

Consumer Internet of Things Security Labelling
Survey Research Findings

Compiled by Harris Interactive

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Executive Summary

There is a fundamental need to introduce a labelling system to reassure the public that the smart devices they buy are safe and secure: security information is the third most important type of information sought during purchasing decisions. Additionally, 73% feel it is important or very important to introduce labels that highlight the security features on devices, compared to only 11% who feel this is unimportant.

Creating an effective labelling system is particularly important as the three most common disposal methods (giving to friends, keeping at home and reselling) all continue to expose consumers to cyber-attacks after manufacturers cease support.

It is vital that any label is easy to understand at a glance as there is apparent complacency on the part of consumers to seek out security information. Currently a high level of respondents (72%) believe that security features are already built into devices when they are placed on the market, particularly in the case of big name brands, and customers are unlikely to proactively seek out this information (e.g. by scanning a QR code).

Overall, the ***Icons with Text Underneath*** label is ranked highest of the four across every monadically-tested metric and is likely to be the most effective design in the marketplace.

Across all the labels tested, participants raise the interesting point that messaging suggests an “expiry date”. The challenge for DCMS will be positioning the label as an opportunity for consumers to feel informed and reassured that the device manufacturer is providing ongoing support, rather than there being a time limit on the product’s reliability.

Raising public awareness and contextualising the label is therefore vital. There are several key channels that DCMS can use to create a campaign around this including Google, TV, Facebook and word of mouth. We also recommend targeting communications through different channels for different age groups – putting a greater focus on social media for younger generations and incorporating print newspapers and consumer group publications for those aged 45+.

There is some willingness to pay a price premium for a labelled product, although this should be kept under 10% of a product’s price at maximum. There is some variation in willingness to pay according to device, for example the maximum premium for a Smart TV should be 3-4% whilst this could be as high as 10% for wearables.

The actual design of the labels appears to have little impact on the percentage price premium that consumers are likely to pay. There is one exception to this point: participants who are willing to pay a high price point for a device overall are more willing to pay a premium of 15% when seeing the ***Icons with Text Underneath*** label. This was not the case for other designs.

Background and Objectives

DCMS provided Harris Interactive with four draft label designs to gather evidence and help inform their work on seeking to ensure that the public is fully informed about the safety and security features of IoT (Internet of Things) devices. These aim to reassure the public that devices meet security standards and provide details on the minimum period for manufacturer security updates.

DCMS commissioned Harris Interactive to investigate both the **effectiveness of the labels** and **potential premium pricing for label-carrying products**. Specific research questions include:

- What information do consumers consider important when buying IoT devices?
 - How important is security information specifically?
- How effective are each of the four label designs?
 - Are the labels effective across a range of IoT devices (e.g. Smart TVs, wearable devices, internet-connected toys and smart thermostats)?
 - Are any other obvious design ideas being overlooked (e.g. QR code alternatives)?
 - What is the overall preference amongst the four labels?
- Would consumers be prepared to pay more for devices with a Government label?
- How could the labelling scheme be marketed effectively?

Methodology

To answer these questions, Harris Interactive recruited / interviewed a total of 8,607 participants. After removing those who screened out or failed quality checks, this gave a total sample of **6,482 usable completes**. These usable completes were weighted on age and gender to meet census data for UK citizens aged 16+, creating a sample which was as nationally representative as possible. In this survey, only minimal weighting was required.

Fieldwork was conducted from 29th Jan to 6th Feb 2019. Participants were recruited using the Toluna panel (owned by Harris Interactive's sister company Toluna). Panel members were recruited via email and the Toluna UK panel website, with screening questions to ensure participants were eligible for the survey. Participants were incentivised using Toluna Points, which can be collected and redeemed for cash, prizes and entry into prize draws.¹ Participants were informed of the survey's general topic and that they would be answering a range of open and closed questions around their assigned label.

Sample

The survey used a monadic design with 16 different routes. Each participant completed a route containing one of four labels and one of four different smart devices. This allowed us to test each label across the full range of devices in isolation, in order to get a more realistic measure of each label's effectiveness than via direct comparison. This also enabled us to minimise any unconscious bias in the sample by gaining isolated information on each of the

¹ Further details on Toluna Points and incentives are available at Toluna's website: <https://uk.toluna.com/Terms>

individual labels. The final number of participants who saw each label and device splits as follows:

	<u>Shield with Text Underneath</u>	<u>Shield with Text Inside</u>	<u>Icons with Text Underneath</u>	<u>Full Lozenge</u>
Label Abbreviation	Label 1	Label 2	Label 3	Label 4
Smart TV	404	405	412	406
Wearable Device	403	407	403	409
Smart Toy	405	406	403	403
Smart Thermostat	404	402	407	403

At the close of each survey, participants saw **all four label designs side-by-side** and were asked to rank them in order and provide feedback on how well they convey key information. This question was used to provide DCMS with additional feedback to help them (following the survey) with modifying the design of the labelling scheme.

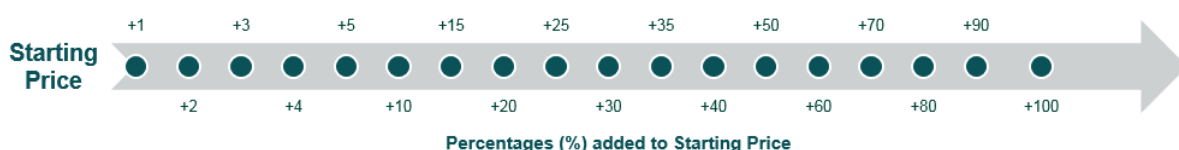
Please see the Appendix for further detail on the demographic breakdown of the sample.

Pricing Exercise Overview

Participants were initially asked to imagine they were buying one of four smart devices and to select the maximum price they would be willing to pay for this. The items / starting prices for this question were:

Device	<u>Smart TV</u>	<u>Wearable Device</u>	<u>Internet-Connected Toy</u>	<u>Smart Thermostat</u>
Starting Price 1 (Lowest)	£250 or less	£25 or less	£25 or less	£100 or less
Starting Price 2	£250-500	£25-50	£25-50	£100-200
Starting Price 3	£500-1,000	£50-100	£50-100	£200-300
Starting Price 4 (Highest)	Over £1,000	Over £100	Over £100	Over £300

Participants were then asked several times to choose between two identical products: **Brand A** (with a label) and **Brand B** (without). The price of **Brand B** remained consistent throughout the exercise, whilst the price of the labelled **Brand A** increased at percentage intervals. By analysing the point where participants choose **Brand B** over **Brand A** we can ascertain the perceived value of including a label. The intervals tested were:



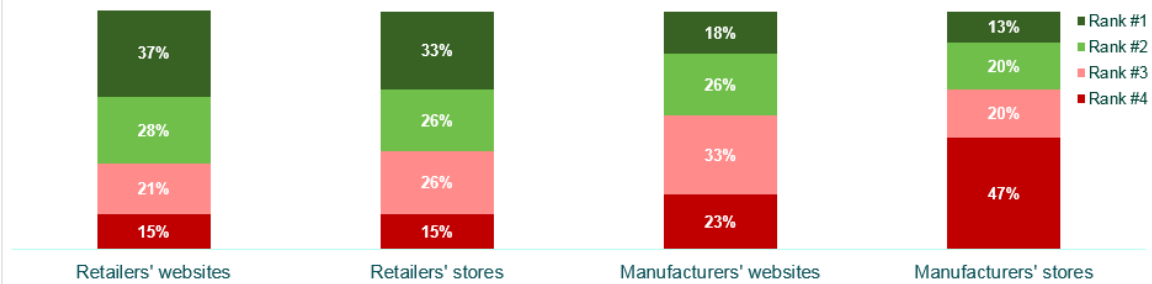
Survey Findings

Purchasing / Disposing of Smart Products

37% rank retailers' websites as their main source for purchasing smart devices, whilst a third (33%) mostly purchase from retailers' stores. Purchasing directly from manufacturers (either online or in-store) is less common².

Purchasing sources for IoT devices | Total sample

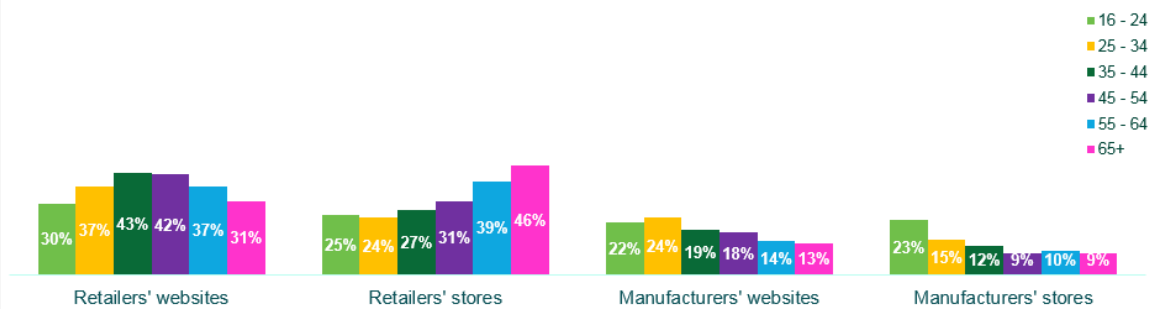
% of responses ranking options



Those aged 65+ are significantly more likely (46%) than any other age group to visit a traditional retail store when purchasing smart devices, whilst those aged 16-24 are more likely than any other group to shop at manufacturers' stores such as Apple Store³.

Purchasing sources for IoT devices | By age group

% of participants who ranked each option as top (#1)



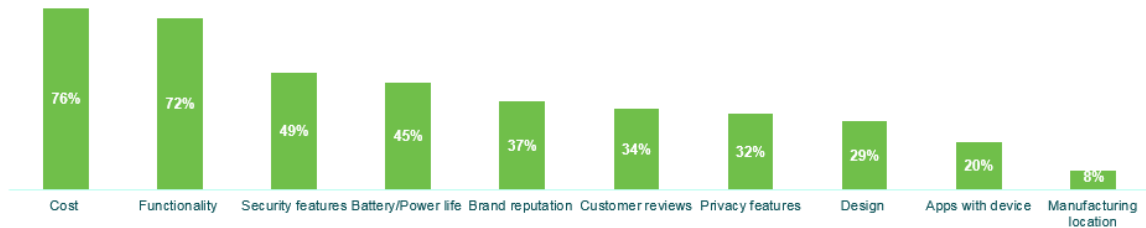
² MQ1 | Please rank the following in order of where you would be most likely to buy smart and internet-connected devices? Base | Total (6,482)

³ MQ1 | Please rank the following in order of where you would be most likely to buy smart and internet-connected devices? [Rank #1] Base | 16-24 (865), 25-34 (1,094), 35-44 (1,008), 45-54 (1,139), 55-64 (960), 65+ (1,416)

When prompted, three quarters (76%) of participants consider cost information to be important when they're buying smart devices, whilst 72% consider functionality important. Half (49%) consider security features to be important in their decision-making process⁴.

Most important info when buying IoT devices (Prompted) | Total sample

% of participants who ranked each option in their top 4



When buying Smart devices, consumers largely assume that security is already built in when the product comes to market⁵.

Importance of security features | Total sample

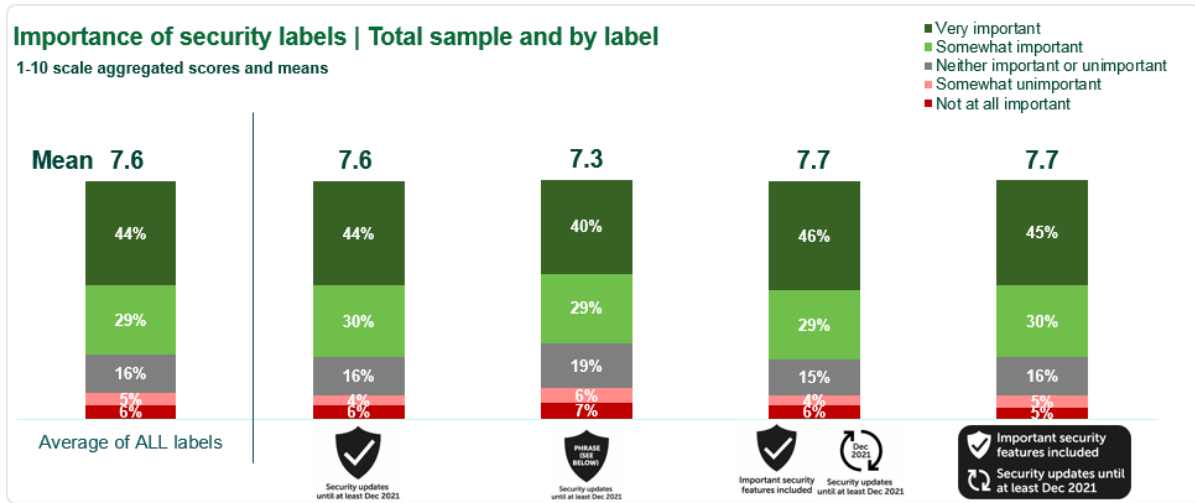
% of responses



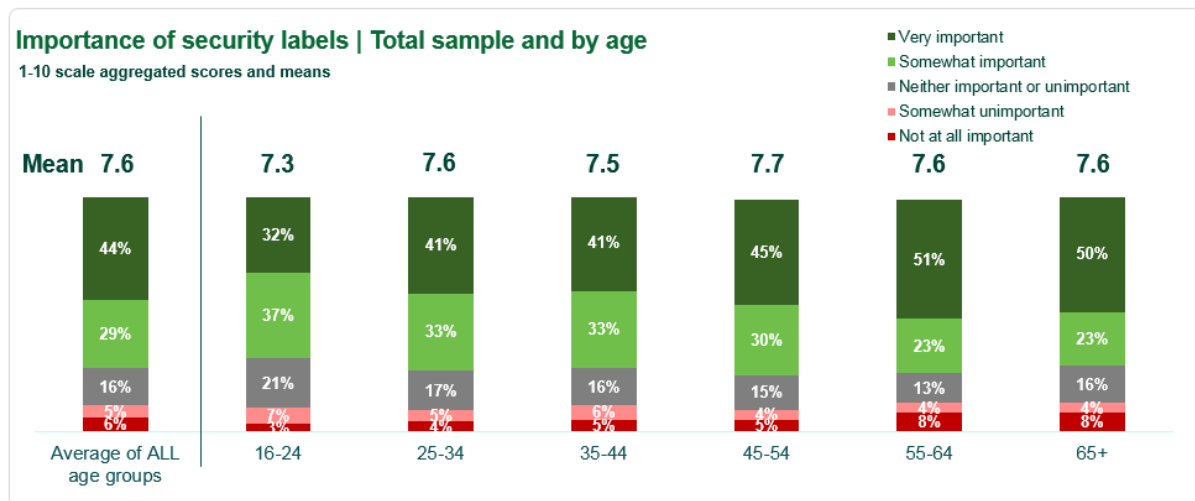
⁴ MQ3 | Please now rank these types of information from most important to least important when you are buying smart devices? [Top 4 rank] Base | Total (6,482). "Important" factor defined as a top four factor from a list of ten here

⁵ MQ4 | Why did you not rank 'security features' as one of the most important types of information when buying smart and internet-connected devices? Base | Total that did not rank 'security features' as a top 4 priority (3,317)

Upon prompting, 73% of participants agree that introducing a labelling system like the one proposed by DCMS is important, including 44% who feel this is very important⁶.



On average, the 16-24 age group are more apathetic on the importance of including security labels. In general, the proportion considering labels “very important” is higher amongst older age groups⁷.

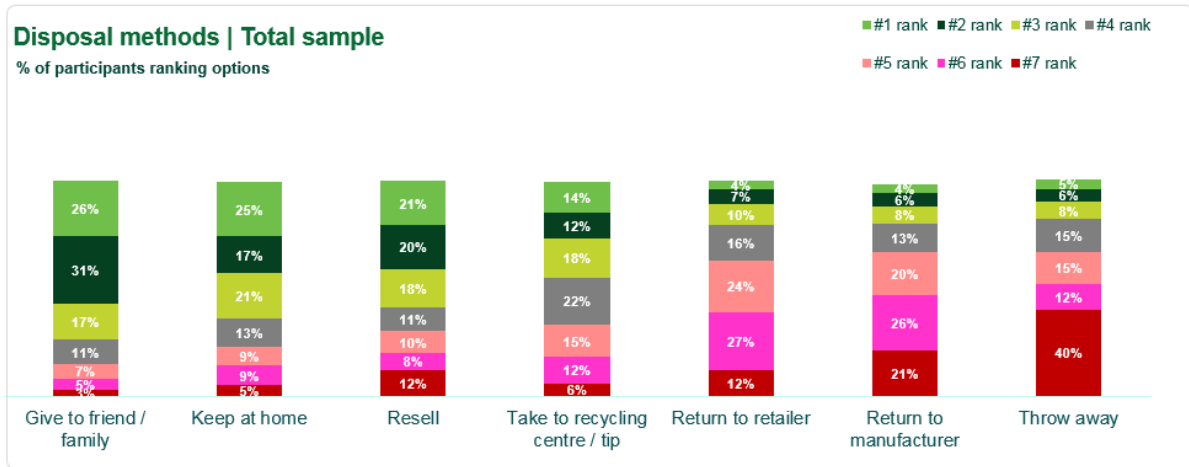


Despite this apparent complacency, an effective labelling system is vital. The most common disposal methods are giving devices to family / friends, reselling them or simply hanging onto

⁶ MQ14 | How important is it to you that a smart device has a label like this that specifies that the product has been built to specific cyber security requirements before it was put onto the market? [1-10 scale]. Base | Total (6,482), Label 1 (1,616), Label 2 (1,620), Label 3 (1,625), Label 4 (1,621). Score 9-10 = Very important, 7-8 = Somewhat important, 5-6 = Neither important or unimportant, 3-4 = Somewhat unimportant, 1-2 = Not at all important

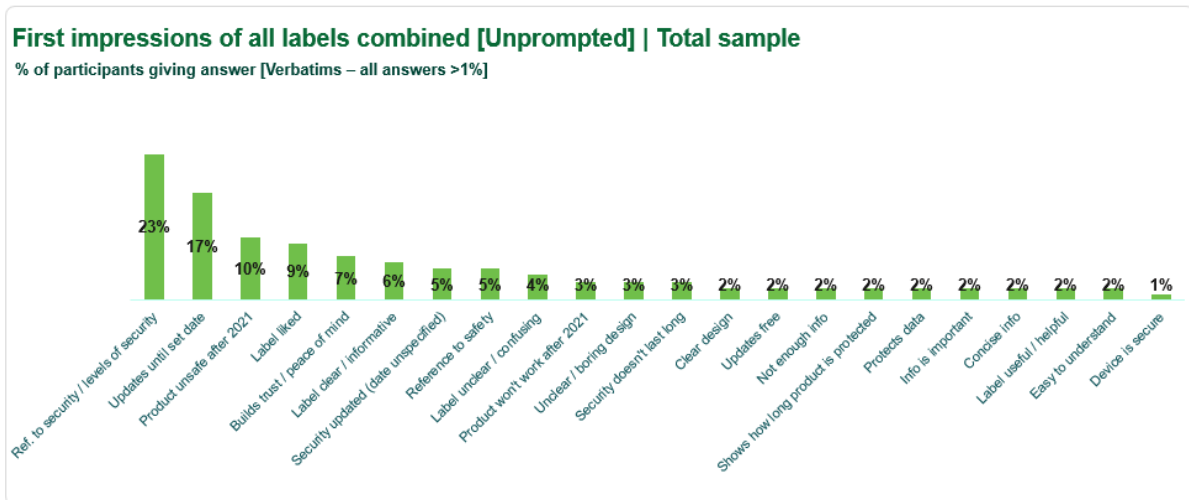
⁷ MQ14 | How important is it to you that a smart device has a label like this that specifies that the product has been built to specific cyber security requirements before it was put onto the market? [1-10 scale]. Base | Total (6,482), 16-24 (865), 25-34 (1,094), 35-44 (1,008), 45-54 (1,139), 55-64 (960), 65+ (1,416). Score 9-10 = Very important, 7-8 = Somewhat important, 5-6 = Neither important or unimportant, 3-4 = Somewhat unimportant, 1-2 = Not at all important

them – all of which leave consumers open to cyber-attacks once manufacturers cease support⁸.



First Impressions and Effectiveness of Communication

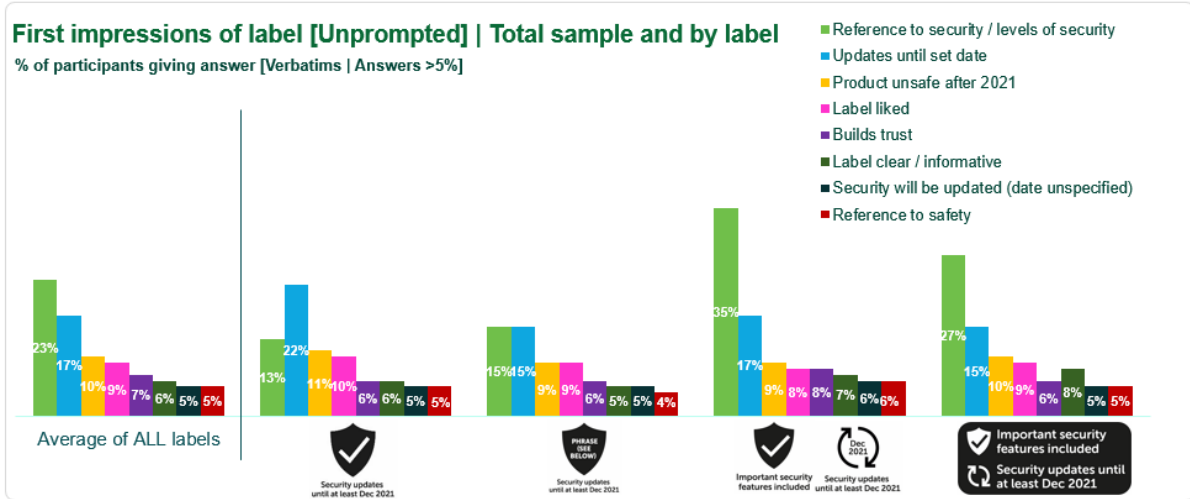
On first sight, 23% recognise that a labelled product will have some level of security features upon launch. By contrast, just 1% feel the label implies the product is totally secure / un-hackable. 17% recognise updates will be administered for a minimum period of time. Interestingly, 10% believe the product will be unsafe after 2021 and 3% believe it will not work at all after this time⁹. (For this question analysis the total set of 6,482 verbatim answers were coded. Of these, 2,563 answers (40%) were either unusable or reported by <1% of participants in the sub-set and are not shown in the graph below).



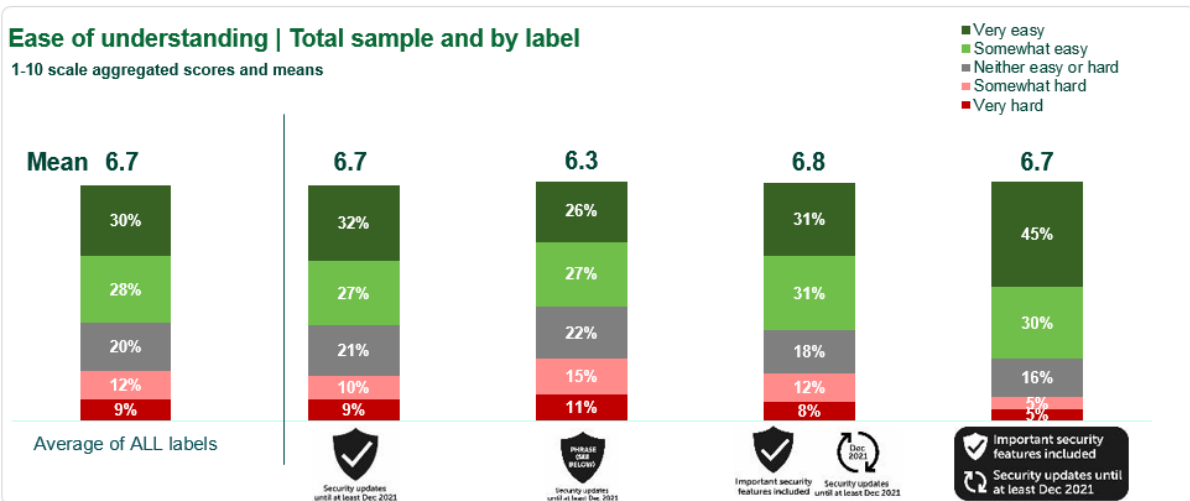
⁸ MQ5 | Once you have stopped using a smart and internet-connected device/product, please rank these options in terms of how you would dispose of these devices/products? Base | Total (6,482)

⁹ MQ11 | What are your impressions of this label and what information does it convey to you? [Unprompted verbatims coded]. Base | Total (6,482)

Across all labels, at least 13% instantly recognise that some level of security is in place without any prompting. This rises to a significantly higher 35% for those seeing the *Icons with Text Underneath* label. The idea of regular updates is noted by 15%+ across all labels¹⁰.



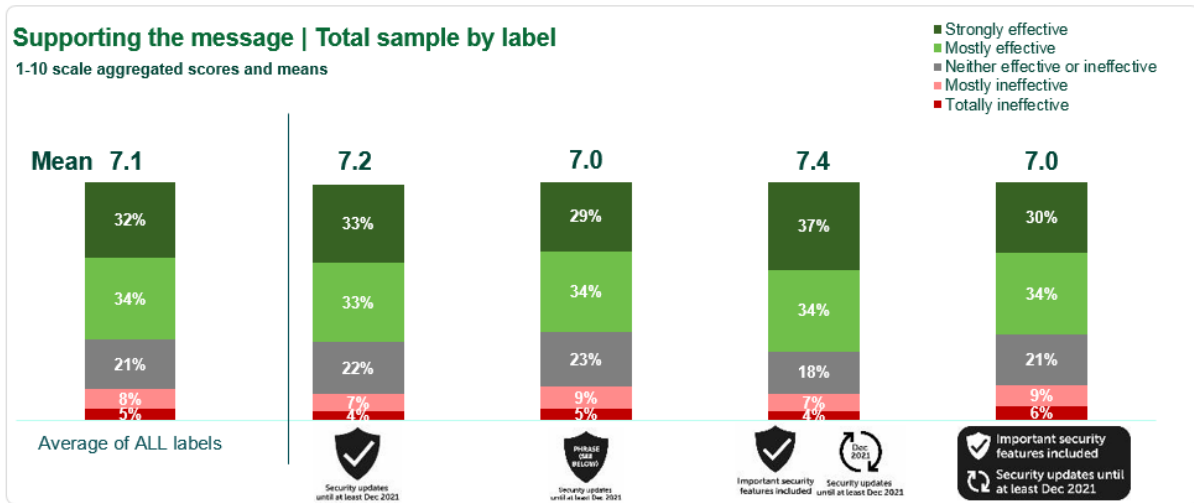
When viewed in isolation, *Icons with Text Underneath* is marginally easier to understand on average than the other labels, although 45% describe *Full Lozenge* as very easy to understand. *Shield with Text Inside* is significantly harder to understand than any other label¹¹.



¹⁰ MQ11 | What are your impressions of this label and what information does it convey to you? [Unprompted verbatims coded | Answers >5%]. Base | Total (6,482), Shield with Text Inside (1,616), Shield with Text Inside (1,620), Icons with Text Underneath (1,625), Full Lozenge (1,621)

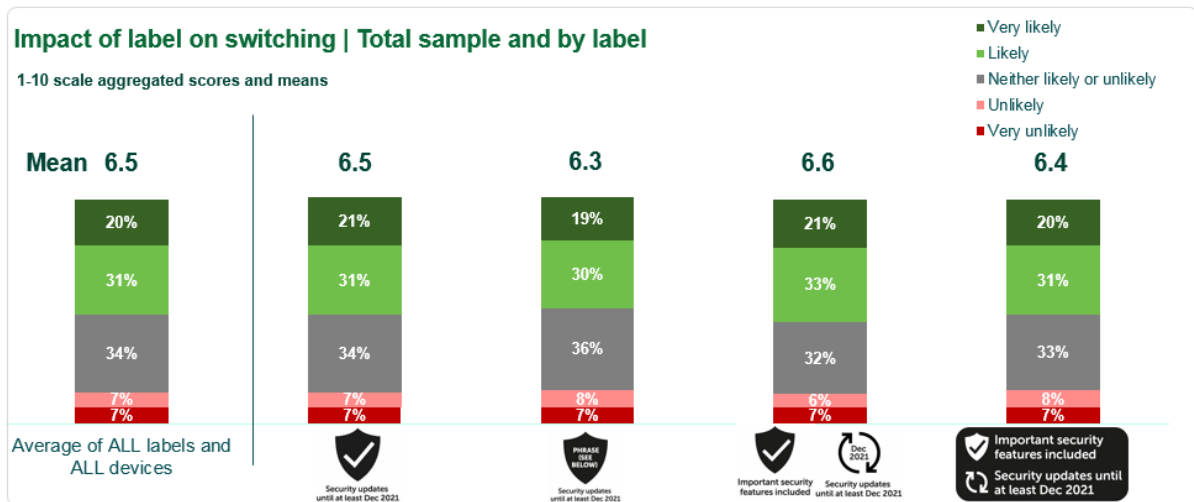
¹¹ MQ12 | Based on what you have just read, how easy is it to understand what the label is aiming to convey to consumers when they buy a smart device? [1-10 scale]. Base | Total (6,482), Shield with Text Underneath (1,616), Shield with Text Inside (1,620), Icons with Text Underneath (1,625), Full Lozenge (1,621). Score 9-10 = Very easy, 7-8 = Somewhat easy, 5-6 = Neither easy or hard, 3-4 = Somewhat hard, 1-2 = Very hard

The icons in *Icons with Text Underneath* are also significantly more effective on average than any other label at supporting the overall message. By contrast, *Shield with Text Inside* and *Full Lozenge* rank joint-last on this metric¹².



Impact of Labels on Behaviour

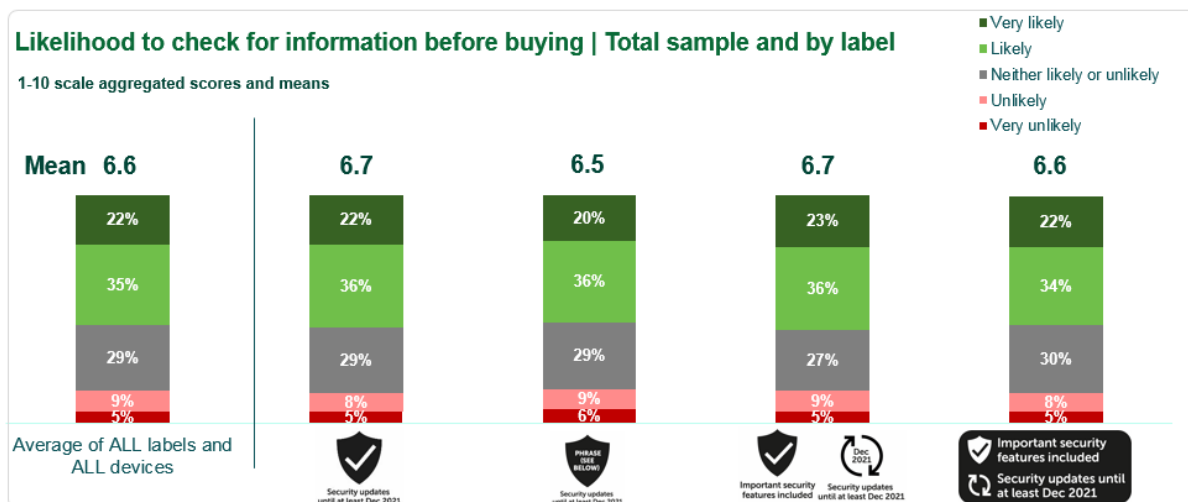
Looking at the average across all labels and devices, *Icons with Text Underneath* is the label most likely to convince participants to switch from their usual brand¹³.



¹² MQ17 | How well do the icons help to support the message that the label is aiming to convey? [1-10 scale]. Base | Total (6,482), Shield with Text Underneath (1,616), Shield with Text Inside (1,620), Icons with Text Underneath (1,625), Full Lozenge (1,621). Score 9-10 = Strongly effective, 7-8 = Mostly effective, 5-6 = Neither effective or ineffective, 3-4 = Mostly ineffective, 1-2 = Totally ineffective

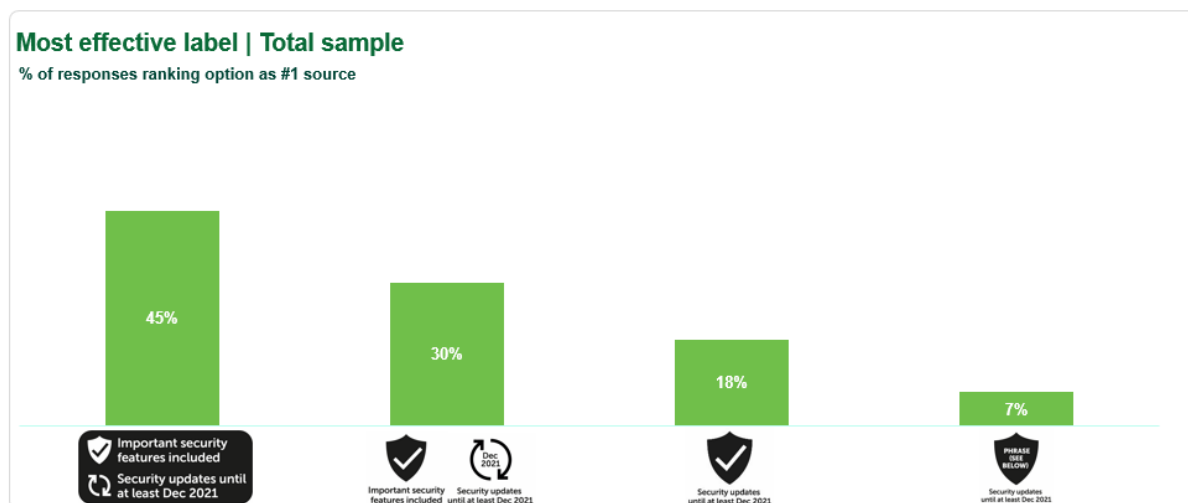
¹³ MQ15 | How likely would you be to switch to a brand of [x] that had this label instead of a brand that you might normally buy if your normal brand did not have this label? [1-10 scale]. Base | Total (6,482), Shield with Text Underneath (1,616), Shield with Text Inside (1,620), Icons with Text Underneath (1,625), Full Lozenge (1,621)

Across the total sample (taking the average of all labels and devices), *Icons with Text Underneath* ties alongside *Shield with Text Underneath* in terms of encouraging purchasers to seek extra information¹⁴.



Label Preferences and Qualitative Feedback

Label 4 (*Full Lozenge*) is ranked most effective at conveying the message when the labels are viewed together. Comments suggest this is because it combines a tick/shield (protection) with arrows (continuing support), and the white-on-black lozenge design is eye-catching¹⁵.

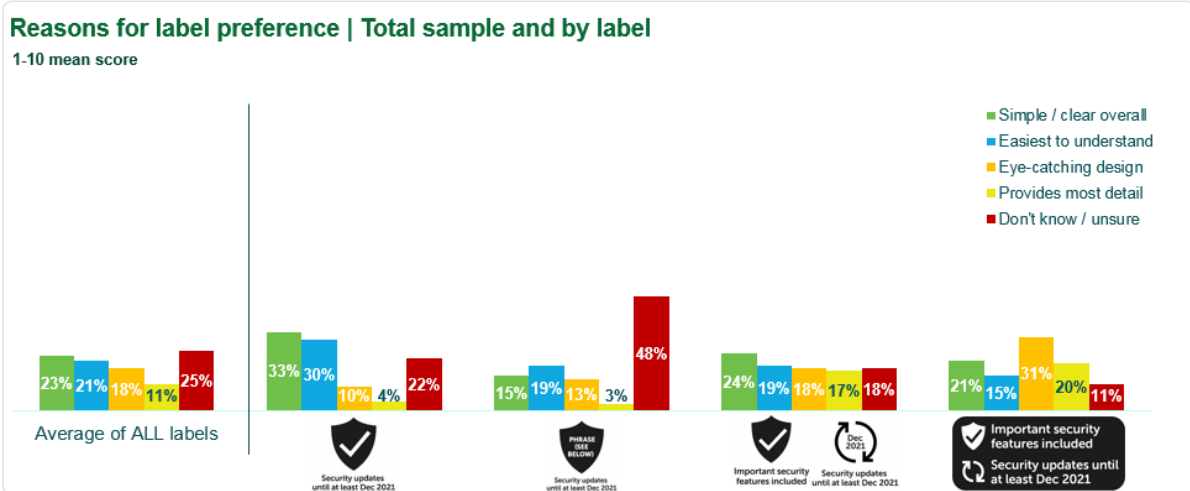


Icons with Text Underneath and *Full Lozenge* are considered more eye-catching and detailed than the other two labels – suggesting there is a need for two icons and longer text.

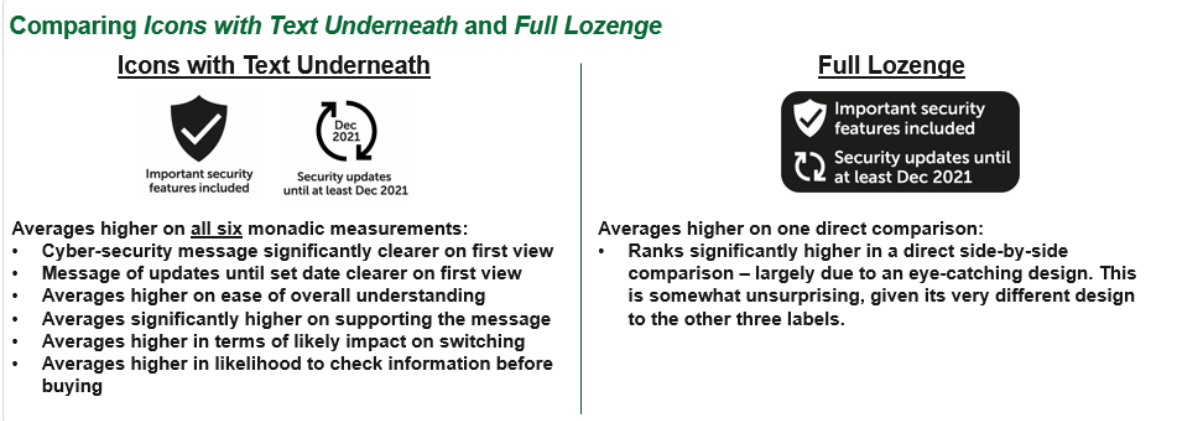
¹⁴ MQ22 | If you saw this label on a smart device like a [x], to what extent do you agree or disagree that it would make you more likely to check for information about the device, before buying? | [1-10 scale]. Base | Total (6,482), Shield with Text Underneath (1,616), Shield with Text Inside (1,620), Icons with Text Underneath (1,625), Full Lozenge (1,621)

¹⁵ MQ28 | Please rank these labels according to how well you think they convey this information. [#1 rank]. Base | Total (6,482)

By contrast, 48% who prefer *Shield with Text Inside* cannot provide a reason for this – suggesting a lack of deep engagement with the label¹⁶.



Although *Full Lozenge* ranks highest in a comparison, it is important to note that the driving factor for this is that it has an eye-catching design (31%). This is perhaps unsurprising, given that its white-on-black design is significantly different to the other three labels. In reality however, the icons would never be seen side-by-side. The monadic questions provide a more realistic picture of each label’s effectiveness, and *Icons with Text Underneath* ranks consistently highest in the monadic testing. **We therefore recommend that DCMS progress with the *Icons with Text Underneath* design and use the survey’s feedback to more effectively highlight the written information underneath the icons.**



Participants were asked to explain why they found labels easy / hard to understand in open questions. After initial analysis of this data and discussion with DCMS, we have decided to analyse the response to this qualitatively, for the following reasons:

¹⁶ MQ19b | Why did you select this label as being most effective of the 4 labels you just looked at? [Verbatims coded] [Codes with an average of >10% across average of ALL labels shown]. Base | Total (1,995), Shield with Text Underneath (387), Shield with Text Inside (161), Icons with Text Underneath (575), Full Lozenge (872). A subset of 1,995 verbatims out of a total 6,482 were coded at random until sample saturation to meet project timescale

- Those who found their label understandable struggled to articulate why they felt this, giving basic answers like “it’s clear”
- Those finding their label hard found it difficult to articulate why this was the case

Articulation



- At this stage in the survey, participants had only seen one label and had no point for comparison:

- Those who found the label easy could not comment on what it did better than other labels
- Those who found the label hard to understand were unable to comment on what they felt the label was lacking in terms of design / messaging

Lack of Comparison



- There were a high number of similar comments that ran across all labels including:

- Labels being simple, clear or understandable
- Wording suggesting an “expiry date” on the product
- Lack of detail on what features / updates involve
- Lack of detail on whether updates are automatically installed or not
- Lack of clarity on whether updates are issued proactively or reactively after security breaches

Overlap



In order to gain greatest value from these questions, we have picked out 3-5 positives and negatives per label from this question and explore these on the following pages. Note that several of these recur across several labels.

The data here is also combined with open responses to the side-by-side comparison in order to gain a better overview of how the labels are viewed in comparison to each other.


Icons with Text Underneath is particularly highlighted for its use of two icons and more detailed wording. Most designs are considered simple / understandable, although there is some concern that wording suggests an expiry date on the product¹⁷.

¹⁷ MQ13 | Why is it [easy/hard] to understand what the label is aiming to convey to consumers when they buy a smart device? [Verbatims]. Base | Finding *Icons with Text Underneath* easy (782), Finding Label 3 hard (212)

MQ19b | Why did you select this label as being most effective of the 4 labels you just looked at?

MQ19b | Base | All preferring *Icons with Text Underneath* (1,939)

Unprompted Feedback | Icons with Text Underneath



Important security features included Security updates until at least Dec 2021

"It has 2 labels, one saying it has security features included and that updates will be provided to Dec 21 should they arise after purchase"

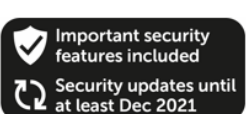
"It is trying to reassure the customer someone has thought about the security of the device"

- Dual icons express ideas of security and updates
- Detailed written information
- Clear / simple design
- Easy to understand
- Considered concise and in plain English

- Wording suggests an "expiry date" on the product – leading to some confusion / concern
- Unclear whether updates are administered proactively or reactively (i.e. after an issue arises)
- Lack of specific detail on what updates involve and what features are included

Full Lozenge stands out from the crowd due to its white-on-black colour scheme and for its similar use of dual icons to express security, more detailed wording and continuous updates¹⁸.

Unprompted Feedback | Full Lozenge



Important security features included Security updates until at least Dec 2021

"A tick and a shield are recognisable as relating to security and the arrows in a circle indicate some kind of 'refresh' activity"

"It appeared to me that it was well protected until Dec 2021. Then I assumed you would be asked to pay a subscription to continue protection?"

- White-on-black design highly readable / eye-catching
- Clear / simple design
- Easy to understand
- Icons express ideas of security and continuous updates
- Detailed written information


- Wording suggests an "expiry date" on the product – leading to some confusion / concern
- Unclear whether updates are administered proactively or reactively (i.e. after an issue arises)
- Lack of specific detail on what updates involve and what features are included

Those who dislike *Shield with Text Underneath* note that it's unclear if updates are installed automatically or manually. By contrast, the arrows in the previous two designs may help to communicate the idea that updates are continuous – somewhat allaying this concern¹⁹.

¹⁸ MQ13 | Why is it [easy/hard] to understand what the label is aiming to convey to consumers when they buy a smart device? [Verbatims]. MQ13 | Base | Finding *Full Lozenge* easy (772), Finding *Full Lozenge* hard (238). MQ19b | Why did you select this label as being most effective of the 4 labels you just looked at? MQ19b | Base | All preferring *Full Lozenge* (2,919)

¹⁹ MQ13 | Why is it [easy/hard] to understand what the label is aiming to convey to consumers when they buy a smart device? [Verbatims]. MQ13 | Base | Finding *Shield with Text Underneath* easy (759), Finding *Shield with Text Underneath* hard (226). MQ19b | Why did you select this label as being most effective of the 4 labels you just looked at? MQ19b | Base | All preferring *Shield with Text Underneath* (1,173)


Unprompted Feedback | Shield with Text Underneath



Security updates
until at least Dec 2021


*"Tick = good, shield = protection,
words = details of what you are
getting"*

*"It's only covered by security for a
couple of years after that you're left
high and dry"*




- Clear / simple design
- Easy to understand
- Tick is positive
- Shield implies protection

- Unclear if updates are installed automatically or not
- Lack of specific detail on what updates involve
- Wording suggests an "expiry date" on the product – leading to some confusion / concern
- Unclear whether updates are administered proactively or reactively



Shield with Text Inside lacks the positive connotations gained by including a tick. Some also noted confusion around the meaning of "secure design" in the label wording.²⁰

Unprompted Feedback | Shield with Text Inside




PHRASE
(SEE
BELOW)

Security updates
until at least Dec 2021


*"To me it implies that there are built
in protections when in actual fact the
onus would be on the owner of the
product to seek 'updates' from the
manufacturer"*

*"Like a kitemark but for
cyber-security"*



- Clear / simple design
- Easy to understand
- Shield implies protection
- Very concise

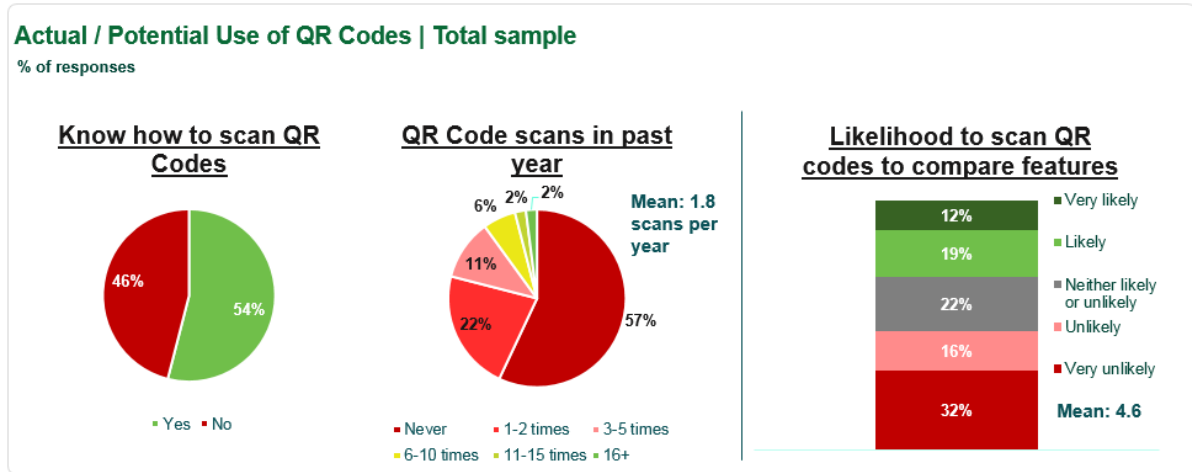
- Some uncertainty on the meaning of "secure design"
- Lack of specific detail on what updates involve
- Unclear if updates are installed automatically or not
- Wording suggests an "expiry date" on the product – leading to some confusion / concern



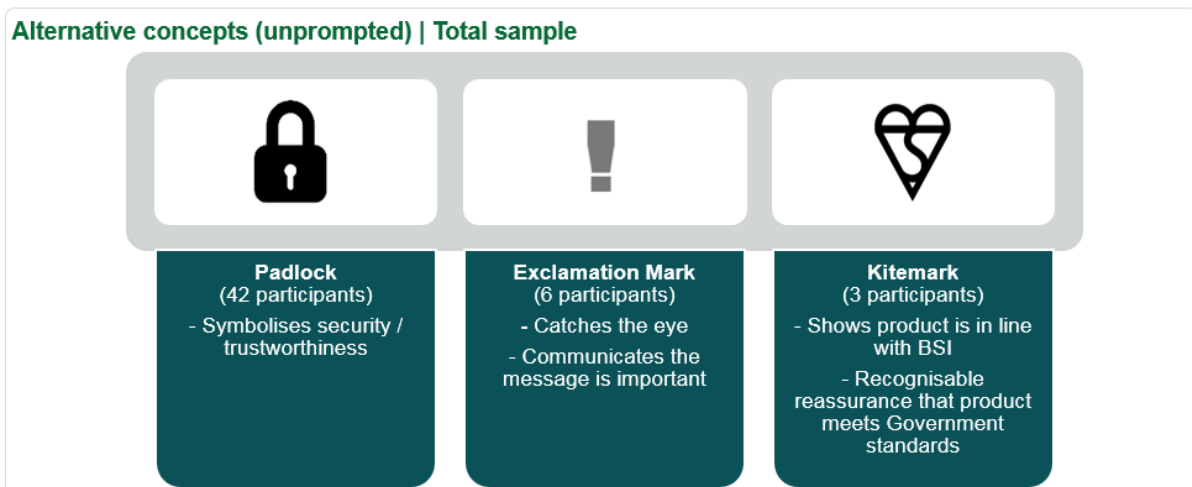
²⁰ MQ13 | Why is it [easy/hard] to understand what the label is aiming to convey to consumers when they buy a smart device? [Verbatims]. MQ13 | Base | Finding Label 2 easy (667), Finding Label 2 hard (288). MQ19b | Why did you select this label as being most effective of the 4 labels you just looked at? MQ19b | Base | All preferring *Shield with Text Underneath* (1,173) Participants were asked to imagine the phrase "Secure design" in the shield

Alternative Labels | QR Codes and Unprompted Suggestions

Overall, participants are unlikely to scan QR Codes to check product security features, with 48% reporting they would be unlikely to do this. Just over half (54%) know how to scan QR Codes, with 43% doing this in the past year²¹.



526 out of 6,482 participants (8%) felt the icons they saw didn't support the message and were asked to suggest alternatives. The most suggested alternative is a padlock, however this was suggested by <1% of the total sample, so results indicate that the proposed shield and arrow icons are seen as the best designs for this label (92%)²².

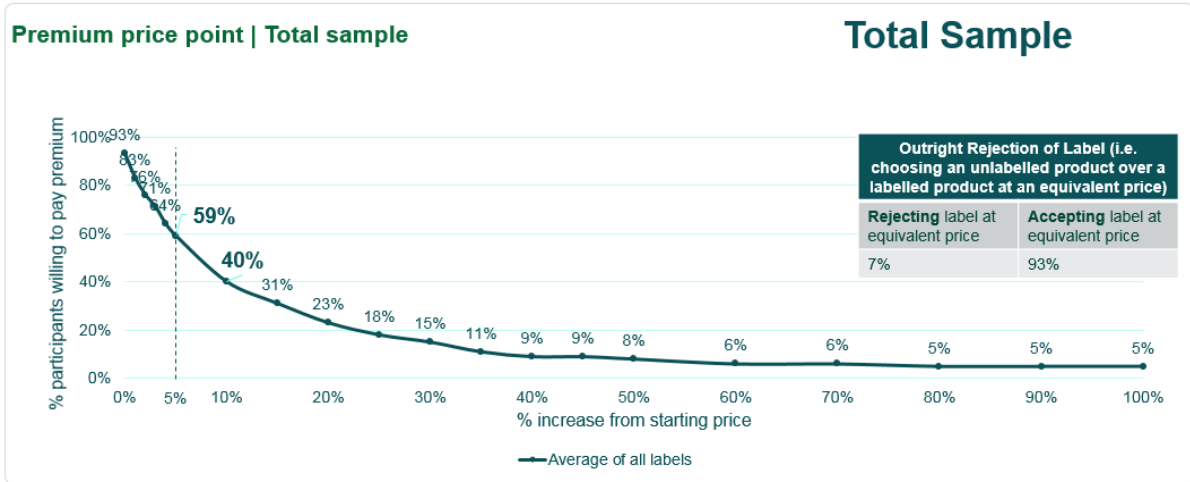


²¹ MQ19 | Do you know how to scan a QR Code on your phone to access information? Base | Total (6,482). MQ20 | How many times in the last year have you scanned a QR Code to access information about a device or other physical product? Base | Total (6,482). MQ21 score 9-10 = Very likely, 7-8 = Likely, 5-6 = Neither likely or unlikely, 3-4 = Unlikely, 1-2 = Very unlikely

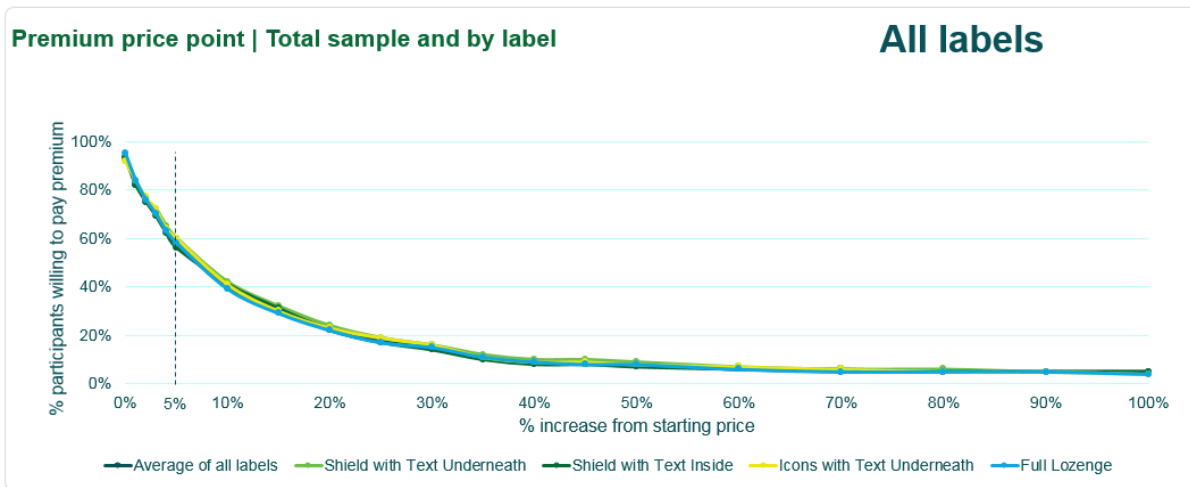
²² MQ18 | What other icons or shapes would help to support the message the label is aiming to convey more effectively? [Verbatims analysed]. Base | Total who felt the shield and/or arrows did **not** support the message (1-3 on a 10 point agreement scale) (526). Counts used rather than percentages here. Note that a tick icon was also suggested by 11 participants, however this is currently included in three of the labels

Pricing Exercise | By Total, Label, Device, Starting Price and Household Income

At the overall aggregate level, 59% of participants are willing to pay a premium of 5% for a smart product with a label over an equivalent product without one. This drops to 40% at a price premium of 10%²³.



There is very little variation by the actual design of the label seen. Across all labels, the proportion willing to pay for a labelled products dips to 39-42% once the price increment moves from 5% up to 10%²⁴.



Overall (regardless of their starting price), consumers are more willing to pay a higher percentage as a price premium for lower value items (wearables / toys) than higher value items – particularly Smart TVs²⁵.

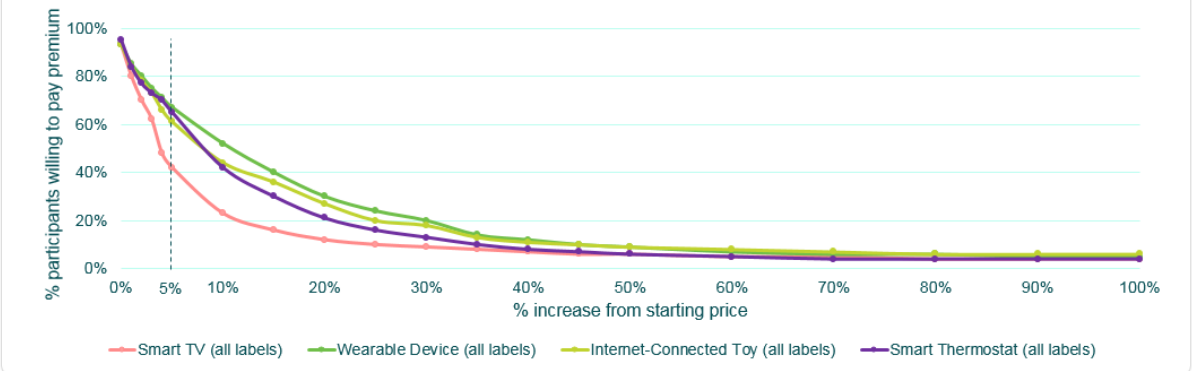
²³ MQ25-MQ25s | Which of these brands would you choose at the following prices? [Collated answers]. Base | Total (6,482)

²⁴ MQ25-MQ25s | Which of these brands would you choose at the following prices? [Collated answers]. Base | Total (6,482), Shield with Text Underneath (1,616). Shield with Text Inside (1,620), Icons with Text Underneath (1,625), Full Lozenge (1,621)

²⁵ MQ25-MQ25s | Which of these brands would you choose at the following prices? [Collated answers]. Base | Smart TV Total (1,627), Wearable Device Total (1,622), Internet-Connected Toy Total (1,617), Smart Thermostat Total (1,616)

Premium price point | By device (regardless of starting price)

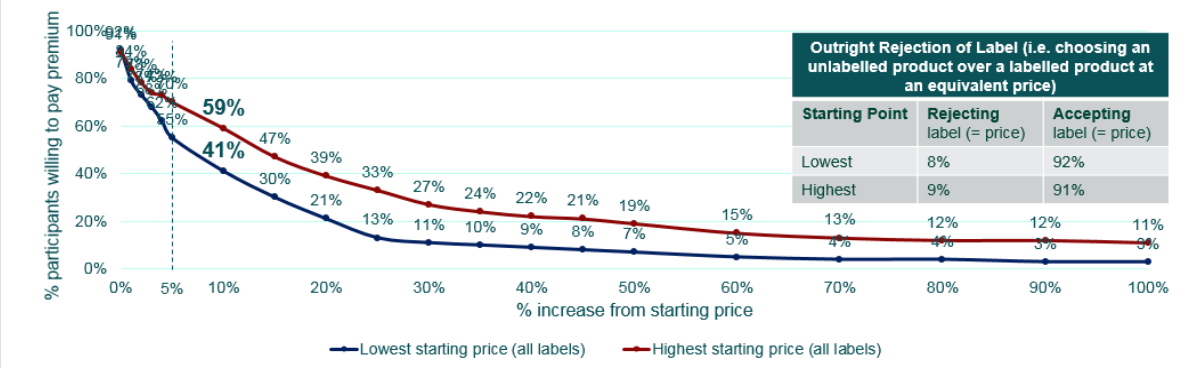
All devices (regardless of starting price)



In the pricing exercise, those who choose the highest starting price are more willing to pay a higher premium than those who choose the lowest starting price. 59% of those choosing the highest starting price would pay a 10% premium, whilst only 41% of those with a low starting price would do this²⁶.

Premium price point | Lowest price point | Total and by label

Lowest / Highest starting price



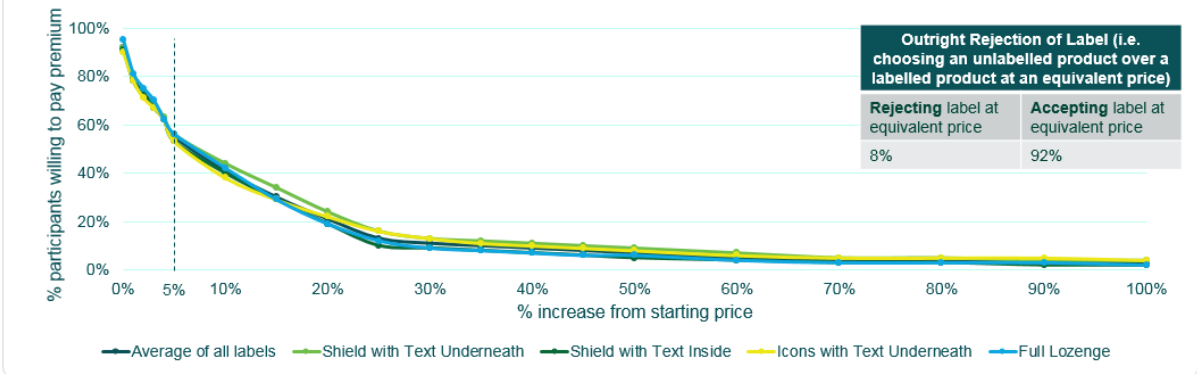
55% of those who chose the lowest starting price point for a smart product are willing to pay a price premium of 5% for a label. There is little variation here by the label design seen²⁷.

²⁶ MQ25-MQ25s | Which of these brands would you choose at the following prices? [Collated answers]. Base | Total choosing lowest possible price point (1,802), Choosing highest possible price point (524)

²⁷ MQ25-MQ25s | Which of these brands would you choose at the following prices? [Collated answers]. Base | Total choosing lowest possible price point (1,802), Choosing lowest possible price point and Shield with Text Underneath (459). Choosing lowest possible price point and Shield with Text Inside (444), Choosing lowest possible price point and Icons with Text Underneath (435), Choosing lowest possible price point and Full Lozenge (464)

Premium price point | Lowest price point | Total and by label

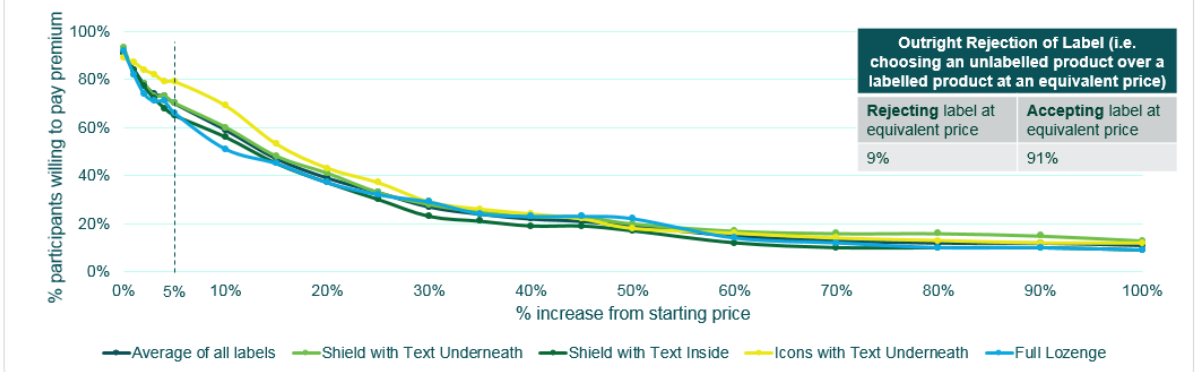
£ | Lowest starting price



Amongst those who chose the highest starting price, those seeing Label 3 (*Icons with Text Underneath*) are particularly flexible: 53% would be willing to pay a premium of 15% on an item with this label²⁸.

Premium price point | Highest price point by total and by label

£ | Highest starting price



Across most household income bands, the majority of participants are willing to pay a 5% price premium for a label but will not pay a 10% price premium. Perhaps surprisingly, the only exception here is the £200k band where most refuse to pay a 4% price premium, although this should be treated with caution due to a low base size²⁹.

²⁸ MQ25-MQ25s | Which of these brands would you choose at the following prices? [Collated answers]. Base | Total choosing highest possible price point (524), Choosing highest possible price point and Shield with Text Underneath (132). Choosing highest possible price point and Shield with Text Inside (146), choosing highest possible price point and Icons with Text Underneath (127), Choosing highest possible price point and Full Lozenge (119)

²⁹ MQ25-MQ25s | Which of these brands would you choose at the following prices? [Collated answers]. Base | <£10k (579), £10-15k (633), £15-20k (651), £20-25k (638), £25-30k, £30-40k (956), £40-50k (660), £50-75k (698), £75-100k (282), £100-150k (121), £150-200 (27**), £200k+ (41*)

*Caution: Low base size. Also note those who refused to answer income excluded here

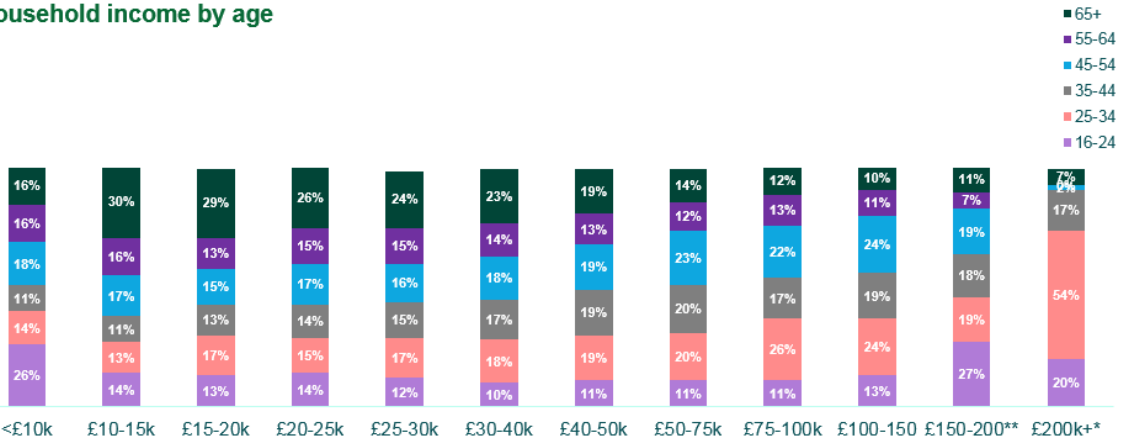
Premium price point | By household income

Household Income



This anomaly in terms of household income may be explained by the fact that the large majority (74%) of those claiming a household income of £200k+ are under 35 (a price sensitive group), as well as a low base size for this category overall³⁰.

Household income by age



³⁰ MQ33 | What is your approximate total household income before tax? Base | <£10k (579), £10-15k (633), £15-20k (651), £20-25k (638), £25-30k, £30-40k (956), £40-50k (660), £50-75k (698), £75-100k (282), £100-150k (121), £150-200 (27**), £200k+ (41*). ***Caution: Low base size.** Also note those who refused to answer income excluded here

Promoting the Label

There is a strong case for targeting marketing campaigns via different channels by age group – particularly amongst 16-24 year olds. The table below shows the **top** sources used and recommended by age and gender:³¹

Group	Top Used	Top Recommended
16-24	Google / Instagram (64%)	Google (47%)
	Facebook / Family and Friends (63%)	Facebook (36%)
	TV (46%)	Instagram (35%)
	Influencers (35%)	TV (34%)
	Twitter (33%)	Twitter (25%)
25-34	Google (63%)	Google (45%)
	Facebook (56%)	Facebook (41%)
	TV (53%)	TV (35%)
	Family and Friends (49%)	Instagram (24%)
	WhatsApp (39%)	Consumer Groups (21%)
35-44	Google / Facebook (61%)	Google (42%)
	TV (60%)	TV (40%)
	Family and Friends (53%)	Facebook (36%)
	Radio (37%)	Consumer Groups (26%)
	WhatsApp (29%)	Family and Friends (22%)
45-54	TV (72%)	TV (53%)
	Google (59%)	Google (42%)
	Family and Friends (53%)	Consumer Groups (33%)
	Radio (45%)	Facebook (32%)
	Facebook (42%)	Newspapers (Print) (26%)
55-64	TV (79%)	TV (53%)
	Google (51%)	Google (40%)
	Family and Friends (50%)	Consumer Groups (34%)
	Radio (44%)	Newspapers (Print) (33%)
	Newspapers (Print) (40%)	Facebook (23%)
65+	TV (81%)	TV (51%)
	Newspapers (Print) (50%)	Newspapers (Print) (37%)
	Family and Friends / Radio (44%)	Google (33%)
	Google (43%)	Consumer Groups (32%)
	Facebook (24%)	Facebook / Search Engines / Family/Friends / Radio (17%)
Male	TV (64%)	TV (44%)
	Google (58%)	Google (42%)
	Family and Friends (43%)	Consumer Groups (25%)
	Radio (38%)	Newspapers (Print) (24%)
	Facebook (37%)	Facebook (23%)
Female	TV (68%)	TV (46%)
	Family and Friends (56%)	Google (40%)
	Google (54%)	Facebook (32%)
	Facebook (47%)	Consumer Groups (30%)
	Radio (37%)	Newspapers (Print) (27%)

³¹ MQ26 | Which of these sources do you use on a day-to-day basis to get information on various topics, such as news or content relevant to you? MQ27 | Which of these sources would you recommend to highlight the label (and provide further information about the label)? Base | Total (6,482), 16-24 (865), 25-34 (1,094), 35-44 (1,008), 45-54 (1,139), 55-64 (960), 65+ (1,416), Male (3,221), Female (3,261)

The table below shows the **least** used and recommended sources for each age group and gender³²:

Group	Bottom Used	Bottom Recommended
16-24	Consumer Groups / Pop Culture Mags (7%)	Pop Culture Mags (8%)
	Digital Ad Boards (9%)	Work / Colleagues (9%)
	News mags (10%)	Podcasts (10%)
	Newspapers (Print) / Posters (12%)	News Mags / Online Current Affairs Channels (12%)
	Newspaper Apps / Podcasts (14%)	Newspapers (Print) / Newspaper Apps (14%)
25-34	Pop Culture Mags (7%)	Podcasts (7%)
	Digital Ad Boards / Posters (8%)	Pop Culture Mags (8%)
	Consumer Groups / News Mags / Podcasts (12%)	Work / Colleagues (9%)
	Search Engine Ads (15%)	Online Current Affairs Channels (11%)
	Newspaper Apps (16%)	News Mags / Newspaper Apps (13%)
35-44	Pop Culture Mags (5%)	Podcasts (7%)
	Podcasts (8%)	Pop Culture Mags (8%)
	Digital Ad Boards (9%)	Work / Colleagues (10%)
	Posters (10%)	Online Current Affairs Channels (13%)
	News Mags (12%)	News Mags (15%)
45-54	Pop Culture Mags (4%)	Podcasts (5%)
	Digital Ad Boards (5%)	Pop Culture Mags / Work / Colleagues (8%)
	Podcasts (6%)	WhatsApp / Instagram (10%)
	Posters (8%)	Influencers (13%)
	Influencers (11%)	Newspaper Apps / Twitter (16%)
55-64	Pop Culture Mags / Digital Ad Boards / Podcasts (3%)	Podcasts (5%)
	Instagram (5%)	Instagram / Work / Colleagues (6%)
	Influencers (6%)	WhatsApp / Twitter (8%)
	Posters (7%)	Pop Culture Mags (9%)
	Search Engine Ads / Twitter (11%)	Influencers (10%)
65+	Digital Ad Boards (1%)	Podcasts / Instagram / Work / Colleagues (3%)
	Pop Culture Mags / Podcasts (2%)	WhatsApp / Twitter / Pop Culture Mags (6%)
	Instagram / Influencers (3%)	Influencers (8%)
	Posters (4%)	Newspaper Apps (10%)
	Work / Colleagues (5%)	Digital Ad Boards (11%)
Male	Pop Culture Mags (4%)	Podcasts / Pop Culture Mags (7%)
	Digital Ad Boards (6%)	Work Colleagues (8%)
	Posters (8%)	Newspaper Apps / Digital Ad Boards / Online Current Affairs Channels (13%)
	Podcasts (9%)	WhatsApp / Influencers / News Mags (14%)
	News Mags (13%)	Instagram / Posters (15%)
Female	Pop Culture Mags (4%)	Podcasts (5%)
	Digital Ad Boards / Podcasts (5%)	Work / Colleagues (7%)
	Posters (8%)	Pop Culture Mags (8%)
	News Mags (12%)	WhatsApp (11%)
	Search Engine Ads / Consumer Groups (13%)	Twitter (13%)

³² Ibid.

Conclusions

This research indicates that there is a fundamental need to introduce a labelling system to reassure the public that the smart devices they buy are safe and secure: 'security information' is the third most important type of information sought during purchasing decisions after cost and functionality. 73% feel it is important or very important to introduce labels that highlight the security features built into devices, compared with just 11% who feel this is unimportant.

Additionally, the three most common disposal methods (giving to friends, keeping at home and reselling) all continue to expose consumers to cyber-attacks after manufacturers cease support.

It is vital that any label is easy to understand at a glance as there is apparent complacency on the part of consumers to seek out security information. Currently a high level of respondents (72%) believe that security features are already built into devices when they are placed on the market – however this may not always be the case.

Labels that require additional action on the part of the consumer (such as scanning a QR code) are likely to be less effective in communicating security information. 57% have never scanned a QR code and those who have do this infrequently (less than twice per year on average).

The *Icons with Text Underneath* design ranks highest out of the four labels across every monadically tested metric, such as ease of understanding and influencing consumers to switch brands from an unlabelled product.

Full Lozenge ranks significantly higher than all other labels in a direct side-by-side comparison, largely driven by the fact that its design is considered eye-catching. However, we believe that this result may be somewhat misleading in terms of guiding DCMS because:

- *Full Lozenge* is the only design with white images / text on a black background. It is therefore somewhat unsurprising that it stood out from the other designs for participants.
- In reality, consumers would never actually see the labels in a side-by-side comparison. The monadic questions (where a single design is seen in isolation by participants) give a more reliable measure of how effective each label would be in a real-life scenario.

As *Icons with Text Underneath* rates highest across **all** monadic measurements, we recommend that this will be most effective in practice and should be taken forward by DCMS.

Icons with Text Underneath and *Full Lozenge* both share some fundamental similarities which set them apart from the other two labels. Both have two icons and two sentences, suggesting an overall preference to see more – rather than less – information on the label in both writing and images.

On both labels, the shield and tick icons imply protection and security, whilst the rounded arrows suggest ongoing support. A combination of these two icons appears to be effective.

It is also worth noting that images are much larger proportionally in *Icons with Text Underneath* than *Full Lozenge*. It may be worthwhile testing a variation of *Icons with Text Underneath* with more equally sized pictures and images to see if this affects response.

A key consideration raised by participants across every label seen was that wording suggests an “expiry date” on the product, which may put consumers off making a purchase. It is essential that any label is positioned as an opportunity for consumers to feel informed and reassured that their manufacturer is providing ongoing support, rather than setting a time limit on the product’s reliability.

Overall, there is some willingness to pay a price premium for a labelled product, although this should always be kept under 10% of the product’s price.

The maximum percentage premium that participants are willing to pay for a labelled product varies by device:

- **Smart TVs** | 50% of consumers will pay a percentage price premium of 3-4%
- **Wearables** | 50% of consumers will pay a percentage price premium of 10%
- **Internet-Connected Toys and Smart Thermostats** | 50% of consumers will pay a percentage price premium of 5%

Those who are willing to pay more for their product overall are more willing to pay a higher premium and those aged 35+ are also slightly more flexible than those under 35. However, the actual label designs themselves have little overall impact on the percentage price premium that participants are willing to pay. There is one exception to this point: participants who are willing to pay a high price point for a device overall are more willing to pay a premium of 15% when seeing the *Icons with Text Underneath* label. This was not the case for other designs.

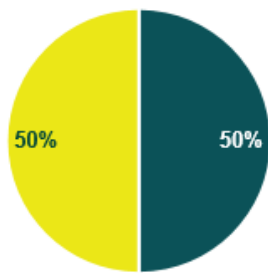
In terms of raising awareness of the label, there are several key channels which should be used across all age and gender groups: Google, TV, Facebook and word of mouth (via family and friends). However, DCMS should consider targeting some of their activity to specific age groups:

- **16-44 year olds** | Greater focus on social media, including influencers (especially amongst 16-24 year olds), Instagram (especially amongst 16-34 year olds) and WhatsApp (especially amongst 25-44 year olds)
- **45+** | Greater focus on print newspapers and consumer groups (e.g. Which?)

By using an effective, targeted promotional campaign and an effective label, DCMS has the opportunity to strongly reassure the public that the devices they purchase are safe and future-proofed – a need which is only likely to grow as smart technology advances.

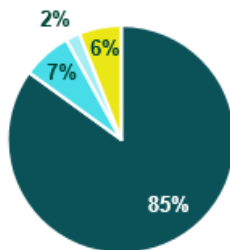
Appendix A - Demographics³³

Gender



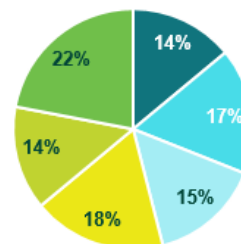
■ Male ■ Female

Region



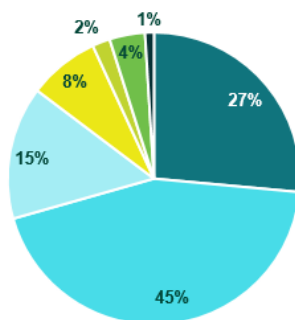
■ England ■ Scotland
■ Wales ■ Northern Ireland

Age



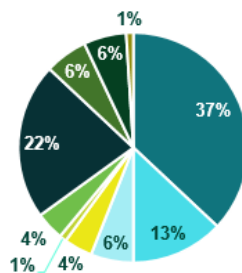
■ 16-24 ■ 25-34 ■ 35-44 ■ 45-54 ■ 55-64 ■ 65+

Marital status



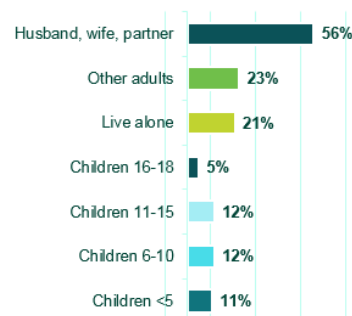
■ Never married
■ Married / civil partnership
■ Co-habiting
■ Divorced
■ Separated
■ Widow(er)
■ Prefer not to say

Employment



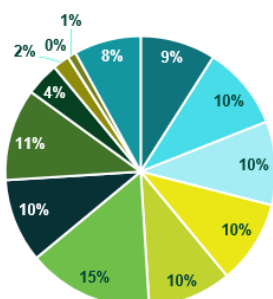
■ Employed full-time
■ Employed part-time
■ Self-employed
■ Not employed (looking)
■ Not employed (not looking)
■ Unable to work
■ Retired
■ Student
■ Home duties
■ Other

Living arrangement



■ Children <5
■ Children 6-10
■ Children 11-15
■ Children 16-18
■ Live alone
■ Other adults
■ Husband, wife, partner

Household income (£000s)



■ <£10 ■ £10-15 ■ £15-20
■ £20-25 ■ £25-30 ■ £30-40
■ £40-50 ■ £50-75 ■ £75-100
■ £100-150 ■ £150-200 ■ >£200
■ Not stated

³³ Base | Total (6,475)

Appendix B - Labels Tested

Label 1: *Shield with Text Underneath*



Security updates
until at least Dec 2021

Label 3: *Icons with Text Underneath*



Important security
features included



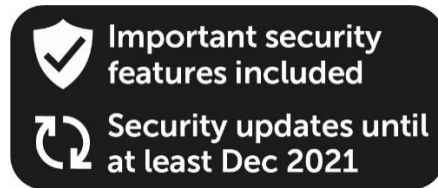
Security updates
until at least Dec 2021

Label 2: *Shield with Text Inside*



Security updates
until at least Dec 2021

Label 4: *Full Lozenge*



Important security
features included

Security updates until
at least Dec 2021