars	Fi Smart Dog Collar ; Tractive GPS	Real-time tracking	Location and mobility patterns	Geolocation and platform surveillance
AI pet cameras	Furbo ; Petcube	Behaviour monitoring	Video and audio analytics	Domestic platformisation
Smart feeders	WOPET ; PETLIBRO	Automated feeding	Consumption routines	Automation of care
Health monitoring wearables	Whistle Health	Biometric and activity monitoring	Health and behavioural data	Predictive veterinary governance
Tele-veterinary platforms	Pawp ; Vetster	Remote consultation	Health records and interactions	Platform mediation of care
Pet insurance and data ecosystems	ManyPets ; Pumpkin Pet Insurance	Risk management	Claims and behavioural data	Datafied risk profiling
Smart litter systems	Litter-Robot	Automated waste management	Behavioural and health indicators	Domestic sensing infrastructures
Platform pet services	Rover ; Wag!	On-demand pet labour	Ratings, mobility, and routines	Gig economy and platform urbanism

through platform ecosystems (Beer, 2019; Lupton, 2016). Second, routine practices within the home are mediated by forms of automation that anticipate, adjust to, and intervene in everyday activities (Strengers & Nicholls, 2017). Third, domestic systems are progressively integrated into wider service networks, including energy grids, insurance systems, healthcare infrastructures, and platform-based service economies (Plantin et al., 2018). These developments suggest that platform urbanism operates through intimate domestic environments in which infrastructures of sensing, automation, and connectivity converge.

However, much of this literature remains predominantly human-centred. While the infrastructuralisation of domestic life has been examined in relation to energy, security, comfort, and consumption, less attention has been paid to how these transformations extend to more-than-human forms of life within the home. This omission is significant given the central role that companion animals occupy within many urban households and the rapid proliferation of digital technologies designed specifically to monitor, regulate, and mediate animal life.

Contemporary pet technologies also emerge from longer histories of animal monitoring associated with precision livestock farming, veterinary telemetry, and wildlife tracking systems. GPS collars, biometric sensors, and behavioural monitoring platforms originally developed for agricultural optimisation and ecological management have been miniaturised and domesticated within companion animal markets (Aquilani et al., 2022; Holloway & Bear, 2017; Maharajpet et al., 2024). Parallel developments within multispecies urbanism and animal geographies provide an important basis for extending these debates. Research in this area has challenged anthropocentric accounts of cities by focusing on how urban environments are constituted through heterogeneous relations between humans and non-human entities (Gandy, 2023; Haraway, 2008; Houston, Hillier, MacCallum, Steele and Byrne, 2018; Kirksey and Helmreich, 2010; Lorimer, 2015; Philo & Wilbert, 2000; Wolch & Emel, 1998). Rather than treating animals as passive occupants of urban space, this work demonstrates how they actively participate in processes of circulation, labour, governance, and ecological maintenance.

A particularly important development has been the conceptualisation of animals as infrastructural actors. Barua (2021), for example, argues that animals can be understood as integral components of infrastructural systems through their roles in transport, waste management, ecological maintenance, and security. This perspective reframes infrastructure as a more-than-human assemblage in which biological and technological systems are deeply intertwined (Amin, 2014). Related work has also explored how animal life is governed within cities through regulation, enclosure, surveillance, and spatial management, highlighting how urban environments are structured through practices of inclusion, exclusion, and control directed towards non-human animals (Philo & Wilbert, 2000; Wolch & Emel, 1998).

At the same time, research associated with digital ecology has examined how sensors, data infrastructures, and computational systems are transforming the monitoring and management of environments (Gabrys, 2016; Parikka, 2016). These studies highlight how digital systems mediate relations between environments, infrastructures, and governance through continuous sensing and data circulation. Yet despite these advances, limited attention has been paid to how digital mediation intersects with multispecies relations in domestic environments, particularly regarding companion animals.

This gap becomes important in the context of rapidly expanding pet technologies. Devices such as pet cameras, wearable trackers, biometric sensors, automated feeders, and app-based care systems extend the infrastructuralisation of the home into multispecies relations. These technologies augment existing practices of care, and they reorganise them through platform-based systems that capture behavioural data, automate interventions, and integrate domestic environments into wider service ecosystems. Companion animals are increasingly rendered visible, measurable, and actionable through infrastructures that connect households to veterinary platforms, insurance systems, smart home

architectures, and commercial data environments.

The paper analyses these developments through the concept of *pet-as-platform*. This conceptualisation treats companion animals as nodes within platform-mediated infrastructures that organise data flows, automate intervention, and connect domestic environments to wider urban systems. The following section develops a conceptual and methodological framework for analysing these processes, outlining how pet technologies function through interconnected regimes of sensing, automation, and platform integration.

3. Pet-as-platform and the analysis of domestic infrastructures

The concept of *pet-as-platform* captures a specific transformation in the organisation of domestic life. It treats companion animals as nodes within platform-mediated infrastructures that generate data, trigger interventions, and connect domestic environments to wider socio-technical systems. In this formulation, pet technologies are elements of integrated systems that render animal life knowable, actionable, and governable. This conceptualisation builds on and extends insights from platform urbanism by shifting attention from large-scale urban systems to the distributed infrastructures that operate within and through domestic environments. It also extends work on multispecies urbanism by showing how animal life is enrolled in digital systems that mediate relations of care, control, and observation.

The aim is to provide a framework capable of analysing how these processes intersect in the context of emerging domestic technologies. To operationalise this framework, the analysis focuses on three interrelated dimensions through which pet technologies function as infrastructures:

1. *Sensing and data extraction*: Pet technologies are designed to capture continuous streams of data on animal behaviour, movement, and physiological states. Cameras, wearable trackers, and biometric devices produce detailed records of activity, location, and, in some cases, health indicators. These data are transmitted to cloud-based systems where they can be stored, analysed, and integrated into wider platform ecosystems. In this sense, companion animals become data-generating entities within infrastructures of monitoring and analysis.
2. *Automated care and intervention* – This dimension enables the automation of care practices, in which devices such as automated feeders, health-monitoring systems, and behavioural tools introduce algorithmic interventions into everyday routines. These systems can regulate feeding schedules, issue alerts regarding potential health issues, and, in some cases, adjust environmental conditions in response to detected behaviours. Care is partially delegated to technical systems that operate through predefined rules and adaptive logics, reshaping the temporalities and responsibilities of human–animal relations.
3. *Platform integration and infrastructural linkage* – The third dimension highlights how pet technologies are embedded within wider platform ecosystems. Many devices operate through proprietary applications that connect to other services, including veterinary platforms, insurance systems, and smart-home infrastructures. Data generated within the home can circulate across these systems, enabling new forms of coordination, commercialisation, and governance. This integration situates domestic pet care within broader urban infrastructures, linking intimate practices to distributed networks of service provision and control.

Taken together, these dimensions conceptualise pet technologies as infrastructural systems that operate across scales, from the intimate spaces of the home to the wider urban environments in which data are processed, services are delivered, and governance is enacted. The framework provides a structured way of analysing how sensing, automation, and integration combine to reshape multispecies relations within platform-mediated urbanism.

The paper adopts an interpretive infrastructural approach focused on how contemporary pet technologies are configured, operationalised, and positioned within wider platform ecosystems. The empirical material is drawn from three main sources. First, it includes a range of commercially available pet technologies, selected to represent key categories of devices including cameras, wearable trackers, automated feeders, and app-based care platforms. Second, it incorporates associated digital interfaces, such as mobile applications and platform dashboards, which provide insight into how data are visualised, interpreted, and acted upon. Third, it draws on publicly available materials, including product documentation, technical specifications, and marketing content, which articulate how these systems are designed, positioned, and expected to function. The analysis examines the infrastructural logics through which domestic pet care is being reorganised within digitally mediated urban environments.

Case selection is guided by the aim of capturing variation across the three analytical dimensions, so it focuses on illustrative cases that reveal how different aspects of sensing, automation, and integration are configured and combined within contemporary pet platforms. The analysis focuses on a range of commercially significant pet technology ecosystems (see Table 1), including Furbo and Petcube monitoring systems, Fi and Whistle wearable trackers, Petlibro and PetSafe feeding platforms, and biometric monitoring devices such as PetPace. This approach allows the analysis to identify recurring patterns and infrastructural logics without relying on claims of representativeness.

Analytically, the paper employs an infrastructural reading of these materials, examining how devices and platforms organise relations between humans, animals, and technologies. The analysis focuses on how data are generated and circulated, interventions are triggered and enacted, and connections to wider systems are established. Following critical infrastructural approaches to digital systems, the analysis is sensitive to moments of malfunction, breakdown, and uneven interoperability. Reviews of contemporary pet platforms report recurring problems including delayed notifications, inconsistent sensing performance, subscription-gated functionality, and integration failures with wider smart-home systems, highlighting the fragility and uneven operation of domestic platform infrastructures (Leszczynski, 2019; Tuohy, 2024).

This interpretive strategy is consistent with recent approaches in digital geography that treat platforms and devices as sites through which broader socio-technical transformations can be understood. The next section applies this framework to examine how pet technologies operate as infrastructures of sensing, automated care, and platform integration within domestic environments, and how these processes connect to wider urban systems.

4. The Infrastructuralisation of companion animals

The analysis applies the *pet-as-platform* framework to examine how contemporary pet technologies operate as infrastructures of sensing, automation, and integration. It focuses on how pet-tech organises relations between humans, animals, and technologies, and how these relations extend beyond the home into wider platform ecosystems.

4.1. Sensing: Datafication of animal life

A defining feature of contemporary pet technologies is the expansion of sensing capacities within the home. Devices such as networked cameras, wearable trackers, and biometric monitors are designed to capture continuous streams of data relating to animal behaviour, movement, and physiological states. Pet cameras provide real-time visual access to animals when owners are away, often with motion detection, sound alerts, and two-way audio. Wearable devices extend this monitoring by tracking activity levels, location, sleep patterns, and, in some cases, health and well-being indicators.

Devices such as Fi, Whistle, FitBark, and PetPace extend these

capacities through wearable sensing systems that continuously monitor movement, activity, sleep patterns, and physiological indicators. PetPace positions biometric monitoring as a form of predictive health management, framing animal wellbeing as a continuously measurable and analysable condition (Maharajpet et al., 2024).

These systems transform companion animals into new sources of data, generating detailed records of everyday life that can be accessed, stored, and analysed through platform interfaces. The home, in turn, is reconfigured as a sensor-rich environment in which animal presence is continuously monitored and rendered visible through digital representations. Behaviour that might previously have been episodic or only partially observed, such as feeding habits, movement patterns, or signs of distress, is now captured and quantified in near real time.

Crucially, these data do not remain confined to the household. They are transmitted to cloud-based infrastructures where they can be aggregated, processed, and, in some cases, integrated with other datasets. This creates the conditions for new forms of analysis, including behavioural profiling and predictive assessment of health or wellbeing. In this sense, companion animals are enrolled into infrastructures of data extraction that parallel those associated with human-centred smart devices, extending platform logics into multispecies domains.

The datafication of animal life also reshapes practices of observation and care. Owners can monitor animals remotely, receive notifications for specific events, and review historical data through platform dashboards. While this can enhance awareness and responsiveness, it also introduces new expectations of constant oversight and continuous engagement, mediated through digital systems rather than direct co-presence. The result is a reconfiguration of the relationship between humans and animals, in which sensing technologies play a central role in mediating perception and knowledge.

4.2. Automation: Delegated care and infrastructural labour

Alongside the expansion of sensing, pet technologies incorporate mechanisms for automated intervention. Devices such as programmable feeders, water dispensers, and environmental control systems allow aspects of animal care to be delegated to technical systems that operate according to predefined schedules or in response to triggers. More advanced platforms integrate sensing and automation, enabling actions to be initiated in response to detected behaviours or conditions, for example, dispensing food at set intervals, issuing alerts when activity deviates from expected patterns, or adjusting environmental settings.

Systems such as PetSafe Smart Feed and Petlibro automate feeding routines through programmable schedules and app-controlled dispensing. More advanced systems such as the Varram Pet Fitness Robot extend automation beyond feeding and scheduling towards delegated behavioural stimulation, using autonomous movement and programmed interaction to manage boredom, separation anxiety, and exercise routines during periods of owner absence. These systems automate routine care tasks and mediate emotional and behavioural relations between humans and companion animals through responsive technological systems. In this sense, pet technologies redistribute forms of affective and behavioural labour across human and machinic actors, reshaping the conditions under which care is enacted within digitally mediated domestic environments (Puig de la Bellacasa, 2017; Striphos, 2015).

This delegation introduces a form of infrastructural labour in which routine care practices are partially transferred from human actors to automated systems. Feeding, monitoring, and aspects of health management are no longer solely dependent on direct human attention; they are now mediated through devices that maintain continuity in the owner's absence. These systems can stabilise care practices across time, particularly in contexts where work patterns or mobility constrain direct engagement.

Integrated systems – notably the “Smart Pets Home” – further extend these dynamics by combining automated feeding, environmental

regulation, behavioural monitoring, and AI-enabled interaction within enclosed domestic microclimates. This system regulates temperature, humidity, activity, and interaction through app-connected infrastructures that continuously modulate multispecies domestic environments. Automation, therefore, operates through ongoing environmental management rather than isolated moments of intervention, positioning companion animals within continuously regulated domestic atmospheres. (Pink, Leder Mackley, et al., 2017; Smart Pets Home, 2026; Strengers & Nicholls, 2017).

At the same time, automation reconfigures the temporalities and responsibilities of care. Rather than continuous, embodied interaction, care becomes distributed across human and technical actors, with algorithmic systems assuming responsibility for routine interventions. This does not eliminate human involvement but shifts its character from direct action to configuration, oversight, and response to alerts generated by the system. Owners are required to set parameters, interpret data, and intervene when anomalies are identified, creating a hybrid form of care that combines automation with intermittent human input.

The integration of automation also raises questions about the standardisation of care practices. Devices operate according to predefined rules and thresholds that may not fully capture the variability in animal behaviour or needs. As a result, care is shaped by the logics embedded in the technology, including assumptions about feeding schedules, activity levels, and indicators of well-being. This introduces a layer of infrastructural governance into everyday practices of animal care, in which decisions are mediated by technical systems rather than solely by situated human judgement.

4.3. Integration: From domestic devices to urban platform ecosystems

The infrastructural significance of pet technologies becomes most apparent when considering their integration into wider platform ecosystems. Many devices operate through proprietary applications that connect to external services, enabling data generated within the home to circulate across broader networks. These connections extend domestic pet care practices into domains such as veterinary services, insurance systems, and commercial data platforms.

Many contemporary pet platforms operate through subscription ecosystems in which access to behavioural analytics, historical monitoring archives, or advanced health insights requires ongoing payment. At the same time, these systems increasingly integrate with smart-home architectures and external service providers, linking domestic pet care to cloud-based infrastructures, insurance systems, veterinary platforms, and broader commercial data environments (Cox et al., 2023; Tuohy, 2024).

Domestic pet care is thereby embedded within platform monetisation strategies that extend beyond device purchase into ongoing forms of infrastructural dependency and service enclosure. Access to enhanced monitoring and predictive capacities is unevenly distributed across subscription tiers and platform participation (Langley & Leyshon, 2017; Srnicek, 2017). For example, data on activity levels, health indicators, and behavioural patterns can be shared with veterinary providers to support remote consultations or inform clinical decision-making. Insurance platforms may use similar data to assess risk profiles or to incentivise certain behaviours, linking everyday practices of care to financial and regulatory frameworks. In addition, integration with smart home systems allows pet technologies to interact with other devices, such as security systems or environmental controls, further embedding them within domestic infrastructures.

Specifically in Australia, digital “Pet Resume” systems allow behavioural records, vaccination histories, and platform-generated profiles to circulate within rental markets, linking domestic pet data to housing access and landlord assessment practices (Rent.com.au, 2018; Rent.com.au, 2026). Companion animals are thus incorporated into digitally mediated systems of urban housing governance in which behavioural data and evidence of responsible ownership become

intertwined with tenancy legitimacy and residential access (Power, 2008).

Through these connections, the home functions as a node within distributed urban systems in which data, services, and interventions are coordinated across multiple scales. Companion animals are not only subjects of domestic care but also participants in wider infrastructures that extend beyond the household. Data generated through everyday interactions contribute to larger datasets, while decisions made within platforms can shape practices within the home.

At the same time, reviews of contemporary pet technologies report recurring interoperability failures between pet devices and wider smart-home ecosystems, including broken integrations with Alexa or Google Home, delayed notifications, malfunctioning treat-dispensing systems, and unreliable behavioural alerts. These glitches reveal the uneven and fragile operation of domestic platform infrastructures, making visible the infrastructural dependencies and contingencies that underpin automated pet care systems (Leszczynski, 2019; Tuohy, 2024).

This integration highlights how the boundaries between domestic and urban infrastructures are blurred. Pet technologies link intimate spaces of human–animal interaction to corporate platforms, service providers, and regulatory systems that operate at urban and supra-urban scales. In doing so, they reveal how platform urbanism extends into the domestic sphere, not only through human-centred technologies but also through systems that enrol and govern animal life.

In summary, then, across these three dimensions, the analysis demonstrates how companion animals are incorporated into emerging infrastructures that reconfigure relations of care, control, and data circulation. Pet technologies thus provide a distinctive empirical lens for understanding the expansion of platform-based systems into multispecies domestic environments and their connection to wider urban processes.

5. Domestic platforms and multispecies urban governance

The analysis has shown that contemporary pet technologies are components of emerging infrastructures that reorganise domestic life and extend platform logics into multispecies relations. In conceptualising these systems through the lens of *pet-as-platform*, the paper demonstrates how sensing, automation, and integration operate together to enrol companion animals into distributed socio-technical arrangements that span the home and the city. This section draws out three implications for urban and digital scholarship, focusing on how these developments extend, complicate, and reorient existing debates.

First, the findings extend understandings of platform urbanism by demonstrating that its operations are not confined to conventional domains such as mobility, logistics, or public services. Instead, platform logics are embedded within domestic environments, where they organise everyday practices through data extraction, algorithmic coordination, and infrastructural connectivity. The home emerges as a critical site through which platform urbanism is reproduced and expanded. Pet technologies make this particularly visible by revealing how platform-mediated infrastructures operate within intimate, affective, and multispecies contexts, extending urban processes into domains that have been relatively under-examined.

Second, the analysis highlights a reconfiguration of care as an infrastructural and partially automated process. Practices that have traditionally been understood as relational, embodied, and situational are mediated through systems that sense, interpret, and intervene. In the case of pet care, this involves delegating routine tasks to automated devices, continuously monitoring behaviour via sensors, and coordinating responses through platform interfaces. Care becomes distributed across human and technical actors, with responsibilities reallocated between direct interaction and system configuration. This shift does not eliminate care but transforms its conditions, embedding it within infrastructures that operate according to logics of standardisation, optimisation, and responsiveness. These developments resonate with

broad transformations in digitally mediated environments, where care practices are shaped by data-driven systems and platform architectures.

Third, the paper points to the emergence of new forms of multispecies governance grounded in datafication and platform integration. Companion animals are incorporated into infrastructures that render their behaviour measurable, analysable, and actionable. Data generated within the home circulate across platforms, enabling new forms of coordination between households, service providers, and commercial actors. This creates the conditions for governance that operates not only through direct regulation or spatial control but through continuous monitoring, predictive analysis, and automated intervention.

Critically, the significance of these developments lies in the emergence of interconnected infrastructural systems organised through continuous data circulation, platform interoperability, and subscription-based service models. Important here are their integration with wider urban domains including housing, insurance, veterinary provision, and smart-home environments. Pet technologies operate as components within distributed socio-technical ecosystems that coordinate sensing, behavioural monitoring, automated intervention, and commercial service integration across multiple scales. It is this capacity for ongoing operational coordination, data integration, and infrastructural dependency that justifies understanding contemporary pet technologies as part of the broader extension of platform urbanism into domestic and multispecies environments.

In contexts such as Australia, digital pet profiles and behavioural monitoring systems are implicated in rental governance, where “pet resumes” and digitally mediated demonstrations of responsible ownership are mobilised within highly competitive housing markets. Here, platform-mediated pet data become entangled with broader urban questions of housing access, regulation, and domestic legitimacy (Power, 2008). In this sense, pet technologies exemplify a broader shift towards forms of governance that operate through distributed infrastructures and algorithmic systems, extending into the domain of human–animal relations.

These developments also connect to wider debates in digital ecology, which focus on how environments are increasingly mediated by sensors, data, and platforms. While much of this work has focused on large-scale environmental systems, the analysis here suggests that similar dynamics are unfolding within domestic settings, where animals, technologies, and environments are brought into new forms of relation. The home can thus be understood as a site of digitally mediated ecological interaction, where multispecies relations are reorganised through infrastructures of sensing and control.

For instance, beyond the household, pet technologies increasingly intersect with wider forms of urban ecological governance. In Australian cities, for example, GPS-enabled cat containment systems, geofenced monitoring applications, and wildlife-sensitive tracking technologies are promoted as part of broader efforts to reduce predation on native species and regulate animal mobility across suburban environments (Hall et al., 2016; van Eeden et al., 2021). Here, pet technologies operate as components within distributed socio-technical systems that connect domestic sensing infrastructures to biodiversity governance, environmental management, and platform-mediated forms of behavioural coordination. Companion animals thus become incorporated into digitally mediated forms of urban ecological governance operating across domestic, municipal, and environmental scales, where movement, containment, environmental responsibility, and acceptable forms of multispecies cohabitation are monitored, assessed, and governed through data-driven systems (Crowley et al., 2020; Gabrys, 2016). More broadly, these developments reflect the growing incorporation of companion animals into urban environmental governance regimes associated with wildlife protection, ecological management, and the regulation of more-than-human urban relations (Gramza et al., 2016; Loss et al., 2013).

At the same time, the analysis raises a set of tensions and limitations that warrant further investigation. The reliance on continuous sensing

and data extraction introduces new forms of visibility and surveillance into domestic life, potentially reshaping expectations of responsible care and oversight (Harper, Mehrnezhad and Leach, 2022; Office of the Australian Information Commissioner, 2020). Automation may stabilise routines but can also standardise practices in ways that do not fully account for the variability of animal behaviour. Platform integration creates new connections and services but also embeds domestic life within corporate infrastructures that operate according to proprietary logics and commercial interests. These developments also reflect broader dynamics of platform capitalism in which intimate behavioural data become incorporated into systems of commercial extraction, predictive analytics, and infrastructural dependency (Srnicek, 2017). These dynamics point to uneven and potentially contested forms of infrastructuralisation, where the benefits of enhanced monitoring and coordination are accompanied by new dependencies and forms of control.

While a full exploration of these tensions lies beyond the scope of this paper, they indicate important directions for future research, including the role of breakdown, malfunction, and resistance within domestic platforms, as well as the uneven distribution of access to and benefits from these technologies. More broadly, they suggest a critical examination of how multispecies relations are being reconfigured through digital infrastructures and how these processes intersect with questions of power, governance, and inequality in urban contexts.

In summary, when taken together, these developments suggest that companion animals function as infrastructural intermediaries through which domestic environments, platform systems, housing markets, and urban ecological governance become interconnected. Pet technologies reveal how platform urbanism is no longer confined to the governance of human mobility, consumption, and service provision. Instead, it increasingly operates through the management of multispecies domestic life. In situating these developments within urban and digital scholarship, the paper contributes to a more comprehensive account of how platform urbanism operates across scales and species, reshaping the organisation of everyday life in contemporary cities.

6. Conclusion

This paper has argued that contemporary pet technologies offer a distinctive lens for understanding the extension of platform-based infrastructures into the domestic sphere and across multispecies relations. Conceptualising these systems as *pet-as-platform*, the analysis has shown how companion animals are enrolled within infrastructures of sensing, automation, and integration that operate within the home while connecting to wider urban systems.

The central contribution of the paper is to reposition the home as an infrastructural node within platform urbanism. Domestic space emerges as an active component of distributed socio-technical systems through which data are generated, interventions are coordinated, and governance is enacted. Pet technologies make this particularly visible by extending these processes into multispecies domains, revealing how platform logics are reshaping human practices as well as the organisation of animal life.

In doing so, the paper has also reconceptualised pet care as an infrastructural process. Practices that have traditionally been understood as relational and embodied are mediated through devices and platforms that sense behaviour, automate intervention, and connect to external services. Care becomes distributed across human and technical actors, embedded within systems that operate through data-driven logics and algorithmic coordination. This reconfiguration highlights the growing importance of digital infrastructures in shaping everyday practices within the home.

Finally, the analysis has demonstrated how companion animals are incorporated into emerging forms of multispecies governance. Through continuous monitoring, data circulation, and platform integration, animal life is rendered visible, analysable, and actionable within distributed systems that extend beyond the household. These developments

point to a broader transformation in how care, control, and responsibility are organised, as multispecies relations are reconfigured through infrastructures that operate across domestic and urban scales.

Taken together, these arguments suggest that understanding contemporary urbanisation requires closer attention to how platform-based infrastructures are extending into intimate and multispecies domains. Pet technologies, while seemingly marginal, reveal how the boundaries between the domestic and the urban, the human and the non-human, and care and control are being reworked through digital systems. Future research should continue to examine how these processes unfold across different contexts, particularly in relation to questions of inequality, access, and the governance of datafied forms of life.

CRedit authorship contribution statement

Simon Marvin: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

I would like to thank friends, colleagues, and retailers who informally shared their experiences purchasing, using, and selling pet tech. Thanks also to Sophia Maalsen and Robyn Dowling for stimulating and helpful discussions on pet tech. I am also grateful to two reviewers for their engaged, generous, and constructively critical comments that significantly improved the paper. Any remaining errors are my own.

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

- Amin, A. (2014). Lively infrastructure. *Theory, Culture & Society*, 31(7–8), 137–161.
- Aquilani, C., Confessore, A., Bozzi, R., Sirtori, F., & Pugliese, C. (2022). Precision livestock farming technologies in pasture-based livestock systems: A review. *Animal*, 16(1), Article 100429.
- Barua, S. (2021). Infrastructure and nonhuman life: A wider ontology. *Progress in Human Geography*, 45(6), 1467–1489.
- Beer, D. (2019). *The data gaze: Capitalism, power and perception*. London: Sage.
- Cox, A. L., Gollins, T., & Harding, M. (2023). Security and privacy in pet technologies: User perceptions versus technical realities. *Frontiers in the Internet of Things*, 2, Article 1281464.
- Crowley, S. L., Cecchetti, M., & McDonald, R. A. (2020). Our wild companions: Domestic cats in the Anthropocene. *Trends in Ecology & Evolution*, 35(6), 477–483.
- van Eeden, L. M., Hames, F., Geschke, A., Squires, Z. E., & McLeod, E. M. (2021). Putting the cat before the wildlife: Exploring cat owners' beliefs about cat containment as predictors of owner behavior. *Conservation Science and Practice*, 3(10), Article e502.
- Gabrys, J. (2016). *Program earth: Environmental sensing technology and the making of a computational planet*. Minneapolis: University of Minnesota Press.
- Gandy, M. (2023). Zoonotic urbanisation: Multispecies urbanism and the rescaling of urban epidemiology. *Urban Studies*, 60(13), 2529–2549.
- Gillespie, T. (2018). *Custodians of the internet: Platforms, content moderation, and the hidden decisions that shape social media*. New Haven: Yale University Press.
- Gramza, A., Teel, T., VandeWoude, S., & Crooks, K. (2016). Understanding public perceptions of risk regarding outdoor pet cats to inform conservation action. *Conservation Biology*, 30(2), 276–286.
- Grand View Research. (2025). *Pet tech market size, share & trends analysis report by product (smart cameras, smart feeders, smart collars), by application, by region, and segment forecasts, 2025–2030*. San Francisco, CA: Grand View Research.
- Hall, C. M., Adams, N. A., Bradley, J. S., Bryant, K. A., Davis, A. A., Dickman, C. R., ... Calver, M. C. (2016). Community attitudes and practices of urban residents regarding predation by pet cats on wildlife: An international comparison. *PLoS One*, 11(4), Article e0151962.
- Haraway, D. J. (2008). *When species meet*. Minneapolis: University of Minnesota Press.
- Harper, S., Mehrnezhad, M., & Leach, M. (2022). *Security and privacy concerns of pet tech users*. Proceedings of the 12th international conference on the internet of things (pp. 1–7). New York: ACM.
- Holloway, L., & Bear, C. (2017). Bovine and human becomings in histories of dairy technologies: Robotic milking systems and remaking animal and human subjectivity. *BJHS Themes*, 2, 215–234.
- Houston, D., Hillier, J., MacCallum, D., Steele, W., & Byrne, J. (2018). Make kin, not cities! Multispecies entanglements and 'becoming-world' in planning theory. *Planning Theory*, 17(2), 190–212.
- Kirksey, S. E., & Helmreich, S. (2010). The emergence of multispecies ethnography. *Cultural Anthropology*, 25(4), 545–576.
- Kitchin, R. (2014). *The data revolution: Big data, open data, data infrastructures and their consequences*. London: Sage.
- Kitchin, R. (2015). Making sense of smart cities: Addressing present shortcomings. *Cambridge Journal of Regions, Economy and Society*, 8(1), 131–136.
- Langley, P., & Leyshon, A. (2017). Platform capitalism: The intermediation and capitalisation of digital economic circulation. *Finance and Society*, 3(1), 11–31.
- Leszczynski, A. (2019). Glitchy vignettes of platform urbanism. *Environment and Planning D: Society and Space*, 37(6), 1149–1167.
- Lorimer, J. (2015). *Wildlife in the Anthropocene: Conservation after nature*. Minneapolis: University of Minnesota Press.
- Loss, S. R., Will, T., & Marra, P. P. (2013). The impact of free-ranging domestic cats on wildlife of the United States. *Nature Communications*, 4, 1396. <https://doi.org/10.1038/ncomms2380>
- Lupton, D. (2016). *The quantified self: A sociology of self-tracking*. Cambridge: Polity.
- Maharajpet, S., Likhitha, P., & Pooja, T. S. (2024). A review on wearable devices for animal health monitoring. *East African Scholars Journal of Engineering and Computer Sciences*, 7(2), 7–12.
- Mattern, S. (2017). *Code and clay, data and dirt: Five thousand years of urban media*. Minneapolis: University of Minnesota Press.
- Morgan Stanley. (2024). *The global pet economy: Investment, Platformisation and consumer growth trends*. New York: Morgan Stanley Research.
- Office of the Australian Information Commissioner. (2020). *Voluntary code of practice: Securing the internet of things for consumers*. Canberra: OAIC.
- Parikka, J. (2016). *A geology of media*. Minneapolis: University of Minnesota Press.
- Philo, C., & Wilbert, C. (Eds.). (2000). *Animal spaces, beastly places: New geographies of human-animal relations*. London: Routledge.
- Pink, S., Leder Mackley, K., Morosanu, R., Mitchell, V., Bhamra, T., Arnold, M., ... Gorkovenko, K. (2017). *Making homes: Ethnography and design*. London: Bloomsbury.
- Pink, S., Sumartojo, S., Lupton, D., & Heyes LaBond, C. (2017). Mundane data: The routines, contingencies and accomplishments of digital living. *Big Data & Society*, 4(1), 1–12.
- Plantin, J.-C., Lagoze, C., Edwards, P. N., & Sandvig, C. (2018). Infrastructure studies meet platform studies in the age of Google and Facebook. *New Media & Society*, 20(1), 293–310.
- Power, E. (2008). Furry families: Making a human-dog family through home. *Social & Cultural Geography*, 9(5), 535–555.
- Puig de la Bellacasa, M. (2017). *Matters of care: Speculative ethics in more than human worlds*. Minneapolis: University of Minnesota Press.
- Rent.com.au. (2018). Pet Resume passes 100,000 milestone. <https://investors.rent.com.au/irm/PDF/dad3e5dc-9705-433e-8cfc-42114ea00e44/PetResumepasses100000milestone> (Accessed: 25 May 2026).
- Rent.com.au. (2026). Understanding Pet Resume. <https://www.rent.com.au/agents/blog/understanding-pet-resume/> (Accessed: 25 May 2026).
- Smart Pets Home. (2026). A wonderful reinvented smart pet house. <https://www.smartpethome.com/blog/a-wonderful-re-invented-smart-pet-house/> (Accessed: 25 May 2026).
- Srnicek, N. (2017). *Platform capitalism*. Cambridge: Polity.
- Star, S. L., & Ruhleder, K. (1996). Steps toward an ecology of infrastructure: Design and access for large information spaces. *Information Systems Research*, 7(1), 111–134.
- Strengers, Y., & Nicholls, L. (2017). Convenience and energy consumption in the smart home. *Environment and Planning A*, 49(2), 321–340.
- Striphas, T. (2015). Algorithmic culture. *European Journal of Cultural Studies*, 18(4–5), 395–412.
- Tuohy, J. (2024). *Smart home tech for pets: What works and what doesn't*. The Verge. <http://www.theverge.com/24074059/smart-home-pet-tech-tips-gadgets-solutions> (Accessed: 10 May 2026).
- Wolch, J., & Emel, J. (Eds.). (1998). *Animal geographies: Place, politics, and identity in the nature-culture borderlands*. London: Verso.