

“It’s the Company, the Government, You, and I”: User Perceptions of Responsibility for Smart Home Privacy and Security

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Smart home devices commonly attacked

TECHNOLOGY

Millions of homeowners exposed after sn

Forbes

Wyze Labs, a startu
confirmed a data bi

Jul 2, 2019, 08:13am EDT | 190,983 views

Confirmed: 2 Billion Records Exposed In Massive Smart Home Device Breach

<https://www.forbes.com/sites/daveywinder/2019/07/02/confirmed-2-billion-records-exposed-in-massive-smart-home-device-breach/>

<https://www.inman.com/2019/12/30/millions-of-homeowners-exposed-after-smart-home-camera-data-leak/>

Privacy violations often make the news

'Alexa, are you invading my privacy?' – the dark side of our voice assistants



Amazon's Alexa Never Stops Listening to You. Should You Worry?

PUBLISHED AUGUST 8, 2019

<https://www.theguardian.com/technology/2019/oct/09/alexa-are-you-invading-my-privacy-the-dark-side-of-our-voice-assistants>
<https://theconversation.com/amazon-echos-privacy-issues-go-way-beyond-voice-recordings-130016>
<https://www.nytimes.com/wirecutter/blog/amazons-alexa-never-stops-listening-to-you/>

Users struggle to configure them

10 Ways to Strengthen Alexa Privacy and Security

By Pa **How to Use Ring's Control Center for Better Privacy and Security**

CR explains how to use the Control Center settings, including the ability to opt out of law enforcement video requests

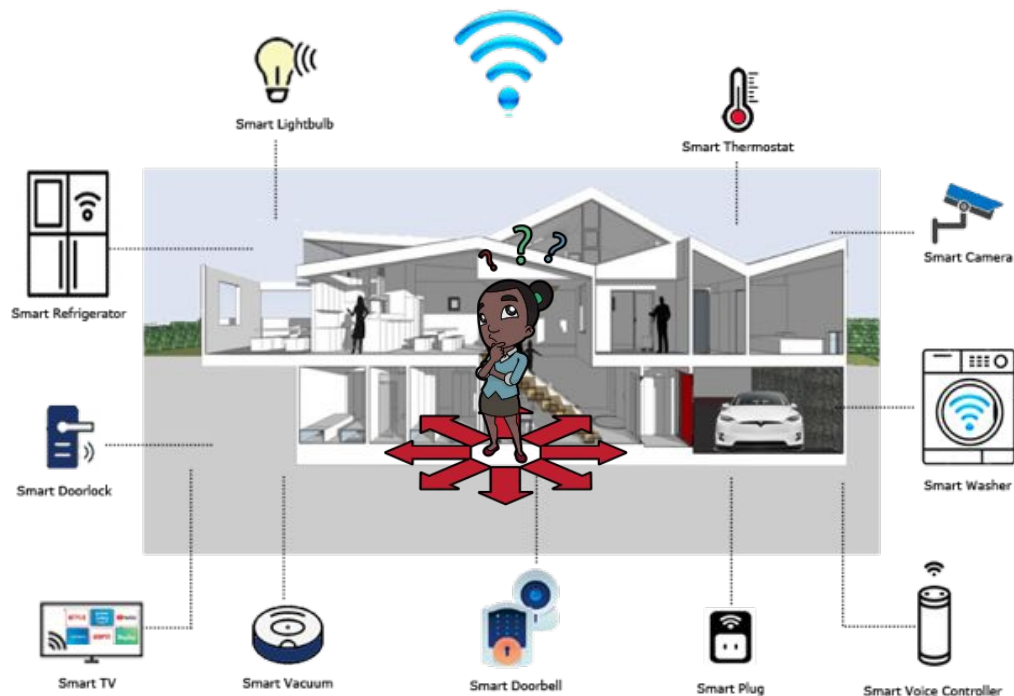
keep your

privacy

Update your Amazon Alexa settings to make your smart speaker a bit more secure.

<https://www.consumerreports.org/digital-security/how-to-use-ring-doorbell-control-center-privacy-security/>
<https://www.dummies.com/consumer-electronics/smart-devices/10-ways-to-strengthen-alexa-privacy-and-security/>
<https://www.cnet.com/home/smart-home/how-to-use-an-alexa-smart-speaker-and-keep-your-privacy/>

Common research: User configurations



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But what do users think who should do this?

RQ 1: Who do users think is **responsible** for the privacy and security of their smart home devices?

RQ 2: What is the **relationship**, if any, between perceptions of responsibility, concern, and taking mitigative action?

Methodology

Purposive sampling

Requirements: active users of at least 2 smart home devices

40 participants, mainly in DMV metro area

Variation in age, gender (22 men, 18 women)

Semi-structured interviews

Questions about

- concerns,
 - mitigations,
 - responsibility
- for smart home device security and privacy

Qualitative analysis

Qualitative, inductive and deductive coding

Came up with themes for responsibility

Discussed implications grounded in our data

Results

Concerns & Mitigations

- Majority had at least some concerns about the security & privacy of their devices
- BUT, roughly a third were not concerned
- Most mitigations were simplistic or non-technical in nature



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Concern doesn't necessarily translate into action



It's a tradeoff.



**I don't know if or
how I can.**



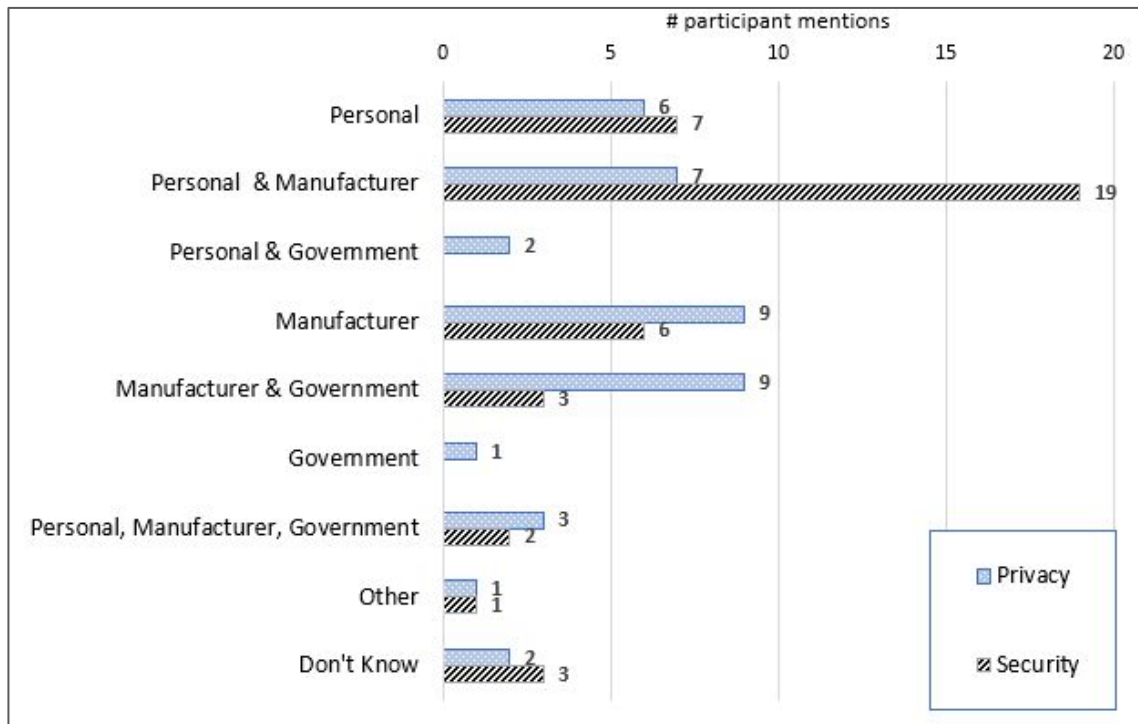
**Everything's
already out there.**

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Responsibility

Who do you think is **responsible** for protecting the **privacy** of information collected by your smart home devices?

Who do you think is **responsible** for the **security** of your devices?



Responsibility: Personal/Users

Privacy: 18 **Security: 28**

Accountability for accepting risk

If you don't want your stuff exposed, you shouldn't have those devices in your home to begin with. (P35_A)

Justification for inaction

I'm not going to educate myself on network security...I'm very accepting to the fact that it is what it is. (P8_A)

Active, obligatory role

I feel like the default is always full access, so you have to really look for and pursue stricter settings. (P18_A)

Responsibility: Manufacturers

Privacy: 28 **Security: 30**

Obligation to consumers

They need to do everything [since they are] taking so much money for all that. (P9_A)

Some trust manufacturers

If they have a bunch of massive security breaches, people are going to stop buying their products. So, our interests are aligned there. (P17_A)

Others lack confidence

I don't have much trust in what companies say they collect and don't collect. I think they collect what they can and use it. (P10_A)

Responsibility: Government

Privacy: 15 **Security: 5**

Responsibility goes on the government to protect your citizens... There's other safety precautions put in other industries. I don't see why that shouldn't be something applied to this industry as well. (P29_A)

We've got to do something to protect people's information, or at least make them more aware of what exactly is being utilized and sold. (P31_A)

Responsibility: Shared

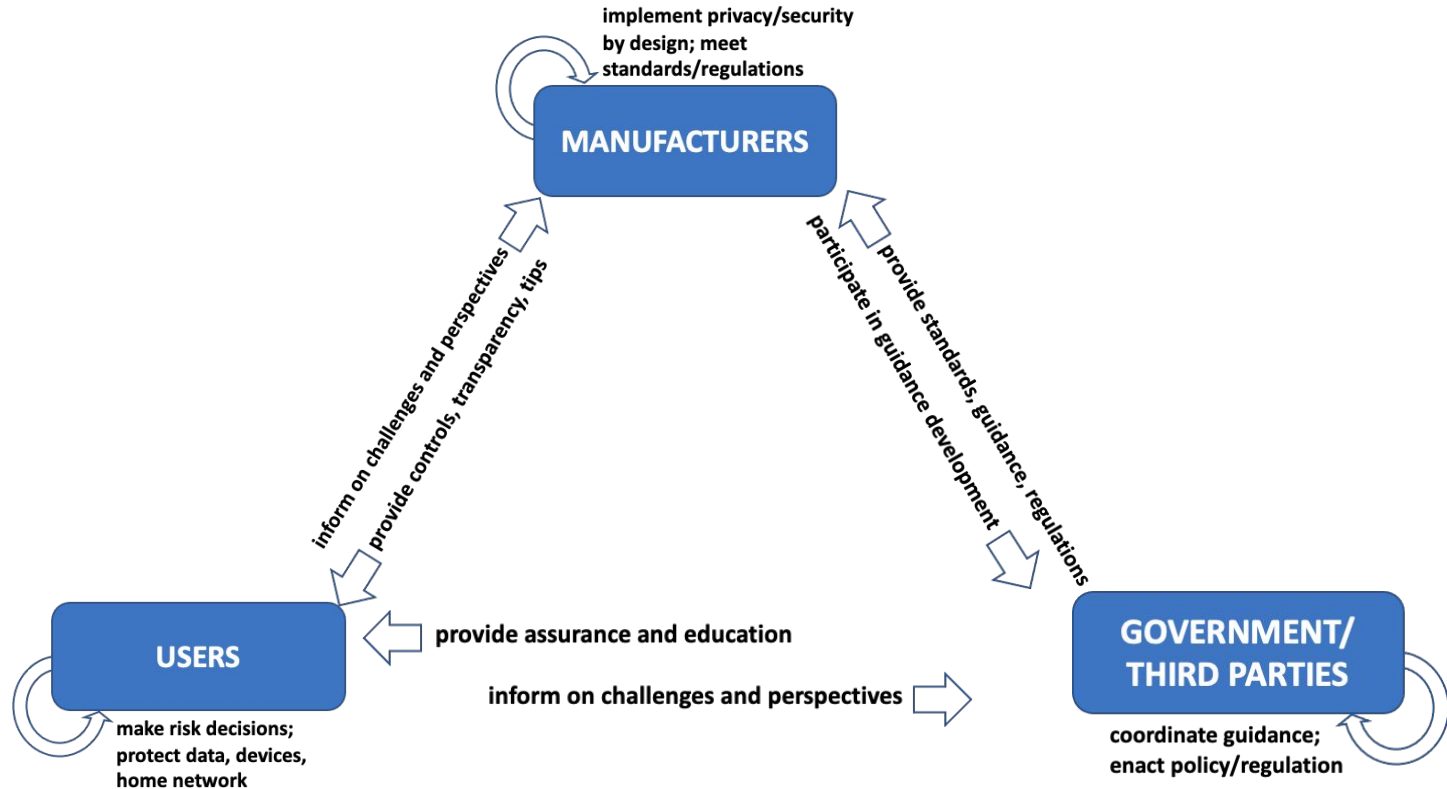
Privacy: 21 **Security: 24**

I'd like to see the vendors take more responsibility and take more action to secure their own devices. But because they don't always do that, and I don't always necessarily trust them to do that, I take it upon myself to be responsible for the security of these systems.

(P15_A)

Implications

Opportunities for Improvement

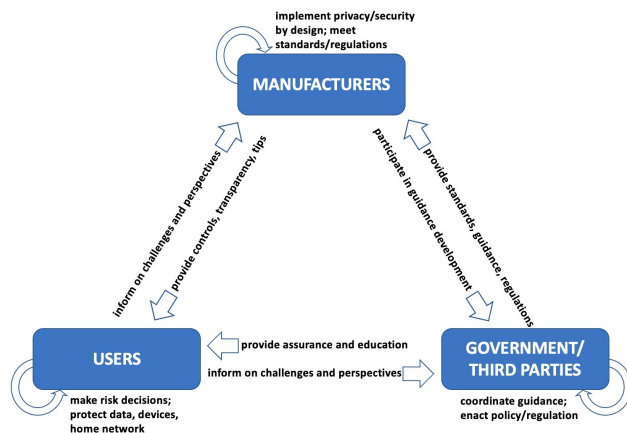


Conclusion: Smart Home Security & Privacy Responsibility

Purposive sampling

Semi-structured interviews

Qualitative analysis



Qualitative study with 40 smart home users

Responsibility shared by users, manufacturers, third parties/government.

Opportunities for collaboration and support

Thank you! Questions?