

A Quick and Dirty Web Audit on the Current State of Japan's Web Space

HELMUT MICHAEL LUU, MEHRSHAD BARATI, WAN JOU SHE,
SHOGO KAJIMURA, YU SHIBUYA (2026)



IEEE 44th International Conference on Consumer Electronics

Extended Intelligence with Sustainable Embodied AI Everywhere (Smart, Connected, and Sustainable AI-based Consumer Technologies)

February 3-5, 2026 | Raffles Hotel, Dubai, UAE | In-Person



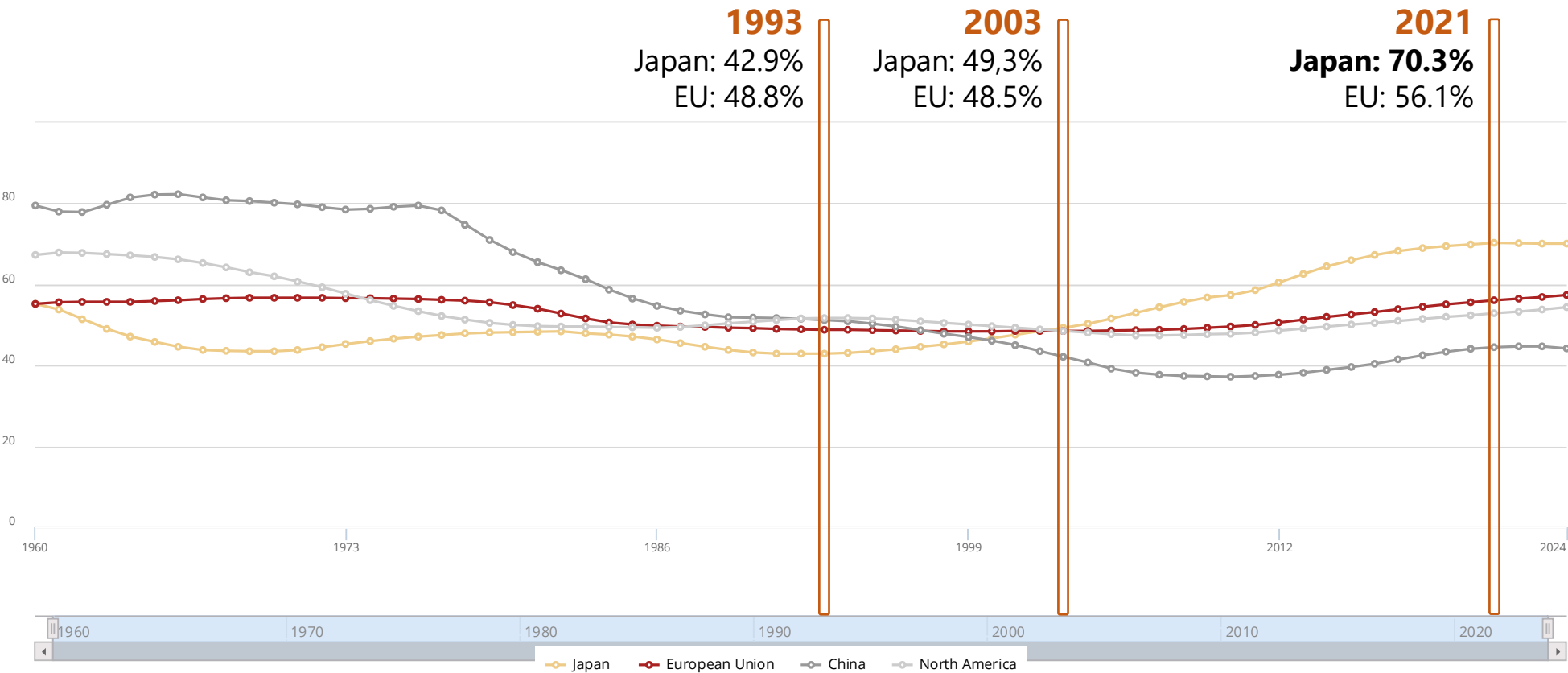
Outline

- › Background
- › The Quick and Dirty Web Audit
- › Results
- › Discussion
- › Conclusion
- › Future Work





Background



Series : Age dependency ratio (% of working-age population)
Source: Gender Statistics
Created on: 01/29/2026

Graph 1: Working-dependent population ratio in percent. Higher is worse. [1]



Background

- Japan is facing **demographic shift** as pioneer
- Digital Transformation (DT) has the potential to **relieve pressure** on work force [2]
- Researchers and Government concerned about **slow DT in Japan** [2-4]
- **Smartphones are dominant** personal device in Japan [5]

BACKGROUND

THE QDWA

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FUTURE WORK

Background

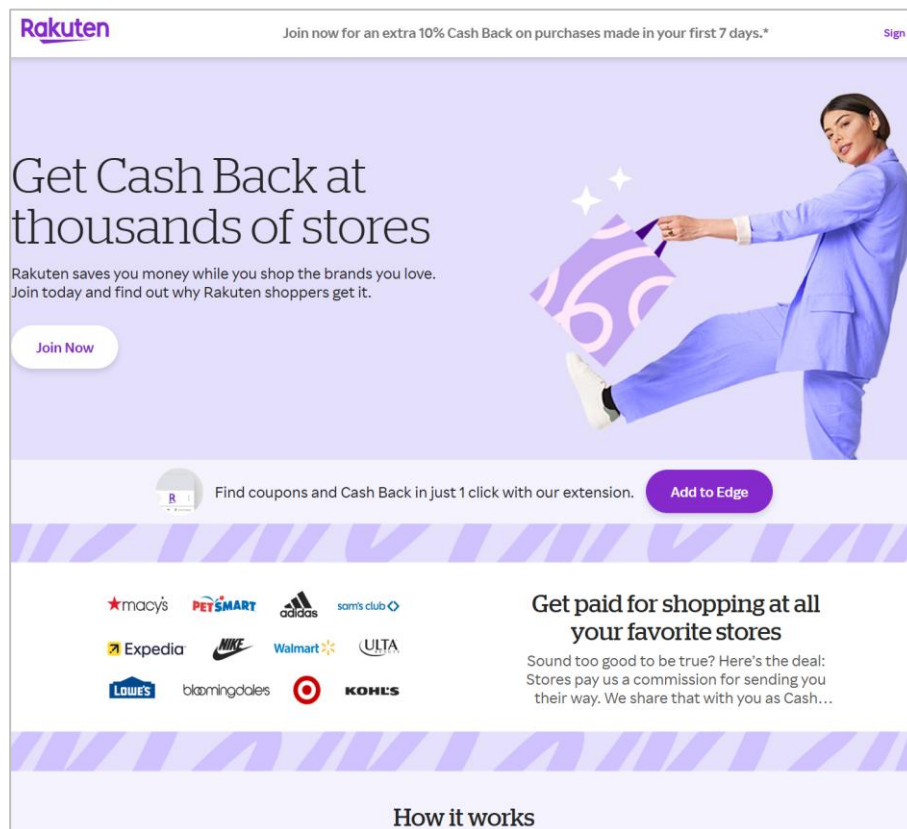


Figure 1a: Rakuten.com [6]

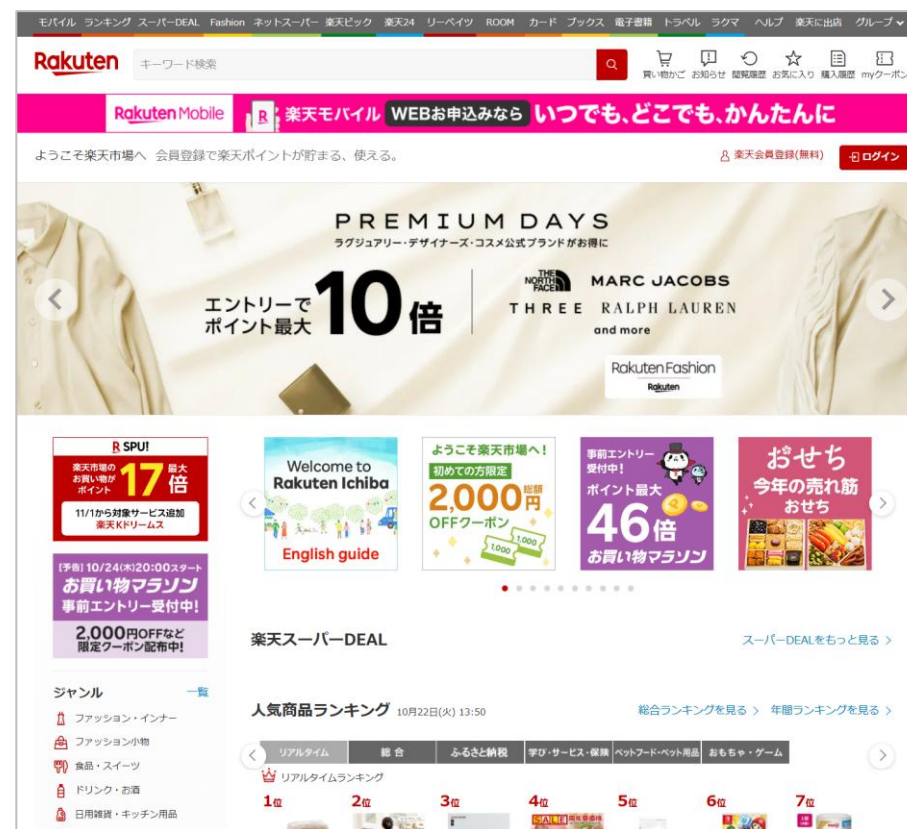


Figure 1b: Rakuten.co.jp [7]



The Quick and Dirty Web Audit



Are Japanese websites worse than in the West?

Comparison between Japan and Austria

(H1) Older web technology standards used in Japan

- Valid **Domain Redirect**
- Use of **HTML5**
- **Responsive Design**
- **WCAG** Accessibility Compliance

(H2) Minimum requirements are met

- SSL/TLS Security through **HTTPS**
- Use of **HTML4.1 or newer**

The Quick and Dirty Web Audit



Python "HTTP Request"

- Valid **Domain Redirect**
- SSL/TLS Security through **HTTPS**

HTML Document Inspection

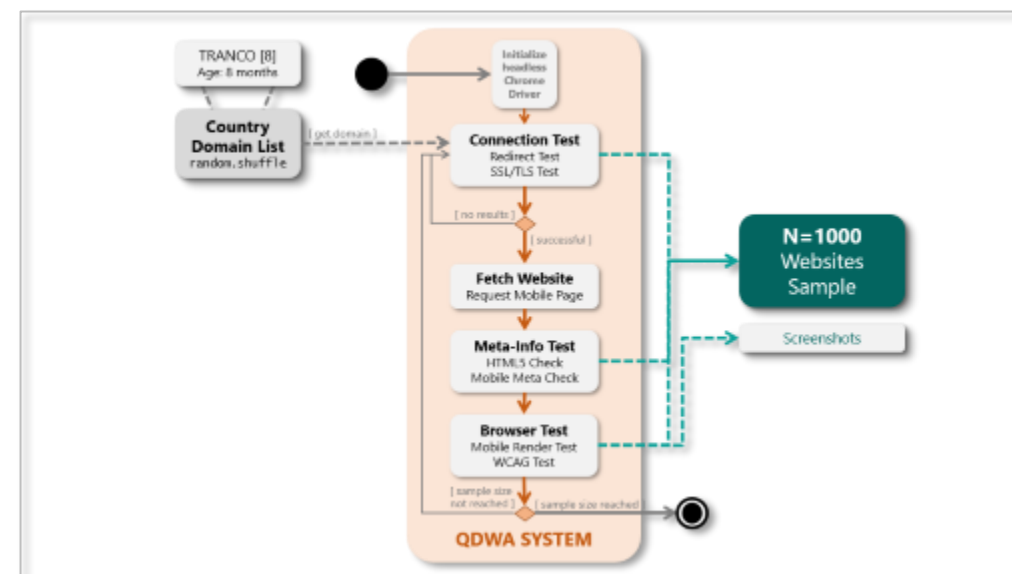
- Use of **HTML5**
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Selenium Mobile Render

- **Responsive Design**

aXe Python Library

- **WCAG** Accessibility Compliance



Results

	Japan	Austria
Preferred Domain Type	Bare (56.3%)	WWW (61.6%)
Test Passed	36.0%	61.3%
Multiple Errors	28.3%	14.3%
HTML5	79.4%	88.6%
Deprecated HTML (2000-2014)	15.5%	5.8%
Deprecated HTML (< 2000)*	5.1%	5.6%
HTTPS	75.6%	87.3%
Correct Domain Redirect	81.3%	93.9%
Responsive Design	57.1%	70.1%
WCAG Accessibility Violations	5.7 errors	6.1 errors
Domain Age	17.2 years	10.1 years

* did not reach $p < 0.001$



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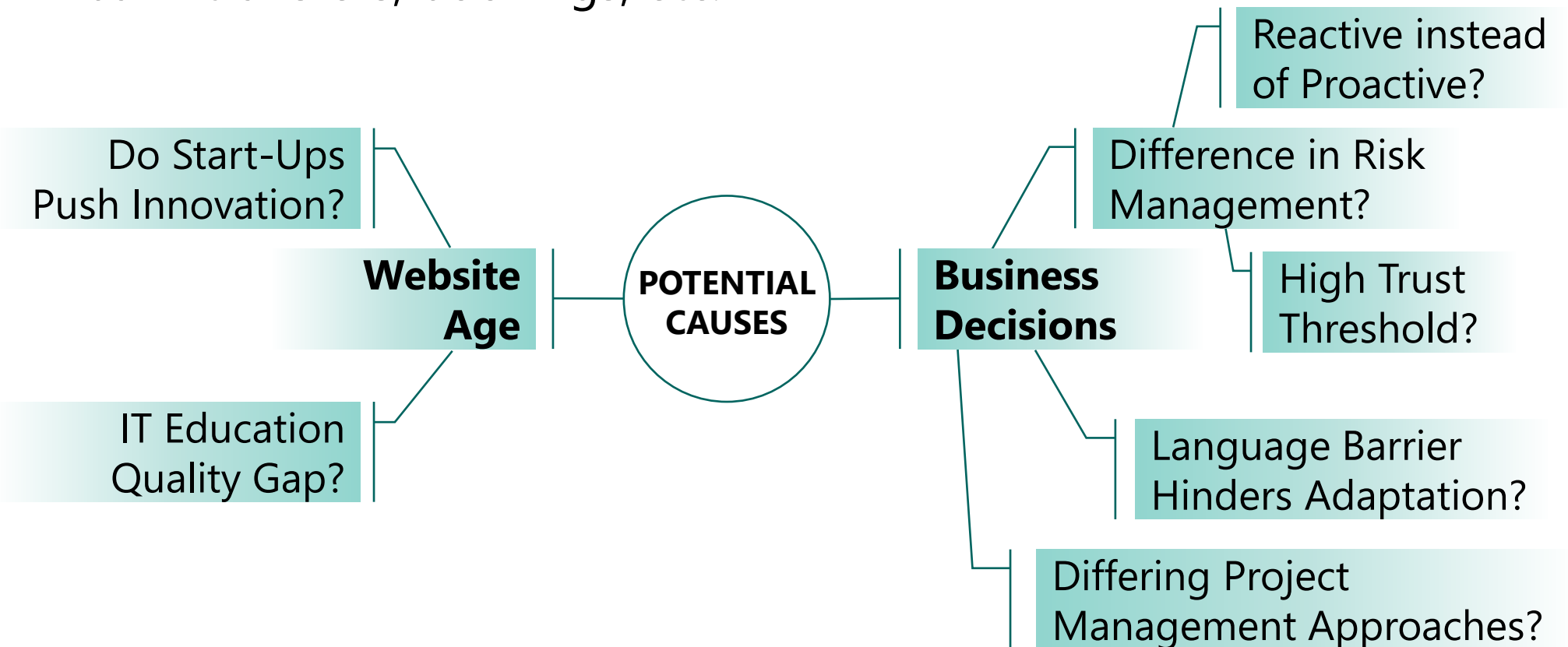
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Discussion

A significant gap in modernity was found.

➔ Personal experience: slow (non-automated) verification of bank transfers, bookings, etc.



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Discussion » Limitations

- Audit limited to **five fixed factors**
- **WCAG violations are not weighed** in severity
- No coverage of **reflow for non-standard viewports**
- No coverage of **reflow for window resizing**

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TLDR

- **Lightweight and performant** QDWA web auditing script was developed
- QDWA was run on **1000 randomly chosen web pages**, each from Japan and Austria
- A **significant gap in modernity and compliance** with web standards was found
- Reason for gap still needs to be identified



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Future Research

In-Depth QDWA

- Identification and Analysis based of Website Age
- Integration of Google Lighthouse Engine

Industry Survey

- Choice of Software and Libraries
- Software Developer Self-Evaluation
- Valuation of Web Services by Businesses

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Questions or Feedback?

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