

ANSI Z535.7 and beyond – New standard for Safety information in electronic media

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DRAFT

For decades, ANSI Z535 standards have provided guidance for presenting safety information in media such as safety signs, product labels, and, since 2006, product manuals. With evolving technology and connectivity, people - both product users and manufacturers - are increasingly turning to electronic media as another channel for finding or providing product information. *ANSI Z535.7, the American National Standard for Product Safety Information in Electronic Media*, helps bring ANSI Z535 concepts into these newer media.

This poster provides an introduction to ANSI Z535.7 and also addresses some considerations of presenting safety information in electronic media that go beyond the standard.

Background and Development

Prior to ANSI Z535.7, the ANSI Z535 series of standards did not provide guidance regarding presenting safety information in most electronic media – ANSI Z535.4 addressed physical labels, and ANSI Z535.6 explicitly excluded dynamic and electronic media.

ANSI Z535 Series of Standards

- Z535.1 Safety Colors
- Z535.2 Environmental Facility Safety Signs
- Z535.3 Criteria for Safety Symbols
- Z535.4 Product Safety Signs and Labels
- Z535.5 Safety Tags and Barricade Tapes
- Z535.6 Product Safety Information in Product Manuals, Instructions, and Other Collateral Materials
- Z535.7 Safety Information in Electronic Media

ANSI Z535.4
4.12 safety sign: A visual alerting device in the form of a decal, label, placard, cord tag, or other marking such as an embossing, stamping, etching, or other process that provides safety information.

ANSI Z535.6
4.2 collateral materials: ...Collateral materials do not include items such as product signs, labels, labeling, ... audio and video materials, or dynamic or electronic media (e.g., electronic documents with animation, sound, or other features that are not printable).

The concept of providing ANSI Z535 guidance specific to electronic media was first informally discussed in early 2011. The next several ANSI Z535 meetings, in September 2011, 2012, and 2015, included discussion of possibilities and related research. Working groups led by Charles Burhans and Judi Isaacson provided input into these discussions.

Categories of New Media

- Product on-screen warnings
- Staple/signature product materials
- Non-linear product information
- Task interrupting electronic information
- Videos
- Interactive applications
- Access points
- Other miscellaneous safety communication
- Future-augmented reality, etc.

Excerpted from Applied Safety (now Rimkus) staff presentation to the Sept. 2011 ANSI Z535 Committee Meeting

Examples of signal word and safety alert symbols variants observed in electronic media in 2015.

Excerpted from Applied Safety (now Rimkus) staff presentation to the Oct. 2015 ANSI Z535 Committee Meeting

Across the meetings, the committee recognized electronic media as an increasingly common means of conveying safety information. While the diversity and rapid evolution of media complicated the approaches to standardization, the committee appreciated the potential of the evolving communication methods.

In 2015, the committee decided to continue consideration of guidance for electronic media within the Z535.6 subcommittee rather than forming a new subcommittee at that time.

In 2020, newly confirmed ANSI Z535 chair Steve Hall and vice-chair Judi Isaacson presented an example of the potential form a separate standard for electronic media could take. The committee approved the formation of ANSI Z535.7: Product Safety Information in Electronic Media subcommittee to develop the preliminary work into a draft for ballot.

- ANSI Z535.7 subcommittee members at the time of balloting**
- Eric Boelhouwer (chair)
 - Jared Frantz
 - Judith Isaacson
 - Farheen Khan
 - Scott Kaiser
 - Angela Lambert
 - John Mackenzie
 - Bill Pratt
 - Angela Redlund-Spieker
 - Timothy Smith
 - Dorris and Associates International, LLC
 - Applied Safety & Ergonomics (A Rimkus Company)
 - Applied Safety & Ergonomics (A Rimkus Company)
 - Applied Safety & Ergonomics (A Rimkus Company)
 - Shook, Hardy & Bacon L.L.P.
 - Clarion Safety Systems
 - Schneider Electric
 - Schneider Electric
 - Graco, Inc.
 - U.S. Consumer Product Safety Commission

In October, 2024, the first edition of *ANSI Z535.7 Safety Information in Electronic Media* was published.

It is now available for purchase from NEMA and ANSI.



NEMA (via Accuritech)



ANSI webstore

Overview of ANSI Z535.7 – Safety Information in Electronic Media

What counts as “Electronic Media”?

ANSI Z535.7 addresses safety messages in content that you read or watch on a screen (e.g., in videos, websites, apps, augmented reality, dynamic on-product displays) rather than printed on physical media.

This **excludes** electronic reproductions of materials already addressed in other ANSI Z535 standards:

- PDF files of product manuals and other static printable electronic documents continue to be addressed by ANSI Z535.6.
- For electronic reproductions of physical safety signs, labels, tags, or barricade tapes, see the ANSI Z535 standard applicable to the physical version.

What does ANSI Z535.7 include?

ANSI Z535.7 promotes consistency while permitting flexibility. As stated in the scope: “This standard sets forth requirements for the use of ANSI Z535 elements in the design of visual product safety messages presented in electronic media to the extent that these formatting elements are used in these media. ...”

The new standard uses many design principles familiar to ANSI Z535 standards users. Guidance regarding elements such as signal words, the safety alert symbol, and the use of safety colors is similar to other Z535 standards. ANSI Z535.7 also addresses areas where electronic media differs from print media (e.g., type size, duration of message display). An informative annex provides brief general guidance regarding design and maintenance of safety information in electronic media.

ANSI Z535.7 is intentionally flexible to accommodate the diverse and evolving forms of electronic media; it does not require that any particular elements of ANSI Z535 formatting be used.

Example Z535 Elements in ANSI Z535.7

- Colors
- Signal Words
- Safety Symbols
- Safety Alert Symbol
- Additional Z535 Concepts
 - Type size
 - Safe viewing distance
 - Type style
 - Contrast
 - Durability, expected life

Safety Information in Videos – Example Guidance

7.2.3 Duration: For visually presented safety messages in dynamic media such as video, the duration of a safety message's appearance should be of a length that gives a user sufficient time to read (for text) or to comprehend (for symbols, other graphics, etc.) the message at an expected reading speed. Features such as a pause button, rewind capability, or an acknowledgement button can be considered to allow users additional time to review safety messages.

What does ANSI Z535.7 NOT include?

ANSI Z535.7 addresses **how** to present safety information in electronic media, but does not specify **what** content to provide in electronic media instead of or in addition to print media - the considerations involved in that decision are beyond the scope of the standard.

Currently there are no specifics for media such as virtual or mixed reality. These may be addressed in future informative annexes.

Implications for Industry:

- **Check the standard.** When developing or updating electronic content containing safety information, check ANSI Z535.7 for relevant formatting and other considerations.
- **Plan ahead and involve a team when appropriate.**
 - Consider what additional stakeholders may be needed. For example, the people responsible for website design and maintenance play a role in getting content online and keeping links active long-term.
 - Make sure stakeholders or content developers that have not historically had to consider standards conformance are aware of the relevant requirements and recommendations.
- **Consider a broader review of and potential updates to existing safety information.** The publication of a new or revised ANSI Z535 standard can be a good time to revisit your existing safety information across media - not only your electronic content such as webpages and videos, but also your on-product labels, manuals, etc.

Note to reviewers: Layout will be further refined; focus here was content rather than exact final layout given the possibility of post-feedback revisions and potential for more space. Currently 48” x 36” – checking feasibility of printing wider. See next page for potential additional content if we are able to add horizontal space.

Beyond the standard - Practical tips and considerations

Do I still need paper?

Questions to consider when deciding whether to present safety information electronically versus on paper include:

- **Who** needs this piece of product information?
- **What** do we know about the abilities and expertise of the person who needs the information?
- **When** do they need access to it?

Also, check whether any regulations or other requirements applicable to your domain specify the use of any particular media.

Consider the advantages and disadvantages of various media, e.g.:

Advantages	Disadvantages
• Accessibility features	• Status quo
• Translatable	• Accompanies product
• Searchable	• No electricity, device, or internet access required
• Dynamic content (video, audio, animation)	• More readable in bright light
• Doesn't get lost or destroyed	• May provide larger readable area (vs. small screens)
• Available to anyone with URL	• May be required by standards/regulations
• Available before purchase/delivery	• Preferred by some customers/audiences
• Updatable	
• Unlimited length	
• No printing costs	
• Readable in low light	

Tips for using URLs and QR codes to help users access online information

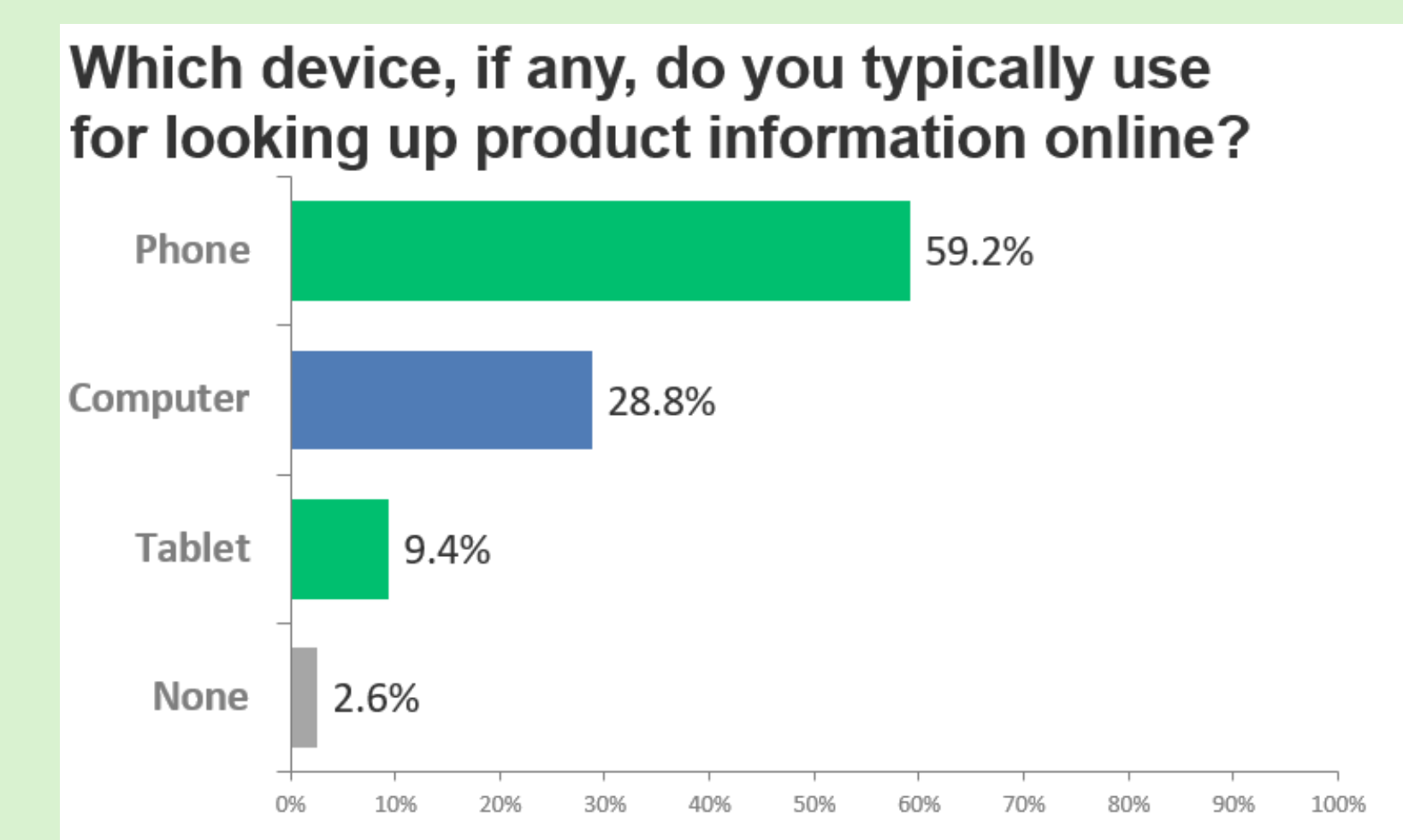
Consider **including a Read Manual symbol with a QR and/or URL** on product labels when a reference to product manuals or additional safety information located online is appropriate. (QRs can be generated in Adobe InDesign or with free online generators.)



Consider **potential limitations to the ability to use QR codes and/or URLs**, e.g.,

- Target audience that may not have or may not be permitted to have smartphones
- Potential product location/context of use that might be without connectivity
- Label durability issues that might interfere with the scannability of a QR over time
- Label/product location that might interfere with the ability of the user to orient phone to capture QR

Consider what **device(s)** your users may be using to access your online information – this is relevant to the potential usefulness of QR codes or URLs or both as well as potential design of the landing page. E.g., from a February, 2024 online survey conducted by the authors:



Participants
N=191: Recruited from SurveyMonkey Audience.
Age: 18-29 (17%), 30-44 (29%), 45-60 (17%), >60 (37%)
Gender: Male (49%), Female (51%)
Region: Nationally distributed
Education: < High school (2%), High school (14%), Some college (16%), Associate's degree (13%), Bachelor's degree (34%), Post-graduate degree (22%)

Optimize URL and QR usability when feasible.

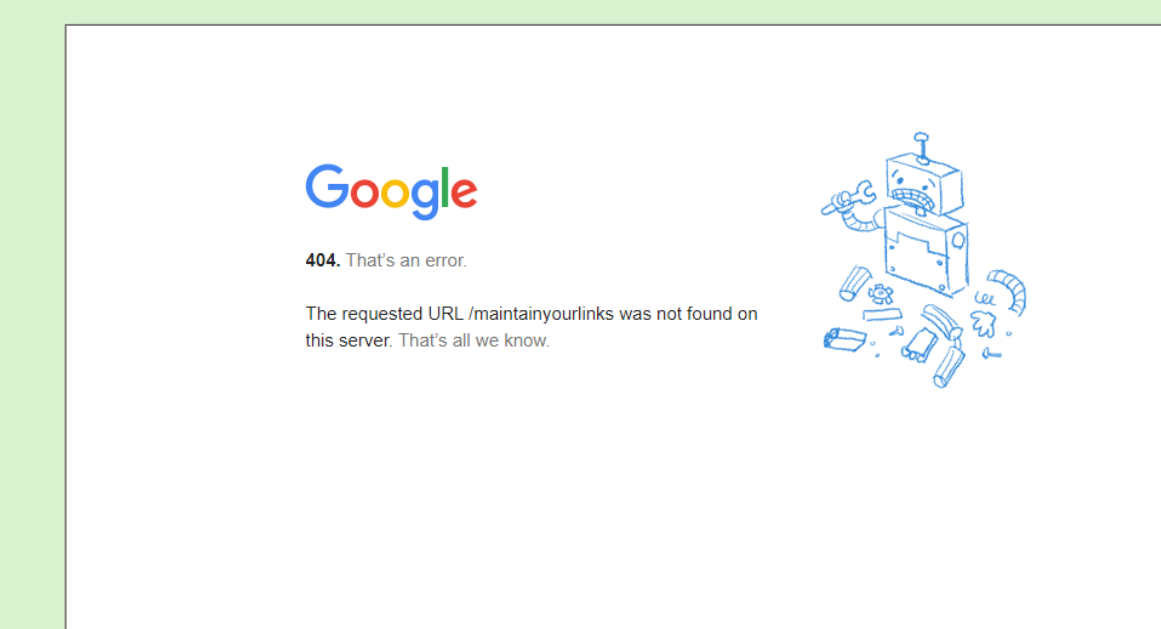
- When including a printed URL, keep the URL brief when possible.
 - Short URLs also result in less visually complex QR codes.
- Consider using meaningful words in your URL (less useful in multilingual situations)

www.company.com/safety

VS
www.company.com/media/imported/assets/5proend/category/kwat4/dr938625569/

Have a plan to maintain links.

- Make sure whomever maintains the website is aware of the importance of keeping any published links active.
- Consider involving IT early to facilitate later maintenance and updates.



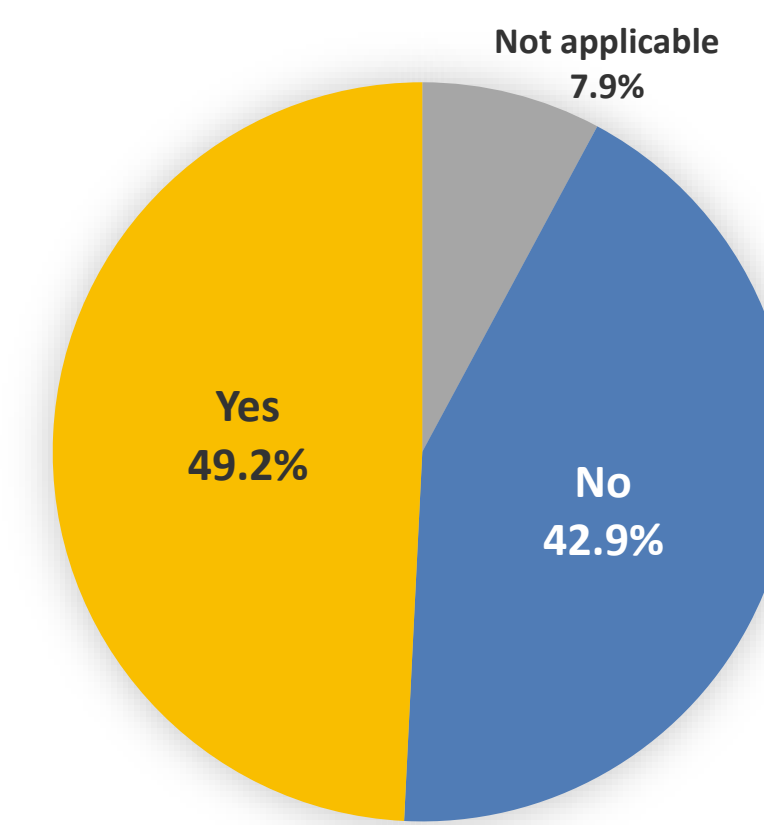
Note to reviewers:

- Layout will be further refined – focus of this draft is content and general layout rather than exact final layout given the possibility of post-feedback revisions and potential for more space.
- Current poster design is the readily printable 48” x 36”. There’s a possibility we may be able to go wider, closer to your 7” wide max. If so, we would like to add some more content in the practical tips, e.g., some of the below participant commentary re: concerns and frustrations. This can help manufacturers understand what to avoid as they move product information online.

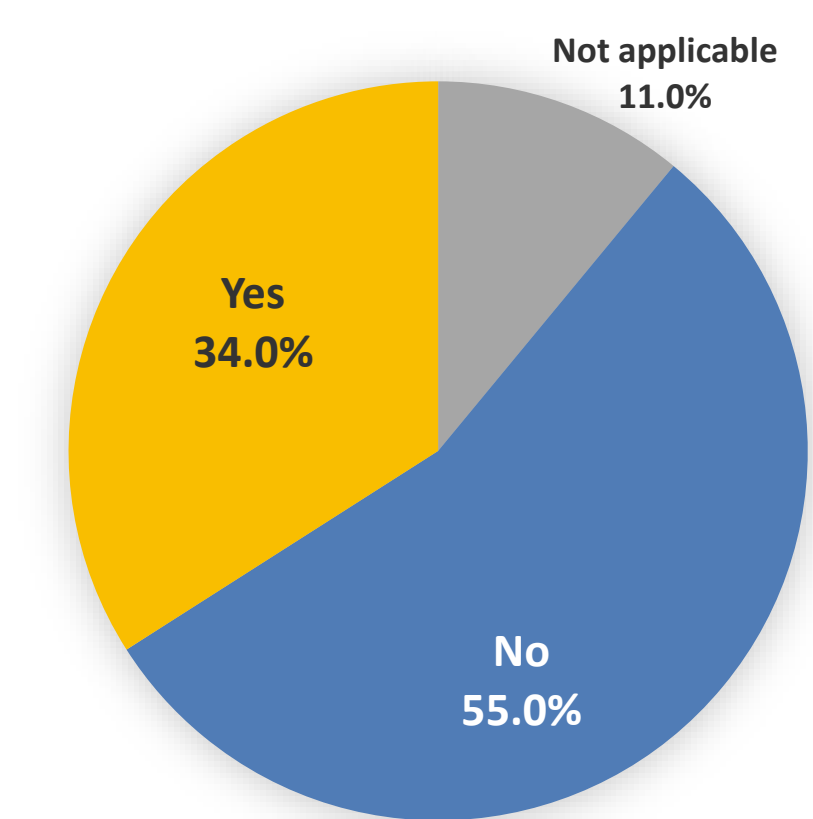
Potential additional content to incorporate into poster if larger format is used:

February, 2024 Participants surveyed about their use of online product information
 N=191: Recruited from SurveyMonkey Audience.
 Age: 18-29 (17%) 30-44 (29%) 45-60 (17%) >60 (37%)
 Gender: Male (49%) Female (51%)
 Region: Nationally distributed
 Education: < High school (2%), High school (14%), Some college (16%), Associate’s degree (13%), Bachelor’s degree (34%), Post-graduate degree (22%)

Have you ever had any problems or frustrations trying to find a product manual online?

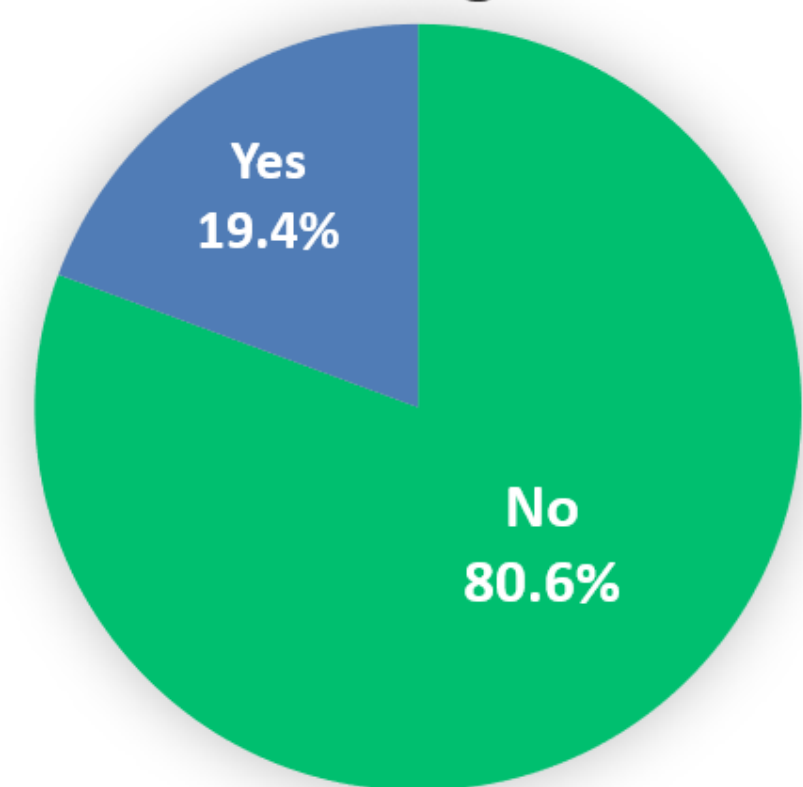


Have you ever had any problems or frustrations when trying to read or use an online or digital (e.g., PDF) manual?



If your target audience is expected to be less familiar with QR codes than most, consider potential concerns about QR codes, e.g., from a 2024 survey conducted by the authors:

Do you have any concerns about scanning QR codes?



Concerns mentioned include:

Security/worries about scams

"don't want my phone hacked"
 "scammers can put fake QR codes as seen on TV station showing this"
 "Depending on the product and company, they may be sketchy and you don't know if the link they provide is safe"
 "Too many possibilities of scams"

Don't know how/have never done it

"I'm a tech idiot"
 "Just never done it"
 "Not comfortable doing this on my phone. I'm 86 years old"
 "not sure where my phone's scanner is or if I need a scanner app"

Prefer computer/no smartphone

"never learned how to do it from a computer"
 "need a smart phone"
 "I prefer to use my desk top computer and I don't have a scanning device accessory"
 "I can't read on my phone and don't like having it synced with my computer"
 "If one doesn't have a smartphone, TS. Website should be provided in ALL instances"

Technical problems

"sometimes qr code doesn't scan as easily as it should"
 "Hard to scan depending on light and placement on product"

Have you ever had any problems or frustrations trying to find a product manual online? If yes, What types of problems or frustrations?

MODEL NUMBERS!

"Making sure it's for exactly the right model" "can't find exact model number for product"
 "instructions for another model provided but not my exact model. led to confusion and did not work for me."
 "Trying to find manual for Aduro DashCam that I didn't know model#."
 "Finding the manual for a specific product" "couldn't find exact model" "searching for a certain model"
 "Product numbers not matching" "wrong model number but looked similar"
 "If you find a manual and then realize it is not for the model number you need."
 "product with the same model number was not available"
 "needing to determine exact model number to search for proper manual"
 "didn't know exact model number of the product to do the search."
 "It is also hard if you don't have the model number/name readily available."

Hard to find

"Poor manufacturers website"
 "Didn't have a working link"
 "wrong websites come up"
 "Not obvious where to look"
 "The pdf was buried or just not on the manufacturer's website."
 "Other documents and adverts have made finding the information I want more difficult."
 "Product was used and rather old and no manual was available from the manufacturer but a website devoted to older published material had a manual."
 "Sometimes it is hard to find what I need too much information on line"

Can't find needed/desired format

"finding the manual in a usable format"
 "Many times, the manuals are in a format that I cannot download"
 "too long, can't print or download it"

Unable to find or not available

"Not available" "Not available online"
 "not being able to find a manual" "Couldn't find the manual."
 "Couldn't find the right information"
 "Both unable to find--and--available in another language only"
 "Couldn't find when should be available"
 "manufacturer doesn't always have it officially available, reupload sites seem sketchy"
 "the description mentions my product, but it is not on the website."
 "Search leads to buying product not owner's manual for free"
 "Older equipment doesn't always have a manual online"
 "Older products" "Appliance way too old."
 "If you have an older model of an appliance, it is hard to find a manual."
 "The product was a few years old and/or discontinued and wasn't able to find relevant information online anywhere."
 "Older items-companies out of business"

Malware concern

"Fear of clicking a link or attachment that contains malware."
 "...reupload sites seem sketchy"

Have you ever had any problems or frustrations when trying to read or use an online or digital (e.g., PDF) manual? If yes, What types of problems or frustrations?

File format annoyances

"Many times, the manuals are in a format that I cannot download"
 "too long, can't print or download it"
 "finding the manual in a usable format"
 "hard to turn pages or make notes"
 "Have to do a viewer for special formats"
 "more complicated interactive manuals that require app download can take a while to install, delaying the process"
 "Sometimes a computer or phone isn't feasible as a paper manual"
 "HATE on-line manuals."

Legibility of images and text

"Sometimes too small on phone or page doesn't display correctly on the phone."
 "manual is a poorly scanned version that is difficult to make out"
 "Text was too small."
 "print too small"
 "Small print, light gray print"
 "non-scalar graphics are awful"
 "Expanding schematics can be troublesome."

Content annoyances (not digital-specific)

"not enough info, confusing layout"
 "sometimes it is depending on how the info is presented"
 "Directions not clear."
 "Instructions hard to understand"
 "verizon e-talk phone has NO printed manual and online is VAGUE"
 "Some manuals are expensive. Some lack detail, or suffer from poor translation."
 "pictures from wrong angle, poor translation"
 "Some manuals of products made in other countries do not have enough English written instructions and the diagrams that come with packages are not clearly drawn."
 "poorly written or translated copy"
 "Poor translations!"
 "manual written in languages other than English"

Bugs/technical problems

"Page may bug out or struggle to load images properly"
 "illustrations and font did not display correctly."
 "Webpage would not load properly and/or wasn't able to zoom in or out"
 "Wouldn't load properly"
 "I remember one time when I was using an online manual, the pages of instructions kept refreshing and taking me back to the top and it was frustrating having to keep going back to where I was."

Hard to access information within document

"No links to info needed."
 "Can't bounce between pages"
 "manual is not searchable"
 "Not easily searchable Couldn't find answer"