LONGITUDINAL REPORT

2017–2026 Browser & Device Readiness Trends

The full nine-year data analysis — 131,418 scans • 9 years • one readiness story

131,418	97.6%	73.8 → 81.9	0% → 97%
Total scans 2017–2026	Overall pass rate	Avg score 2017 → 2026	TLS 1.3 adoption

Executive summary

This report analyzes 131,418 browser and device readiness scans collected between October 2017 and April 2026 using TechReady.io. It is written for leaders of online degree programs in higher education — student success, retention, online learning, and academic affairs — and framed around the question: what can nine years of readiness data tell us about the students an online program actually serves?

The headline is a measurable, sustained improvement: average readiness scores rose from 73.8 to 81.9, pass rates climbed from 20% (2017) to 100% (2025–2026), and legacy technologies like Flash and Java were almost entirely eliminated. Equally important, the data documents which populations improved fastest and which lagged. The ~30-point score gap between students on mobile carriers and students on home broadband narrowed but never disappeared — the clearest equity signal in the dataset and the most actionable finding for online programs.

For institutions running or expanding online programs, the takeaway is simple: student device readiness is a measurable, longitudinal, and improvable variable. It does not appear in LMS engagement reports or help-desk tickets on its own. It becomes visible only when an institution measures it directly — and when measured, it consistently predicts outcomes that retention models otherwise miss.

Methodology

Each record in the dataset represents one scan event — a single student or user running the readiness check from their browser. Every scan captures device (operating system, browser, screen), network (ISP, download/upload speed, latency), and security posture (plugins, TLS version, cookie and certificate configuration). From these inputs a 0–100 readiness score and a pass/fail decision are produced.

Year-level rollups in this report use the scan's created_at timestamp. 2017 and 2026 are partial years (late October through December, and January through April 22 respectively); readers should interpret the endpoints accordingly. All aggregate statistics are weighted by scan volume unless otherwise noted.

The 9-year arc

The cleanest way to read the dataset is the year-over-year trend. Seven of the ten annual metrics tracked here improved consistently from 2022 onward.

Year	Scans	Avg Score	Pass Rate	Flash %	TLS 1.3 %	Med. Download
2017	1,221	73.8	20.0%	46.4%	0.0%	37 Mbps
2018	11,810	75.8	82.3%	27.8%	44.2%	25 Mbps
2019	18,774	69.4	99.9%	9.6%	71.1%	28 Mbps
2020	43,862	69.4	99.9%	6.2%	89.1%	31 Mbps
2021	19,968	72.3	100.0%	1.3%	92.5%	47 Mbps
2022	10,174	77.8	99.9%	0.1%	94.2%	70 Mbps
2023	8,444	77.6	99.9%	0.1%	94.6%	86 Mbps
2024	7,999	77.6	100.0%	0.1%	95.0%	101 Mbps
2025	7,168	80.0	100.0%	0.0%	95.8%	132 Mbps
2026*	1,998	81.9	100.0%	0.1%	96.6%	146 Mbps

** 2026 data runs through April 22.*

Three patterns worth naming

The 2019–2020 dip was a growth artifact, not a regression

Scan volume grew from 11,810 in 2018 to 43,862 in 2020 — a 3.7x increase. Average score fell to 69.4 and stayed there. Two things happened simultaneously: the dataset took in a large number of previously-unmeasured users (many on older mobile devices), and the pandemic accelerated remote access on whatever device students had at hand. The tool captured the real shift accurately. Scores recovered from 2022 once the new cohort stabilized.

Legacy technology was eliminated, not outgrown

Flash went from installed on 46% of devices (2017) to effectively zero by 2022 — the year Adobe formally blocked it. Java followed the same curve. Internet Explorer, which had the worst pass rate in the dataset at 58.1%, disappeared from scans after 2022. These are not gradual

technology lifecycles; they are sharp cliffs that coincide with institutions acting on what the readiness scans surfaced.

Infrastructure modernized dramatically

Median download speed quadrupled from 37 Mbps (2017) to 146 Mbps (2026). Upload grew 5x, from 6 Mbps to 32 Mbps. Ping almost halved from 151 ms to 81 ms. TLS 1.3 — the protocol version required by most modern LMS, SSO, and proctoring systems — went from 0% in 2017 to 97% in 2026. Institutions whose online programs depend on synchronous video, secure assessment, or modern authentication now operate in a fundamentally different network environment than they did at the start of the series.

Findings that matter for online programs

The following five findings are consistently highlighted by online degree program leaders as actionable. These findings are directly derived from the longitudinal dataset and are presented in terms that resonate with ongoing discussions about retention, equity, and program quality.

1. Mobile-carrier students are a structural equity gap

Across all years, students whose sessions originated on a mobile carrier network (T-Mobile, Verizon Wireless, AT&T Mobility, Sprint) averaged a readiness score of 44.6 — compared to 74.6 for every other connection type. That is a ~30-point gap, roughly half a letter grade on the 0–100 scale. In 2019–2020 it was as wide as 35 points; in 2026 it has narrowed to about 2.5 points. The narrowing is real; the gap is not closed.

For online programs serving working adults, first-generation students, and students in rural or underserved regions, this is the clearest structural signal in the dataset. It does not show up in financial aid data, housing data, or LMS engagement metrics. It only appears when readiness is measured directly.

Year	Mobile-Carrier Avg Score	Other Connection Avg Score	Gap (points)
2018	60.0	75.8	15.8
2019	35.3	72.6	37.3
2020	36.8	71.7	34.9
2021	42.2	74.7	32.5
2022	68.4	78.2	9.8
2023	72.1	77.7	5.7
2024	73.3	77.8	4.5
2025	77.0	80.1	3.1
2026	79.5	82.0	2.5

2. Readiness problems cluster — they don't spread evenly

Of the 3,134 scans that failed outright across the full dataset, 76% had two or more simultaneous issues — typically an outdated OS, an end-of-life browser, and a missing or outdated TLS certificate. One-issue fails account for only 24% of the failure population. The operational implication is direct: a student who calls the help desk with "my page won't load" rarely has a single fixable problem. Triage workflows built around one-at-a-time ticket resolution will systematically undercount and underserve the students at highest persistence risk.

3. Windows 7 and Internet Explorer were the tail that mattered

Windows 7 — end-of-life since January 2020 — generated 1,204 failures, 38% of all failures in the dataset. Internet Explorer had a 58% pass rate, by far the worst of any browser. Both were clustered in the same population: students on older devices, lower-income or first-generation profiles. Their disappearance from the dataset by 2023 is the single largest structural improvement recorded. An online program that is not measuring is not seeing the equivalent of this tail in its own student body today — whatever that tail currently is.

4. Mobile OS scores collapsed, then recovered

From 2018 through 2021, Android and iOS devices scored 27–40 — roughly half of desktop scores. In 2022 both jumped into the 64–73 range, and by 2026 mobile users score 77.8 on average, nearly on par with desktop. The recovery is real but the lesson for online programs is that mobile device readiness is volatile: a single bad cohort of devices (cheap phones bought during a pandemic, for example) can drag a population's readiness sharply downward for multiple years before recovering. Measurement is what tells you it's happening at the time, not two years later.

5. TLS 1.3 adoption is a reliable proxy for modernity

97% of failing scans across the dataset are on TLS 1.2 or older, compared to 86% of passing scans on TLS 1.3. For an online program, TLS version is a useful single-variable check: students stuck on older TLS will also be disproportionately affected by modern LMS features, secure assessment platforms, and SSO integrations. The 2017 → 2026 shift from 0% to 97% adoption shows the overall population has modernized — but the tail that hasn't is precisely the tail an online program needs to see.

Why a longitudinal view changes the conversation

Most endpoint security or readiness tools sell a point-in-time snapshot: "Here is what your population looks like right now." A nine-year longitudinal dataset produces a different conversation. It lets an institution see not just the current state, but the trajectory — and the drift that happens between measurements.

For student success and retention leaders

Device readiness is a persistence variable that most retention models omit. The data in this report shows that the variable is (a) measurable, (b) unevenly distributed along exactly the equity lines institutions already care about, and (c) responsive to intervention — populations that were measured and guided improved materially. That is a rare combination. Few persistence variables are all three.

For online program leadership

When an online program launches, scales, or reaccredits, leadership is frequently asked to defend decisions about platforms, proctoring, synchronous sessions, and device requirements. A longitudinal readiness dataset provides defensible, population-level evidence — not anecdotes. The TLS 1.3 trajectory, for example, is a direct answer to "can we assume students can handle modern authentication?" The mobile-carrier gap is a direct answer to "what happens to the students who can only access us on a phone?"

For equity and access work

The 30-point mobile-vs-broadband gap is the closest thing in this dataset to a direct, device-level measure of digital access inequality. It is not a proxy for income, residence, or first-generation status — but it correlates cleanly with all three in the populations we have measured. For institutions with equity commitments tied to online programs, this dataset offers a measurement aspect that most equity initiatives currently lack.

What this suggests for your institution

The longitudinal data in this report was produced by institutions measuring their own populations continuously, over years, and acting on what the measurement surfaced. The three observations we hear most often from online program leaders who have seen the full dataset:

- “I would have assumed that our students were a year or two behind the curve. However, I was unaware that the gap was structural and related to how they access us.”
- "We have been treating device problems as help-desk incidents. This data says they are a persistence signal."

- "We do not have a baseline for our own population. A scan would tell us where we actually are on this curve."

A scan of your own student population — typically run as a lightweight, voluntary readiness check embedded in an early course or onboarding step — produces the same kind of longitudinal view for your institution that this report provides across the industry. Most programs run it once, see the baseline, and adopt it as an on-going instrument.

Next step

If you'd like to see what a baseline scan looks like for an online program of your size — and how to read the results in the context of this longitudinal data — a 20-minute walkthrough is usually the fastest path.

Email to book a 20-minute demo: jsample@techready.io