ETHICS IN IOT

THE MVP FOR SMART SOCIAL HOMES

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Marty Cagan, another industry giant encourages his teams to ask "Should we build this?"

What is IoT?

Why IoT?

“Ethics comes before the rules, during the rules and after the rules.”

Professor Luciano Floridi, Digital Ethics Lab - University of Oxford

What is ethics?

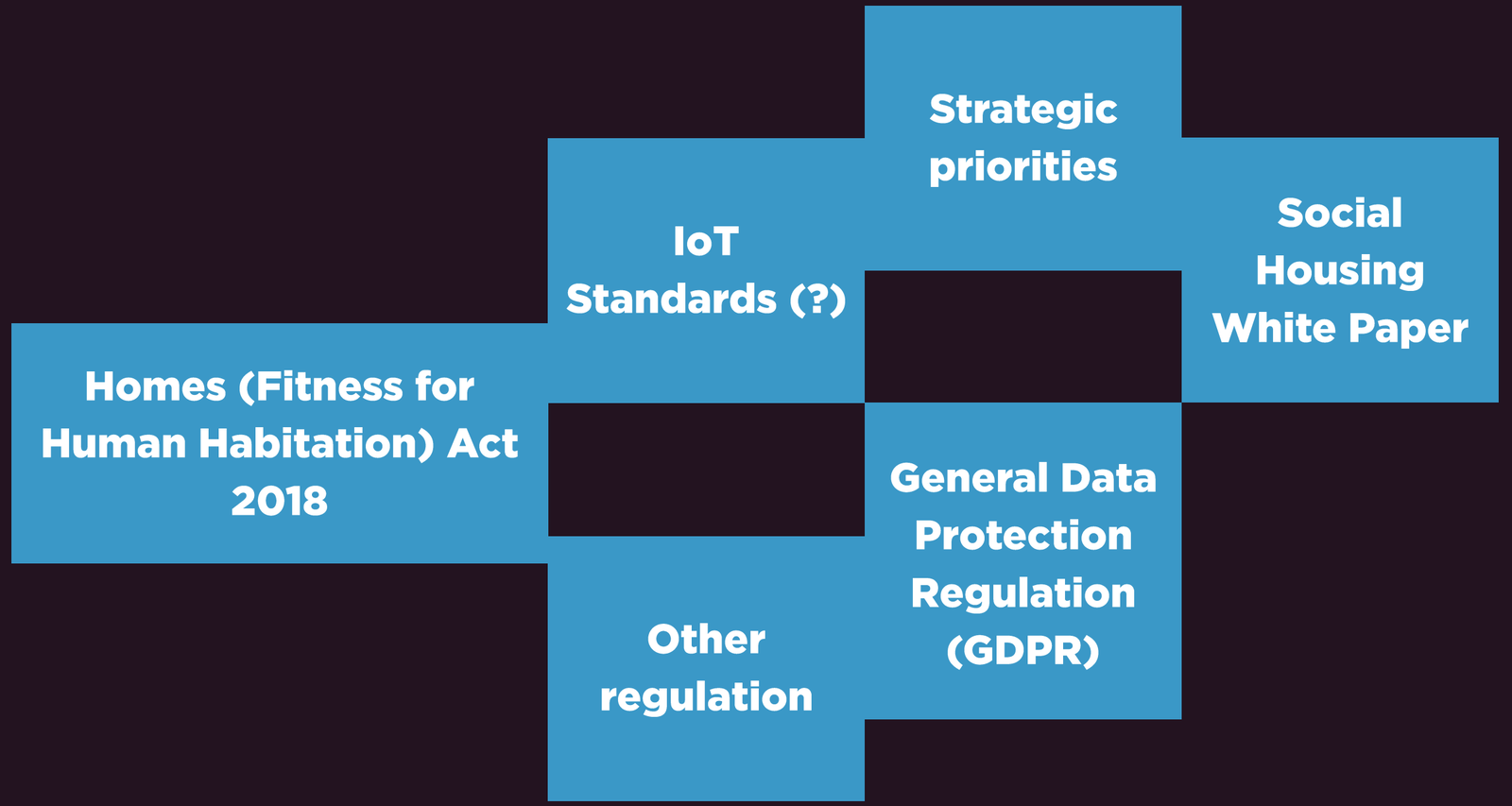
A system of moral principles that guides individuals or groups

Asks questions about what is right and wrong

Rights & responsibilities

Informs decision making

Areas where ethics come into play today



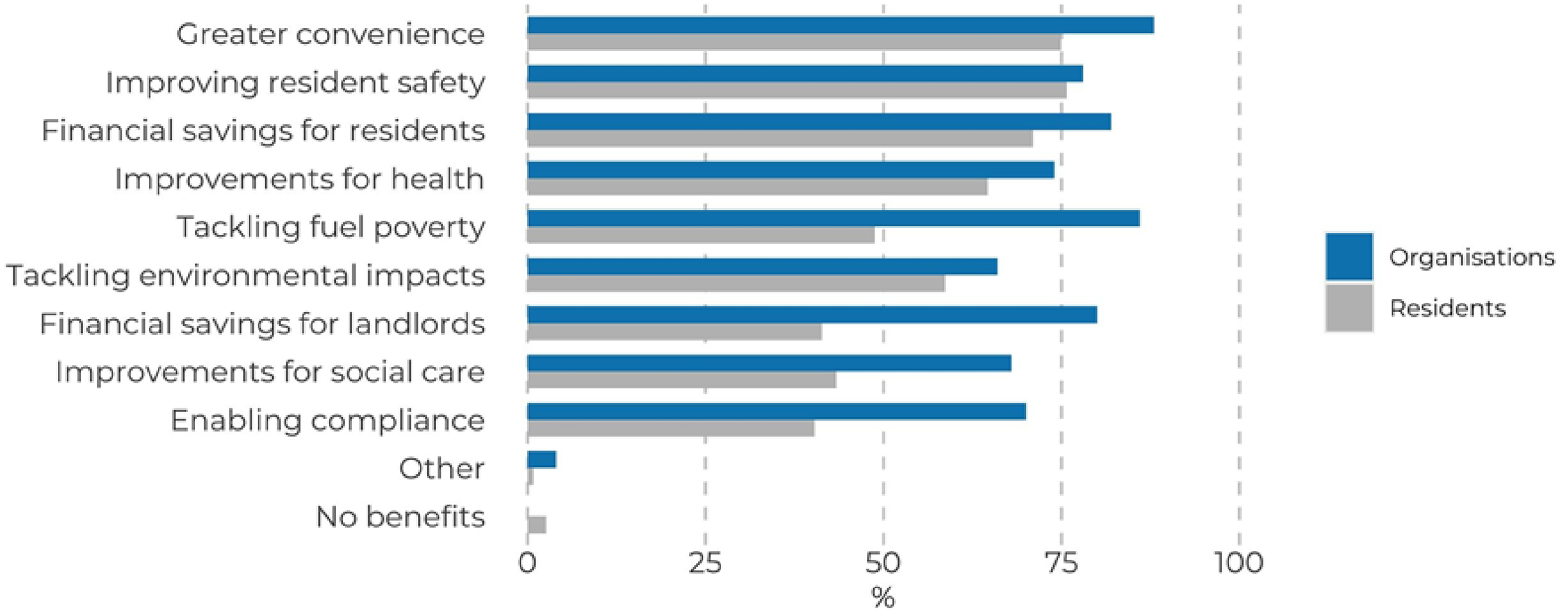
Research Findings

Connected & Fair: Ethical IoT for Social Housing

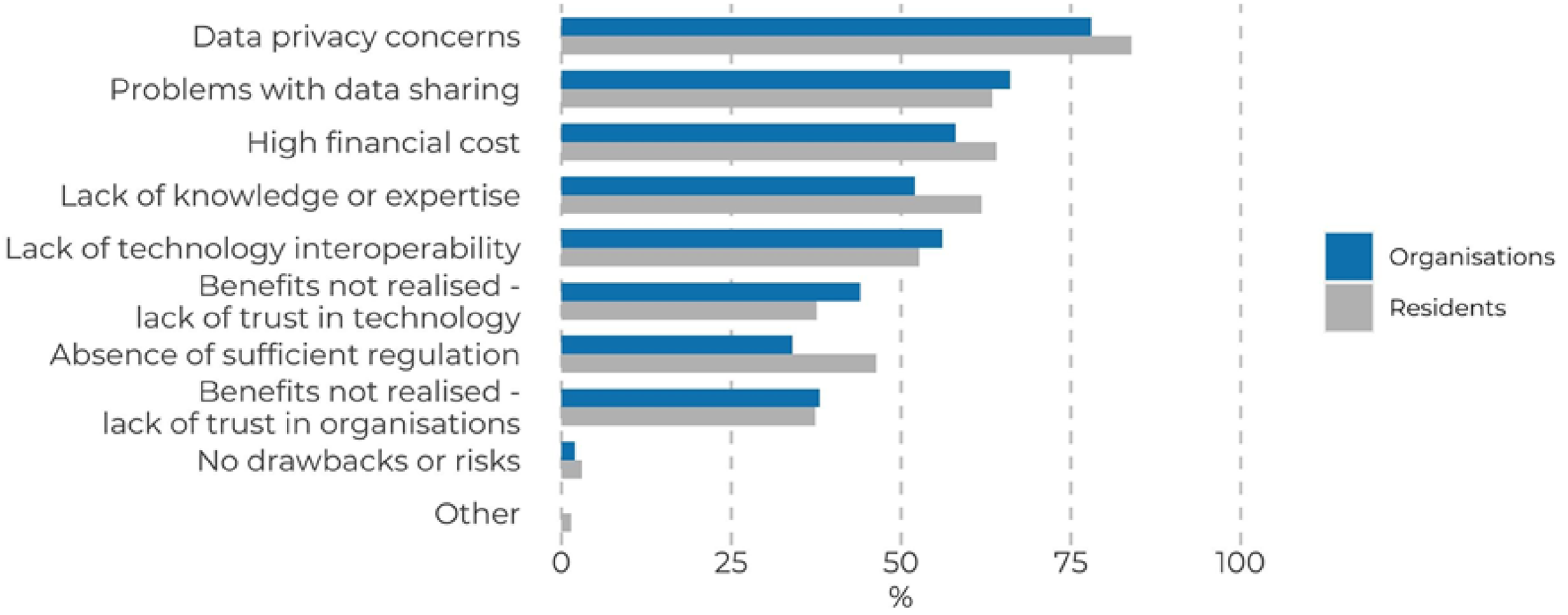
500+
Social Residents

50
Industry Stakeholders

Connected Home Benefits

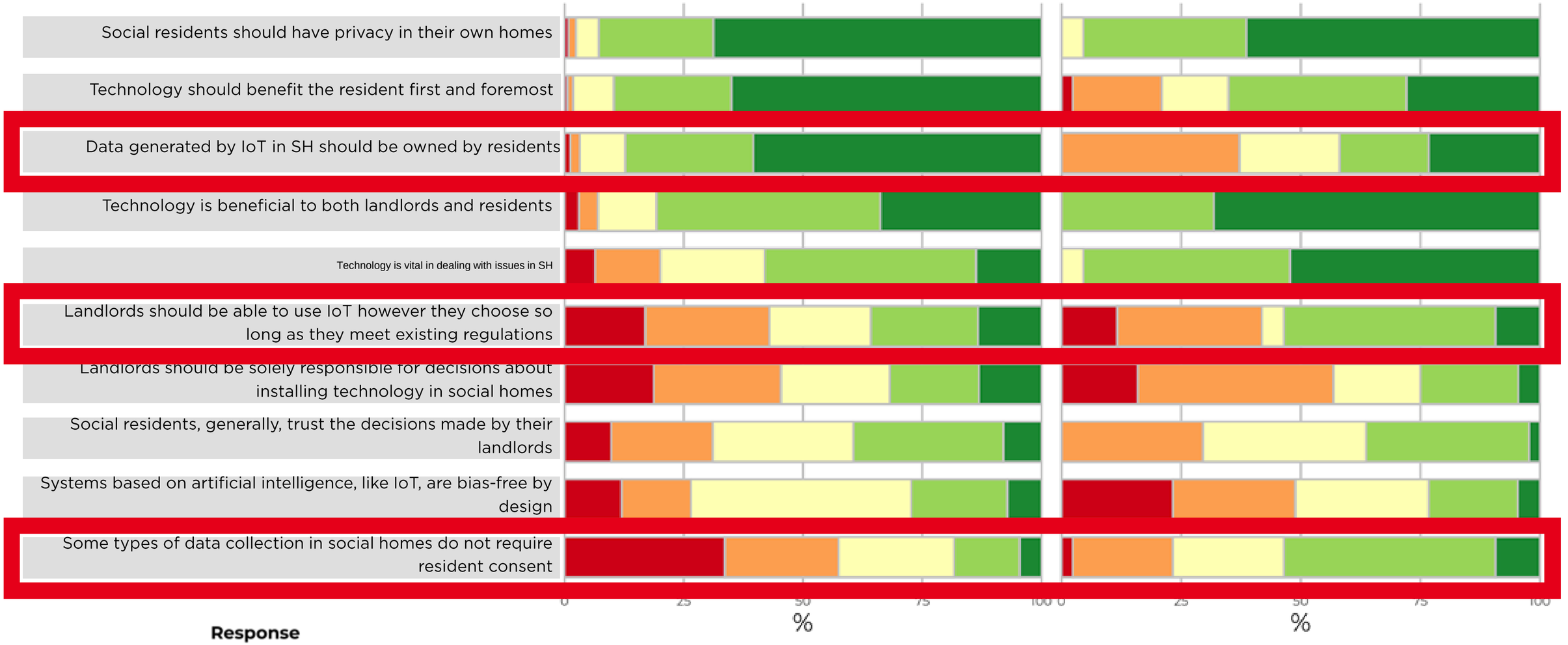


Connected Home Risks



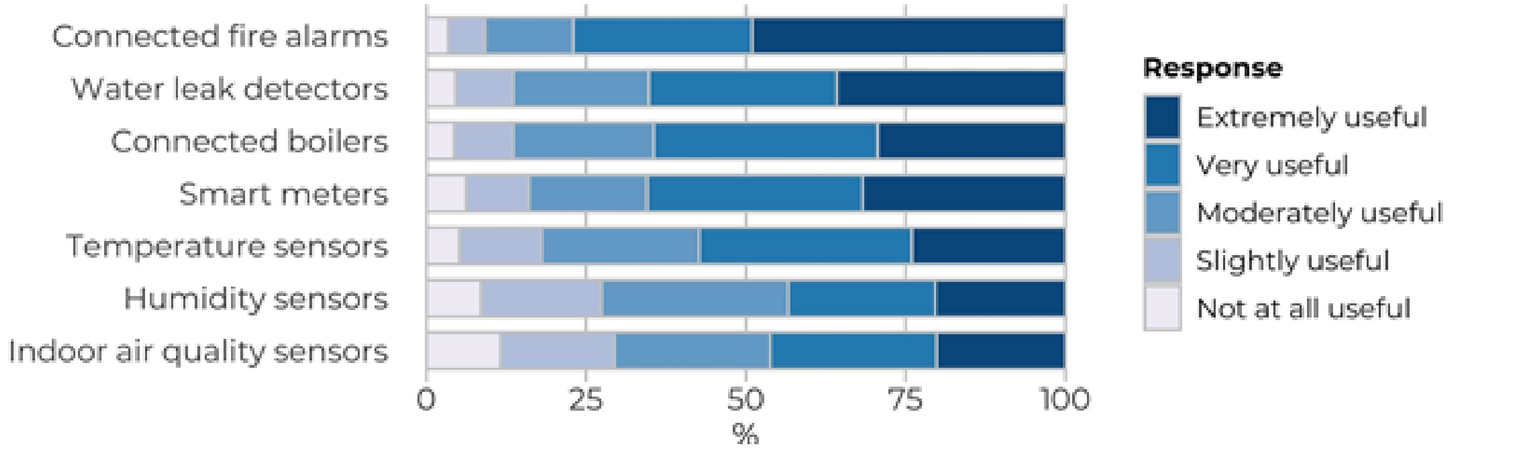
Social Residents

Stakeholders

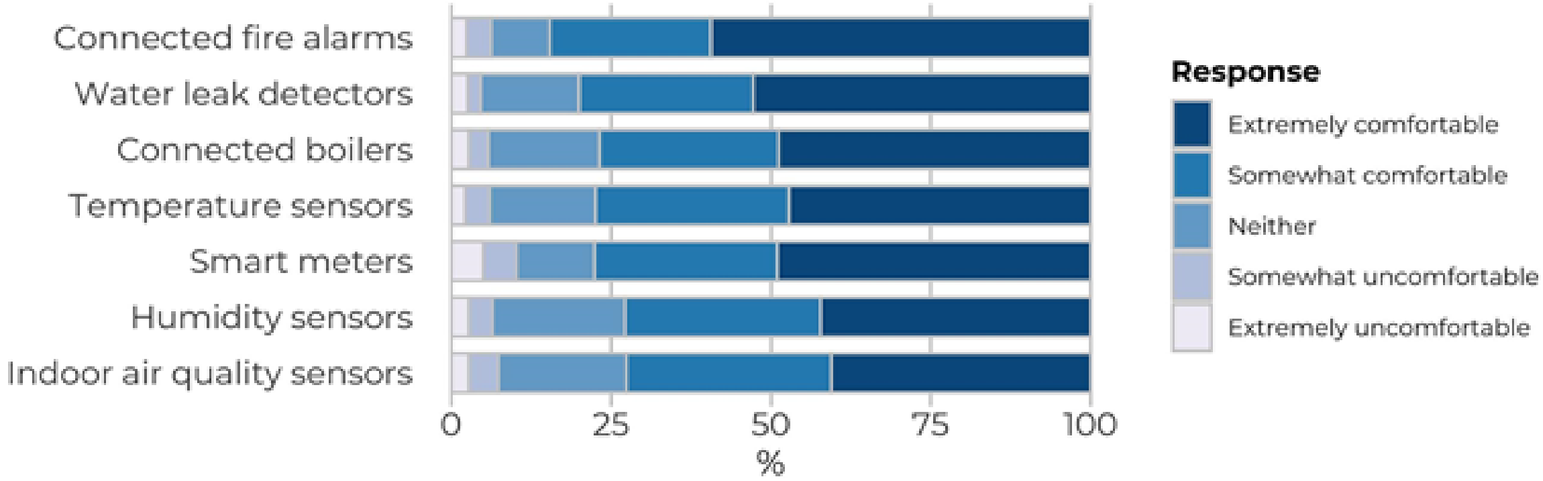


Resident Acceptance

Usefulness



Comfort with technology



Resident Acceptance

Convenience

Compatibility with existing lifestyle

Risk

Ease of use

Trust in governance

Autonomy

Gender

Age

Social acceptance is important, but it's not enough.

Taebi (2016) argues that while social acceptance is an important aspect of technological advancement, it cannot fully account for the ethical dimensions that arise when new technologies are introduced into, and have profound effects upon, people's lives.

Ethical Framework

Resident Privacy 

Fairness, Equity & Non-discrimination 

Improving Human Welfare 

Avoiding Misuse of Data 

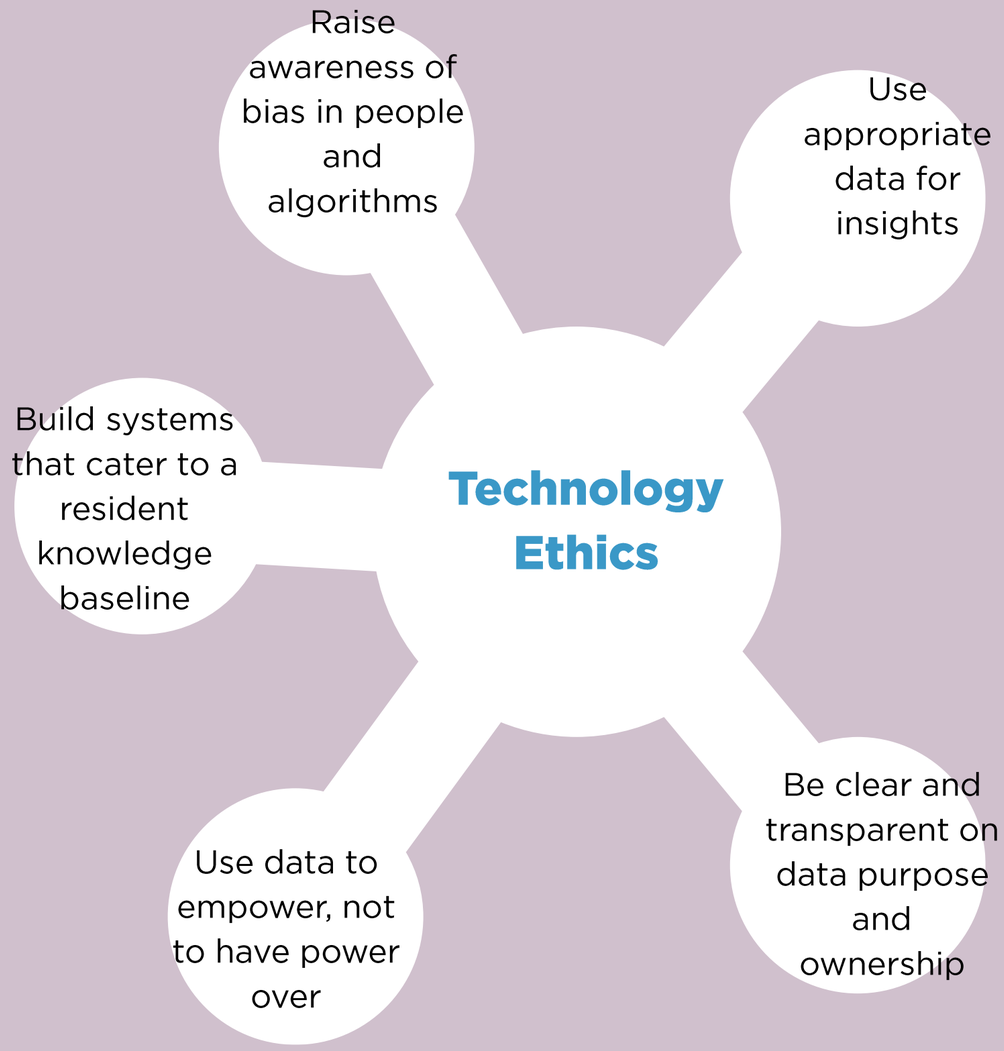
Public Awareness & Knowledge 

Cybersecurity 

Transparency & Explainability 

Autonomy 

Key Recommendations



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Extras

Ethical Principles

Resident Privacy

•What data are collected, how are they stored and used, how is consent obtained?

•How can we protect our personal information whilst using it to benefit from technological innovation?

•Decision making processes in social housing obscure the situation – who should be included and how are final decisions made and implemented?

•Article 8 of the Human Rights Act 1998:

Everyone has “the right to respect for [their] private and family life, [their] home and [their] correspondence”.

Fairness, Equity & Non-discrimination

•Risk reinforcing deeply entrenched social inequality

•How do we ensure fair access and opportunity?

•How do we ensure those who participate are not disadvantaged by their choice?

•Need to acknowledge and find new ways to address technical bias embedded within algorithms

Ethical Principles

Improving Human Welfare

•Primary purpose should be to improve people's lives, best interests of those affected

•Broad-scale benefits vs individual circumstances

•Use IoT and AI as tools for decision-making, rather than using them to make decisions for us

•Difficulties with programming concepts e.g. compassion, empathy, fairness, etc

•Sustainability – use technology in a way that does not reduce the capacity of future generations to meet their needs

Avoiding Misuse of Data

•Ensure data are used solely for the reason intended, and clearly articulate the purpose for collecting data

•Need for trust between landlords and residents

•Robust data management and use, minimise risk of malpractice

•Use anonymization and data aggregation to eliminate utility of data for other use and reduce risk of misuse

Ethical Principles

Public Awareness & Knowledge

•There is a lack of public knowledge of digital technologies and how they operate

•Difference in knowledge levels between and within groups

•Need greater levels of literacy in topics such as data generation, collection, analysis, use, ownership, security

•Empower individuals to make better informed judgements about if and how they participate, and how to act responsibly

Cybersecurity

•Our online selves need to be confident in the spaces we inhabit and that our information is being used in ways that won't cause us harm

•In settings where unequal power distribution exists, feeling secure is of even greater importance

•Digital technologies are opening up increasing numbers of online spaces, leading to more possibility of exposure to malicious threats

•Robust measures to enhance cybersecurity of greater importance where users have limited control

Ethical Principles

Transparency & Explainability

•Behaving in a transparent manner and ensuring intention and purpose are clearly communicated can contribute to building trust

•Clear information on benefit and risk, ensuring residents have adequate information can enhance transparency

•Explainability refers to the extent to which we can understand how a system produces a certain output

•Enables us to map different parts of the process to relevant areas of policy, regulation and ethics

Autonomy

•Technology can enable and enhance autonomy

•Must ensure we use technology to empower people rather than having power over them

•Ownership of data may play a key role in empowering people and treating them as autonomous individuals

Scepticism: Why people are against IoT

“Disreputable landlords abusing tenants via technology, e.g. keeping heating too low, using stats to disguise disrepair, blaming tenants for damp caused by disrepair etc”

“Most people are fully capable of adjusting their heating etc as required. This technology is fine for incompetent people... who should be looked after in care homes!”

“What is all this technology doing to our health?”

“Extra environmental impact”

“The landlord will have their own agenda and tenants will be powerless”

What is ethical practice?

1.Beneficence - “How can we do good?”

2.Non-maleficence -“How do we avoid doing harm?”

3.Autonomy - “How do we preserve human agency?”

4.Justice - “How do we ensure fairness and equity?”

5.Explainability -“Is what we’re doing understandable?”