ScreenCloud

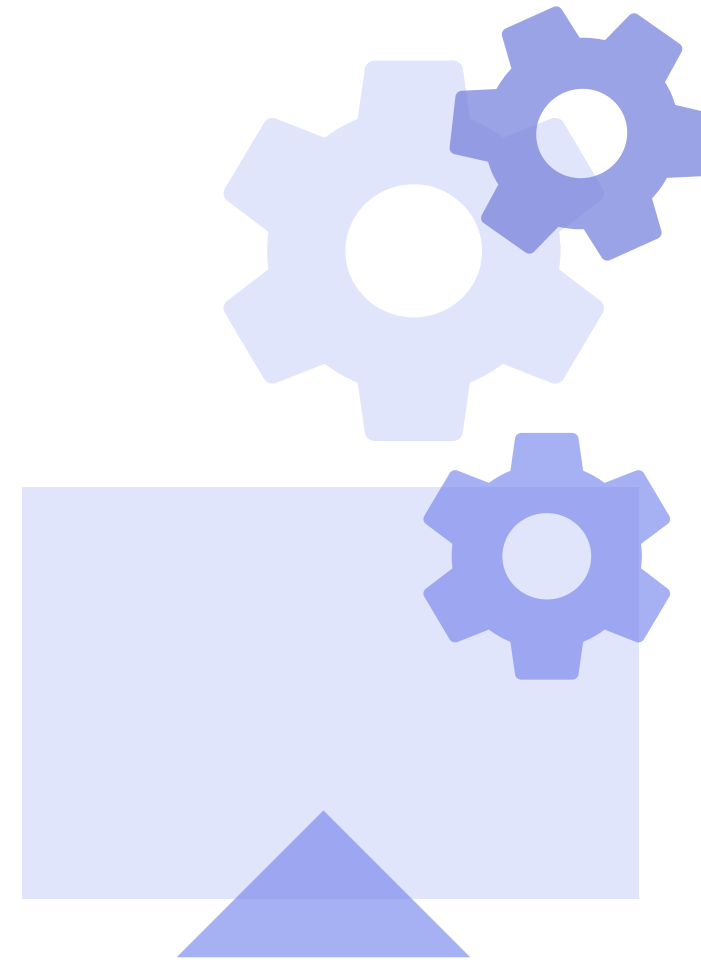# The IT Team's Guide to Digital Signage

Whether you're an IT manager pushing for digital signage or someone brought in long after the decision to deploy signage, this eBook has advice, recommendations, and answers for every step in the rollout.

Everything was written specifically for systems and network admins, with a focus on detailed technical explanations (for non-IT deep dives, check out [our other eBooks](#)).

Start reading wherever it makes the most sense for your entry point. Earlier chapters focus on making the business case for digital signage and wrapping your head around everything that goes into making a plan. Further on, we tackle purchase considerations, installation hurdles, and ongoing management.

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Digital signage means no more cluttered bulletin boards or dated paper notices that few noticed in the first place. Digital signage replaces that with up-to-date info. Meeting rooms that tell people what's coming next, restaurant menus that show today's special, and station signage that lets passengers and staff know when the next train will arrive.

Yet signage also means more work. Goodbye printing out notices about upcoming events; hello remembering to update signage with this week's agenda. Less pulling down paper, more putting up TV wall mount brackets.

Odds are, digital signage is only one of a dozen tasks you're juggling. Wayne Evans was a service desk supervisor who inherited an on-premise digital signage system — one that was "such a time drain that I started searching for a better solution," Evans recalled. The same was true for Napat Chalakornkosol, who managed digital signage while also directing Jaben audio equipment stores. Signage quickly "became a chore," said Chalakornkosol, with little time to devote to it alongside other, more critical work.

Directors of marketing manage signage. And directors of education. Directors of communications. IT directors, support engineers, and technicians. Founders and freelancers alike. Folks wearing more than one hat are most likely to manage digital signage. The less time and focus signage requires, the better.

Traditional signage systems, though, can often take more time to manage than you can spare.

At the UK National Health Service's South East Ambulance, where Chris Evans was head of critical systems, existing digital signage was yet another thing to manage—and worse, it was "slow to update, difficult to manage and with a poor end-user experience." Milwaukee Tools found that it took 20 minutes to update content with their previous signage system.

You want the best digital signage for your company. And you also want to know that you're not taking on more than you can handle, that signage won't break the bank and add hours of busywork to your weeks.

We've been there. From tweaking off-the-shelf consumer TVs and media players into digital signage to building our in-house digital signage media player to deliver reliable performance, we know what it takes to build a successful digital signage installation at your company. We'll guide you through the whole process so you know exactly what to expect. Whether you're planning a new digital signage installation or looking for ways to modernize an existing one, we've got you covered.

Let's dive in.

The case for digital signage

324 million square meters of LCD screens were estimated to be manufactured in 2023—enough to cover the entire surface of the Maldives with screens, with 26 million square meters to spare.

Covering your office walls with screens sounds like a reasonable use of that capacity. "We needed a tool to use on our TVs to help communicate with all of our employees who don't necessarily sit at a computer," said GLS director of marketing Stacey Yunger. "A TV in the lunchroom was an easy way to communicate."

And that counts for everyone in your company — even those who work at their desk but might overlook an important message.

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A smart wayfinding system to guide guests to the correct conference room or exhibition hall on a tight schedule. A way to put the right info where people need it, right when they need it most—helping your team perform better than the 47% of workers today who struggle to find relevant info when needed.

Signage is effective enough, when Goodwill Industries of Middle Tennessee used ScreenCloud's signage to promote annual benefits enrollment, they "saw a 25% increase in registrations over the previous year," shared their HR team.

Signage is also a way to build a cohesive brand. Whether your company works from a single office or is spread across global campuses, every message is a chance to reinforce your brand and make your team feel at home.

20%
of your team might ignore internal emails

8 out of 10 people
say signage has caught their attention

"

Signage helps teams at Choate Construction feel like they're more connected, more informed, and up to date as to what's going on

Internal communications specialist, Jon Micheletto

Signage is also a way to build a cohesive brand. Whether your company works from a single office or is spread across global campuses, every message is a chance to reinforce your brand and make your team feel at home.

"Brand is your facilities," [remarked Dan Pallotta in Harvard Business Review](). **"Is the place clean and uncluttered? Does it have signage that's consistent with your visual standards? Does it look and feel alive? Your home is your brand."**

Digital signage gives your organization's message the medium it deserves—that's the core belief that we've built ScreenCloud around. It all starts with that first digital sign on your wall.

That sounds simple enough. Odds are, you have a TV in your conference room with an HDMI cable for PowerPoint presentations or disused computer monitors and tablets in a storage closet that could be put to better use. You could loop a video on the tablet, or connect a flash drive to the TV and start a slideshow.

But you'll want to build something better to reap the most benefits from digital signage. How will you keep your signage up-to-date? You've got internal messaging, promotional videos, and presentations to share—but how will you get them on your signage? How long will that TV keep running? How will you display that screen–and where?

That starts with thinking through your screen options.

Digital signage components

Digital signage is not just a screen. No more than your laptop is just a screen. Digital signage is a system built around a screen to effectively deliver and update content, and showcase it in a way that your audience can clearly see it.

That system starts with the screen, where you'll need to think through size, resolution, and display quality considerations. But it doesn't stop there. In tandem, you'll need to consider where you'll place or hang the display, the display orientation, and how you'll power and connect the display to your network. And don't forget the hardware and software concerns of how you'll push content to your screens and remotely manage them, along with the timing aspects of when you want signage to be active and when it'd be better to turn screens off to conserve energy.

One screen setup might work best for your lobby, another for a menu board or advertisement in a retail location, and another for wayfinding signage in your hallways. You might deploy a wide range of screens around your campus, each best for one use case. Where you'll put your screens helps decide every other aspect of your signage solution.

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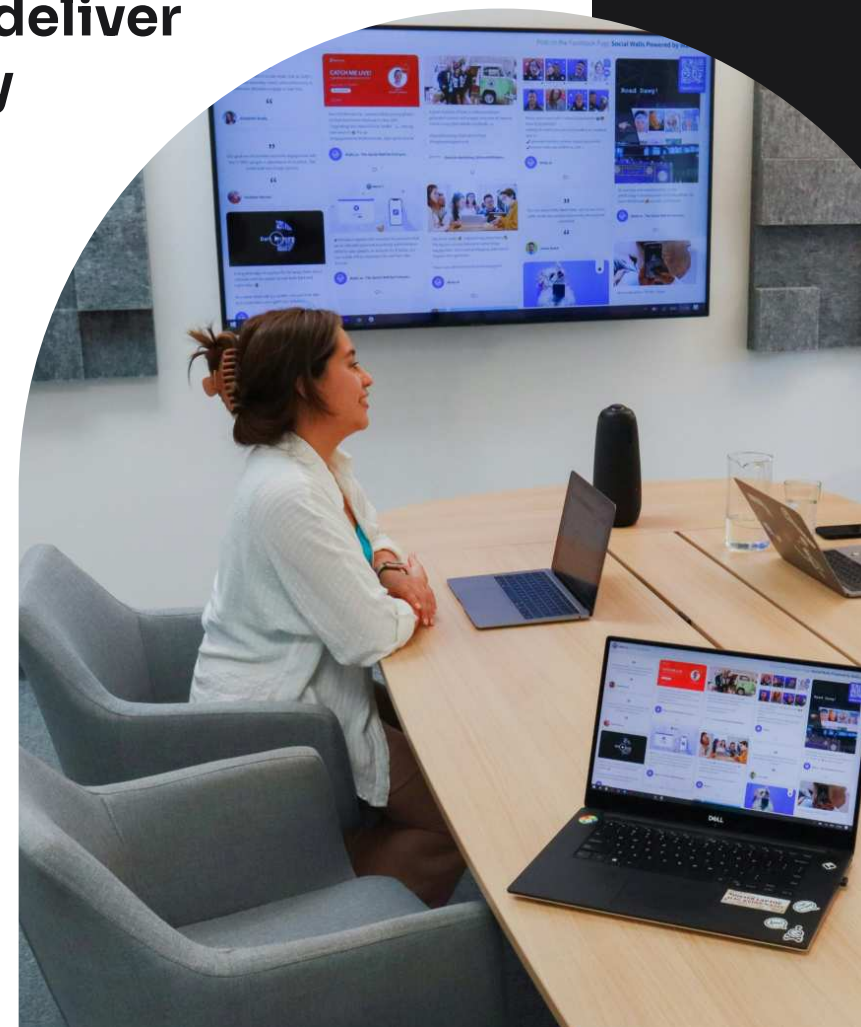
Where should your screens go?

Think about a TV in your conference room. Space concerns helped dictate how large the screen could be. There was an existing power outlet on the wall, or perhaps your facilities team added a new outlet while adding a TV wall mount for the display. That display likely stays turned off until you have a meeting. Then, you grab the remote, turn on the TV, and connect its HDMI cable to a laptop to run a PowerPoint presentation.

That's an MVP digital signage setup, one purpose-built for a conference room.

Navigational signage in a hallway or near a conference room door must be large enough to be readable, while not overpowering the limited space beside a door. A 32" TV would be too much; a tablet might be better.

Office signage must be readable at a glance from anywhere in a room. A larger TV might make sense here, something bigger than your team's computer monitors but not distractingly so.

Warehouse or factory signage needs to be brighter, depending on ambient lighting conditions. Outdoor signage might be best made from LED panels, OLED screens, or even paper-like eInk displays to be readable in direct sunlight. Lobby, menu board or stage signage could use a large TV, multiple large TVs side-by-side, or LED panels to build immersive digital signage setups.

Your signage location will help dictate which types of screens to purchase, if screens should be mounted horizontally or vertically, if you need to pair multiple screens into a larger display, if new power outlets or network cabling are needed, and what player hardware your signage needs.

Screens

All screens are not created equally. An iPad's 12.9", 264 pixels per inch, wide color, 120Hz refresh rate, 1000 nit-brightness screen is a far cry from a $100 32", 60Hz, 720p TV display. Both can display photos or videos and be hung on your office wall, but the similarities end there.

The best digital signage display depends on your purpose. An upcycled iPad could work well as meeting room signage. A budget TV could make sense for an event where you wouldn't want to risk a more expensive screen. It's all in making the appropriate tradeoffs for your business.

Screen sizes tend to be listed in inches, measured diagonally from one corner to the opposite. A 50" TV, for example, would be around 44"/112cm wide and 25"/64cm tall— or the opposite if you hang the TV in portrait orientation.

Resolution matters as well. Most new displays show either full HD (1920x1080 pixels) or 4K (3840x2160 pixels) resolution; LED video walls or projectors are often lower resolution. The higher the resolution and the smaller the size, the crisper the images and text. Distance also matters; if you're 6 feet or 2 meters away from a large TV, you might not notice the difference between HD and 4K, but the loss of quality will become evident the closer you get to the screen. It's best to opt for 4K resolution where possible.

Tip: Check Rtings.com's TV size to distance calculator to calculate the ideal viewing distance for different screen sizes

3840 width

2160 height

55"

4K

Television

Bezels labeled
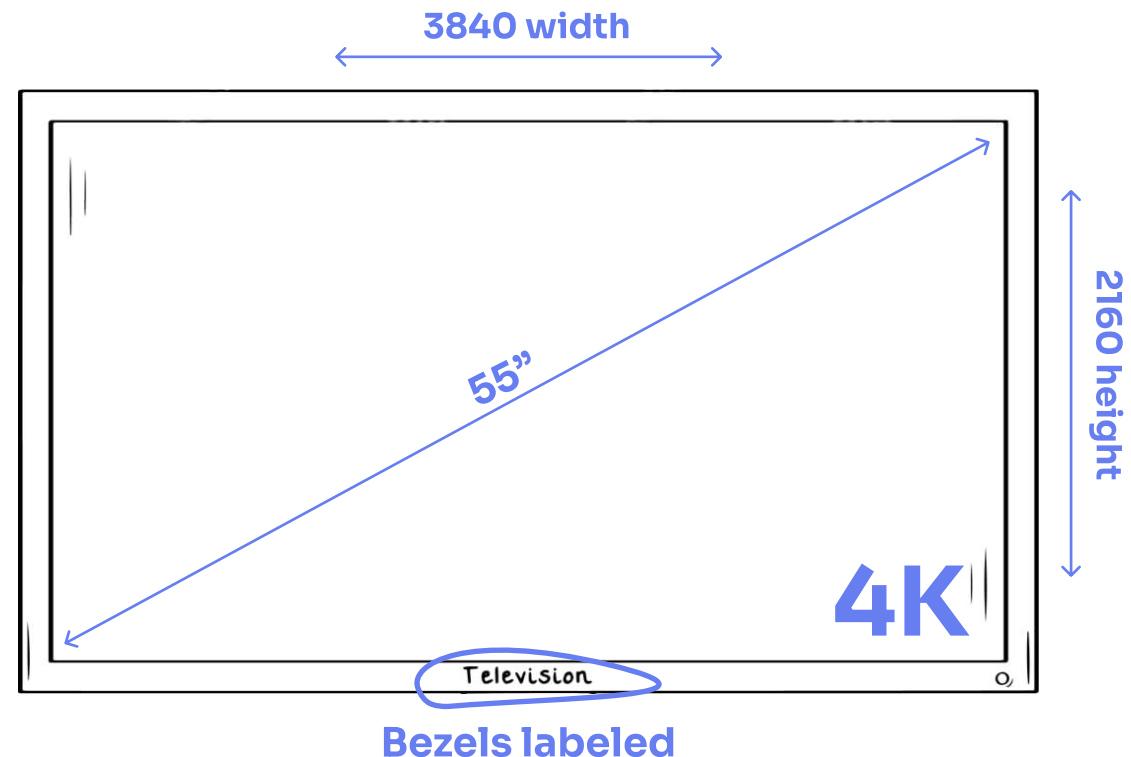
Tablets are often the best value for 10-12" screens, especially in kiosks and other use cases where a touch screen comes in handy. A base-model iPad or Android tablet may be cheaper than a standalone touchscreen display and can run signage software out-of-the-box. Or, custom sign boards range from 13-20" and run Windows for a more powerful, centrally-managed small signage option.

Computer monitors are the next best option for screens from 17-32". While that's still relatively small for most signage use cases, monitors can work for smaller directional signage—and can often be upcycled when you upgrade your team's computers.

The largest screens, including 100" + video walls and other more advanced signage like The Sphere Las Vegas, are powered by LED panels. Unlike a monitor or TV with a built-in power supply and HDMI connections (among other connectivity options and potentially smart TV features), LED panels are raw display units that require a separate power supply and controller. What they lack in simplicity, though, they make up for in flexibility. You can stack as many LED displays as you can dream up for full-wall signage.

TVs are the best digital signage options for everything between 32" and 100" which covers most signage use cases. Here, the core trade-off is between consumer TVs and commercial-grade displays.

Consumer displays are designed to be used a few hours a day, in a home environment, with a shorter warranty. They're more likely to show color distortion, burn-in, or bright spots if left running continuously. Commercial-grade displays are designed to be used all day, rated for either 16 or 24-hour-per-day playback, with better heat dissipation and backlighting that keeps them looking new for longer.
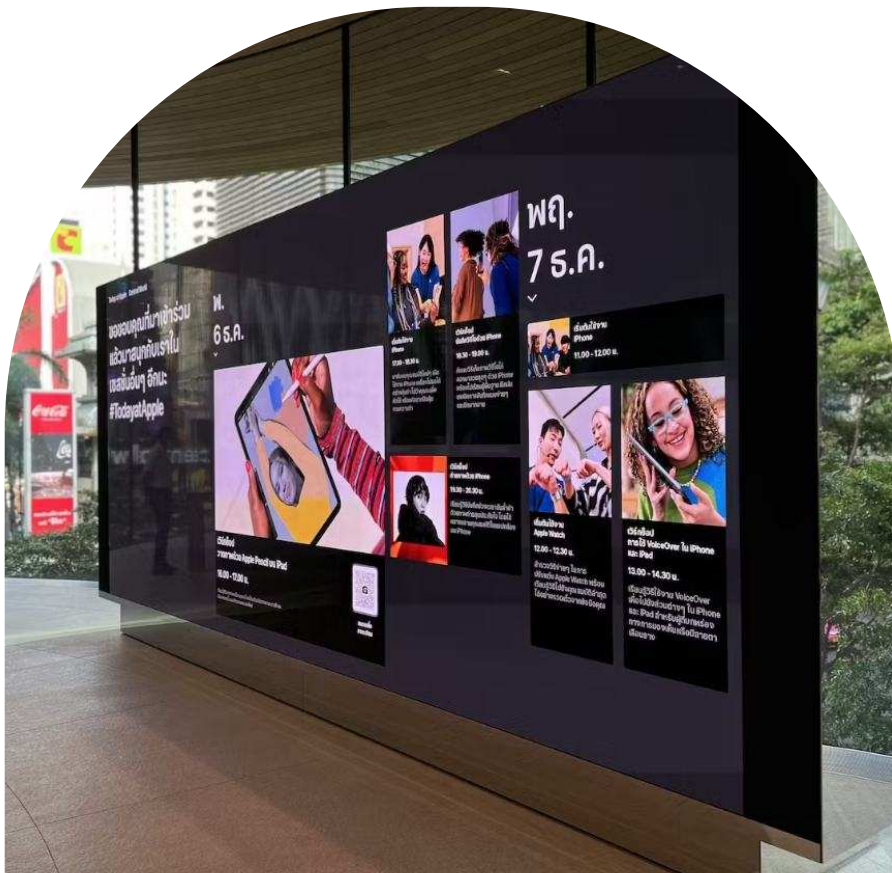
There are a few more specs you'll want to compare:

▶▶ **Brightness**: Measured in Nits, the average consumer TV should have around 300 nits of brightness and show a clearly visible image in any glare-free interior environment. Professional displays offer around 400-700 nits and may include anti-glare coatings for bright environments.

▶▶ **Viewing Angles**: Digital signage needs to be viewable from all sides, something that's less important for a living room TV you sit directly in front of. IPS panels have the best viewing angles, both vertically and horizontally; the picture is visible and the colors are generally accurate as you move around. Cheaper screens may use TN or VA panels, which appear less bright and show inconsistent colors the further you are from the center of the panel. Viewing angles are especially important if you plan to hang your display vertically, whereas TN panels have much lower visibility.

▶▶ **Contrast Ratios**: Content will be clearer and text more legible on displays with higher contrast ratios. OLED displays have the highest contrast and darkest, most uniform black colors—but also are more expensive, have a shorter lifespan, and are more apt to burn in than LCD screens. Professional IPS panels tend to have higher contrast ratios, while according to RTINGS, VA screens have better black uniformity and contrast ratios.

Expect to spend from $300-500 for an entry-level consumer TV to over $1,000 for a commercial-grade display — or from $10k-$100,000 for an LED video wall.

▶▶ **Bezels and Logos**: Consumer TVs tend to have wider bezels framing the display, often with a brand logo on the bottom center of the screen—something far more noticeable when mounted vertically or side-by-side with other displays. Commercial-grade screens often have little-to-no bezel, with branding hidden on the back of the display.

▶▶ **Smart or not**: Most consumer TVs and commercial displays today include smart TV functionality. If you want to use built-in smart TV features to power your signage, look for Android TV or Fire OS, as they support a wider range of apps (including digital signage tools) than operating systems like LG's webOS or Samsung's Tizen OS. Smart TVs may also add management overhead to keep the on-device software up-to-date and secure.

▶▶ **Additional Features**: Commercial-grade displays are often designed to support portrait and landscape usage, and some include sensors to rotate the displayed image automatically. They may also be designed for industrial or transit use cases, with humidity and dust ratings, or anti-glare and haze filters to increase visibility. Also, look for anti-theft and tampering protection and open pluggable specification (OPS) expandability—often only found in commercial-grade displays.

Tip: TV and display specs and prices are continually changing, so check ScreenCloud's Consumer TV and Professional Display buyers guides for up-to-date recommendations

Media player hardware

With displays out of the way, it's time to think about the hardware that will power your displays. You need a device that can reliably stream 4k footage, in portrait or landscape orientation, with support for any software you need to show on your signage.

Smart TVs tend to run Google's Android TV or Chromecast, Amazon's Fire OS, Samsung's Tizen OS, LG's WebOS, or Roku TV. Some smart TVs may only include a browser, while many displays support playing images and video from a USB flash drive even without app support. Of those options, Android TV and Fire OS are the best for digital signage, thanks to the wide selection of digital signage apps in Google's Play Store and Amazon's Fire Store.

Consumer media players, including an Amazon Fire TV or Google Chromecast device, typically cost less than $50 and can be used to power your signage. Those bring the same features as a smart TV, with the option to upgrade your hardware over time and standardize all your displays on the same software versions. They also come with the same downsides as built-in smart TV features: They're consumer-focused operating systems that will typically auto-install updates and may refresh back to the home screen or display 3rd party consumer-focused apps and content on wake rather than defaulting to your signage software.

Professional media players, instead, are built around digital signage. Unlike consumer media players designed around streaming Netflix to a TV, signage-focused hardware is built around digital signage needs.

They're typically built to run continuously — with heat sinks or fans to dissipate heat — and may include mounting and theft-prevention hardware that simplify building them into a digital signage system.

They also often include more networking options, including Ethernet ports, something not commonly included in consumer hardware. The greatest difference between consumer and commercial media players is usually on the software side, with either a custom-built operating system for signage, such as our ScreenCloud OS, or enterprise editions of ChromeOS or Windows built around professional use cases. That lets you customize the setup for signage-focused use cases, including options to only install updates when prompted and to ensure that your signage app will run — and nothing else.

They'll also cost more—from $99 for a ScreenCloud OS device or Chromebox—but are often worth the investment versus consumer-grade players.

Larger digital signage setups—including video walls—will require specialized hardware. Multiple TVs connected to a single, continuous video feed will need to be powered by a PC with dedicated video cards that support multiple HDMI outputs. An LED video wall will require a separate power supply, video processor, signal-sending card, and cabling to connect each display panel, plus a dedicated media player to send signage and video content to the video processor. PCs can also be a great way to reuse existing, retired hardware to power signage, or as thin clients to power signage while simplifying centralized management.

For most digital signage projects, a dedicated professional media player is the best option—but depending on your needs, anything from built-in smart TV features to a standalone PC can be perfect to power your displays.

Tip: Check ScreenCloud's digital signage hardware buyer's guides for up–to–date recommendations on consumer and professional media players for signage

Connectivity

Keeping digital signage up-to-date used to mean updating USB drives or running LAN cables to each screen. Today, WiFi makes updates far more straightforward, but you still have to keep connectivity in mind when rolling out signage.

Electricity, most crucially, dictates where you can place your signage. No power outlets, no digital signage (aside from tablets as directional signage, if you don't mind charging them daily). You'll need to place your signage in areas with existing power outlets, or will need to run new outlets to each screen location. Most signage will require two outlets: One for the TV and another for the media player.

Then, you'll need to ensure each location with signage has consistent, fast WiFi. Your office is likely fine, but larger areas, including warehouse, factory, and retail locations, may have less consistent coverage. Run a speed test on your phone from each location where you plan to install signage to ensure everything's okay. If not, consider adding additional WiFi endpoints, running Ethernet to each screen, or using a 4G or 5G mobile hotspot to add network coverage to that location.

Your company's network may have additional security considerations to keep in mind. Corporate networks may require WiFi certificate authentication or Ethernet connectivity, which require professional media players instead of off-the-shelf consumer players and smart TVs. Your signage may also need a dedicated proxy to access social networks if they're blocked on your internal network but you'd like to share customer reviews with your team on signage, for example.

You'll also need to pick a TV mount to hang your display, an additional mount for your media player, and cable management to keep your signage tidy. Check your local safety and accessibility regulations first. The US Americans With Disability Act specifies that screens can protrude no more than 4" from a wall, while many local building codes require TV anchors to prevent screens from falling off walls in the event of earthquakes. Also, check your wall to make sure it is strong enough to support your TV or that studs are located close enough to support your screen mount.

Keep placement in mind as well. Place digital signage at eye level (~58-62 inches or 147-157 cm off the ground), if possible, and in locations where glare won't affect legibility. Landscape orientation is better for quick glances, while portrait slides work well for scrolling text or social media videos. If a screen needs to be mounted high on a wall because of cubicle partitions, furniture, or shelving, it may be best to choose a flexible mount and then tilt the screen downwards to enhance visibility.
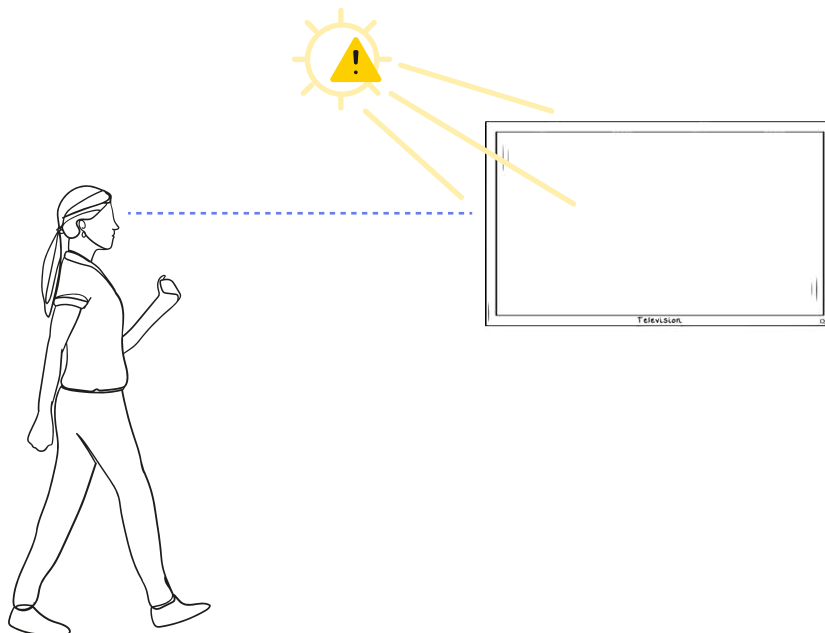
Choose a fixed VESA mount with enough space for a digital media playerand cable management.

Alternatively, a tilting or full-motion mount may help you find the best viewing angle for a screen. TV mounts should cost around $60-$200, depending on the model and size needed.

Tip: Check ScreenCloud's guides to TV mounts and media player mounts for up-to-date recommendations on hardware to mount your digital signage

Software

Securely mounted eye-level screens, connected to network-connected media players, still need one more component: Digital signage software.

Your team may already have content that's perfect for digital signage. PowerPoint and Google Slides presentations. Dashboards from your software and databases. Reminders and updates from Slack. Reviews from customers on Yelp, pictures they've shared on Instagram, and stats on Zendesk support tickets.
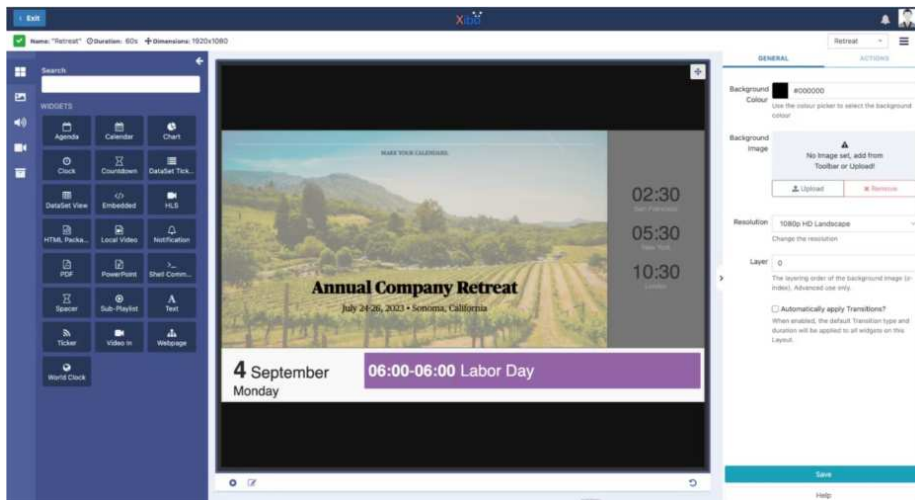
You need a way to hand off digital signage content management to your HR, marketing, and other content-focused teams so they don't have to ask you to change stuff whenever your signage needs an update.

The best digital signage software lets you remotely manage every screen and sign in your company—at a single office or across multiple campuses around the globe. From a web app, you should be able to push content to individual screens or update screens in bulk, time content to show up when it's most needed, and quickly turn existing content feeds from the software your company uses int digital signage.

The cheapest options include open-source digital signage platforms like Xibo, with a centralized digital signage CMS running on a server and free apps that run on Android TV and other smart TV platforms.
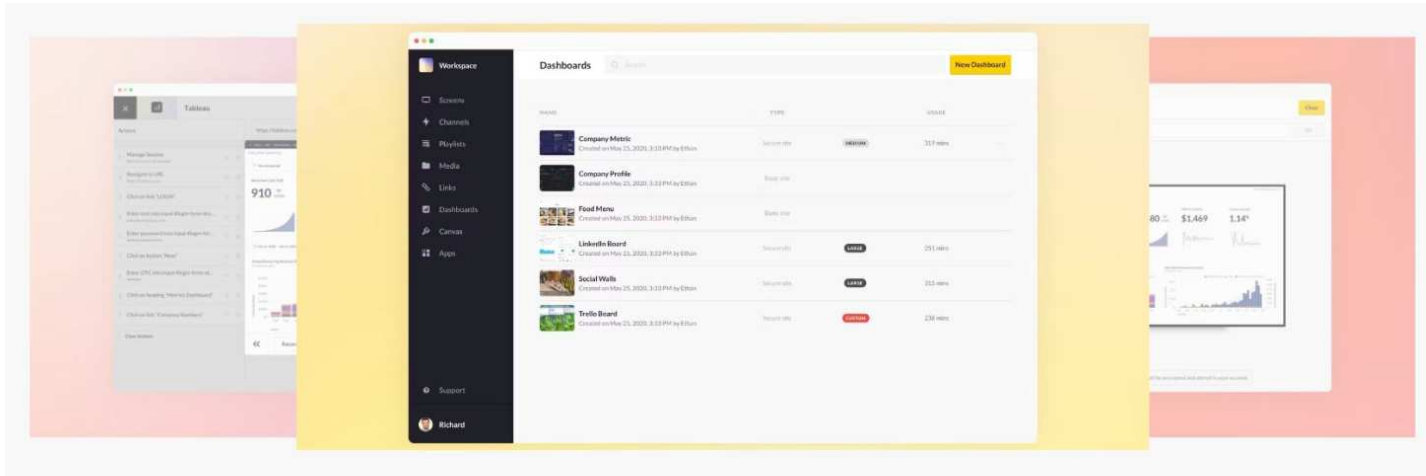
For more professional digital signage software, we're clearly biased, but ScreenCloud is the software we recommend. It's built from the ground up for signage, with tools to centrally manage as many signs as your company needs. It's integrated with 70+ popular business apps and can scrape any dashboard or chart from your existing apps with Dashboards. Or you can code custom screens and update them automatically with Webhooks and GraphQL. And you can manage your signage anytime, anywhere, from ScreenCloud's online dashboard.

ScreenCloud runs natively on the ScreenCloud OS player. Or, you can run it on any Windows PC, Mac, Android TV, or Amazon FireOS device with dedicated ScreenCloud apps. That diversity is why Choate Construction picked ScreenCloud.

"Dozens of different devices support ScreenCloud, and having that flexibility was helpful because I wasn't going to need to be in-person to help our teams set up the hardware," said their internal communications specialist Jon Micheletto.

Like most paid digital signage software, ScreenCloud's pricing is a monthly subscription based on the number of screens that display your content. You'll first set up a ScreenCloud account, then connect your team's software, build out slides and dashboards for your signage, and organize those slides into playlists. Install the ScreenCloud player on each of your TVs or digital media players, and add them to your ScreenCloud account. Then, choose which playlist to show on each screen—and invite your team to ScreenCloud, set up their account permissions to manage the screens in their office or store, and get them to start adding the slides their teams need.

That's when it all comes together, with your screens turned into professional digital signage, ready to be updated whenever you need.

Total cost of ownership of digital signage

#3

Bring it all together and you can start calculating what digital signage will cost to roll out, and your total cost of operation.

Let's assume your office already has connectivity and power sorted, and you're hanging signage in an area where no additional work will be needed to mount the screen.

A 55" entry-level commercial display might cost around $1,000, a ScreenCloud OS media player costs $99, a TV mount would cost around $100, and ScreenCloud's digital signage software costs $30/month per screen.

Average total digital signage cost:
$1,200 per display, plus $360/year in ongoing costs

screencloud.com

The total digital signage cost would be around $1,200 per display, plus labor and time to set up and install the display, plus $360 per year to operate the display. **Over four years, the average company spends around $2,640 per display on digital signage**. Compare that to traditional paper and ink alternatives. Werner Enterprises spent "$600 [to] print and replace each poster across our 18 facilities within North America for each message or update" before rolling out ScreenCloud digital signage. Screens would be the more economical option after only a single updated messaging per quarter.

Smaller screens, repurposed existing devices, or consumer TVs would save on the initial setup costs; larger displays or video walls could cost much more. On the other hand, professional displays, especially those built for 24/7 operation, should last far longer than consumer displays, lowering their total TCO per year. And you could end up with a mix of displays, some cheaper, others more expensive, with your TCO per display averaging out something in the middle.

Or, custom needs might increase the TCO. Stanford Seafood deployed digital signage in their deep sea fleet, connected via a high-latency satellite link. They worked around network limitations by using Amazon Fire TV boxes with 32GB flash cards to cache signage data—a slightly higher initial cost in networking and hardware that paid dividends in long-term dependability.

Setting up digital signage

Finally, you can begin putting together a timeline and estimated rollout date. Budget time to evaluate financing options, learn your way around new installation requirements, and overcome unforeseen obstacles.

There's no hard-and-fast rule, but it might help to assume that you'll need 5 working days to research, buy, install, and set up a single screen, not including content design. For a second screen, make it 5+4. For a third screen, make it 5+4+3…down to a minimum of one day per screen. That would mean allocating 20 working days for a 10-screen rollout (5+4+3+2+[6*1]). This should be enough to account for shopping, shipping, and troubleshooting.

Setting up time:

5 screens	5 working days

20 screens	20 working days

screencloud.com

Flu vaccines will take place in Room 310

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Purchasing digital signage components

Even with a small-scale rollout, purchasing hardware involves more than an afternoon trip to a local electronics retailer. For starters, when buying new screens and media players, it's best to buy for what you'll need a year or two from now, not the cheapest viable option available today.

That means extra research around considerations like 4k capabilities, wear-and-tear implications of 12+ hours per day of use, and whether interlocking LED panels are better for your situation than standalone screens.

You'll also need to be certain that the media player(s) you'll be using are compatible with your screens. This can be a chicken-or-the-egg problem, where you pick a screen, and then a player, only to find out they don't work well together. Pick the most important component for your situation first, then look for the best complementary components.

Plenty of low-cost screens and media players work just fine for digital signage. But firmware and software updates, especially for consumer-level screens and media players, can become problematic when using hardware not built solely for signage.

One enterprise–level G2 user told us, "We started out with Amazon Firesticks for our players, but they proved to be a little unreliable due to Amazon's OS updates, so we moved to ScreenCloudOS devices, and they have been rock solid."

For larger rollouts (or fleets that are expected to grow quickly), here are some hardware variables worth considering:

▶▶ **Consumer-grade screens**: Most have finicky power-saving settings, firmware updates, menu overlays, and burn-in-prone displays. These problems can be so unavoidable in digital signage deployments that many vendors void non-commercial hardware warranties after hitting low usage limits.

▶▶ **LED panels**: Signage that's over 100" corner-to-corner or lives outdoors will require a few additional devices, including controllers and video processors. Make sure to price in power supplies, cables, and panel controllers.

▶▶ **Ongoing vendor relationships**: Customer support availability and hardware reliability are huge for always-on screens. Consider testing out support hotline wait times and reading reviews in unsponsored online communities like /r/CommercialAV and /r/digitalsignage.

▶▶ **Vendor mounting recommendations**: Bring photos and measurements of proposed screen locations and media player dimensions to sales conversations. Every extra bit of context here prevents unexpected hurdles later on.

▶▶ **SoC screens vs media players**: Some screen manufacturers take a SoC approach, integrating storage, compute, and RAM directly into the display. While they mean fewer devices to manage and minimal mounting/space requirements, they'll give you far less control and customization over content management and design. Built-in computational hardware is also likely to age faster than your display itself; modular hardware gives you the chance to upgrade piecemeal as needed.

x86 vs ARM chips: Whether included with an all-in-one signage screen or an external media player, ARM chips are typically smaller, more power efficient, cheaper, and run at cooler temperatures. x86 chips from Intel or AMD are often more powerful, better for setups powering multiple displays from a single computer, but they also typically ship in larger PCs that are harder to hide behind a display.

Onboard RDM and enterprise security: As your fleet grows, centralized monitoring and control over screens and media players will pay for themselves in hours saved. Similarly, media players with built-in logging, proxies, and custom root CAs will eliminate the need for complex security workarounds like VLANs and segmented networks.

Bulk purchases: Going directly to suppliers or authorized resellers often comes with volume discounts, extended warranties, and upgraded support options (here's Samsung's Business Volume Pricing, for example).

Leasing options: Terms and payback rates might be enough to swing your hardware decision from one vendor to another, especially when buying 10+ devices. Ask those questions earlier rather than later.

Non-signage hardware: Don't forget to factor in costs and setup requirements for peripheral devices like new wireless access points, lighting arrangements, and screen enclosures.

Depending on whether you're buying directly from the manufacturer or from an authorized reseller, you may have a short window to return hardware that doesn't measure up once it's on-site. You might also have more return/exchange options when the vendor provides help with installation.

But if you'll be mounting, connecting, and setting up screens and media players yourself, keep a close eye out for red flags that can be addressed early on.

Installing digital signage components

Getting digital signage set up requires a broad skill set. Mounting your screens. Connecting them to media players. Deploying content management software. It will take longer than you expect. There are, however, several things you can do to get everything up and running with minimal interruptions. Let's break it down by each component.

Prepping a new screen location and media player

At this point, it's often a good idea to do as much as you can without actually mounting the screen. That might mean setting it up on a table just below the mounting location, plugging it in along with the media player, and connecting to WiFi or Ethernet (ideally getting at least 20 Mbps in a quick network speed test).

If you're not ready to install your digital signage software at this point, consider plugging in a USB stick and running some example content. That will allow you to test several important location-specific variables before putting screws in the wall. You might want to confirm that glare, brightness, and viewing angles aren't a concern. Or that remote device management and special network settings work as expected for this location.

Assuming everything looks good, this is also a great time to start wrapping and organizing cables.
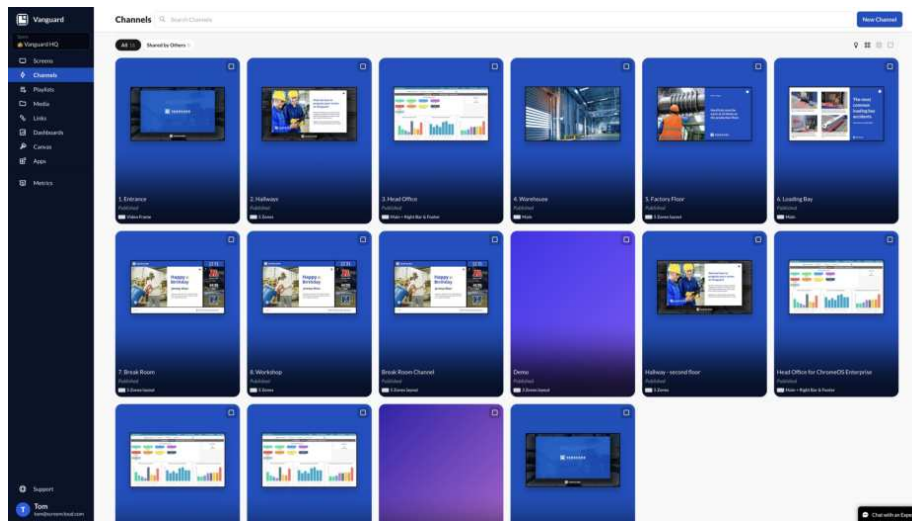
Setting up digital signage software

Sending content from your digital signage software to a soon-to-be-mounted screen might be the only way to ensure everything will work as intended. If you're mounting a wayfinding display, for example, this is the time to look for unexpected issues with the portrait orientation. Make sure that cables will reach and no furniture is in the way when the screen is flipped on its side.

For use cases when 4k content is essential, this is also when you'll want to double-check that it downloads and is displayed correctly. Another helpful test is to simulate a network outage and see what happens. If it's worse than expected, that might push you to run an Ethernet cable or change the location. ScreenCloud caches and stores media locally for most players, meaning that your playlist should continue on without serious issues when WiFi goes down. But every digital signage app handles downtime differently.

For mobile or outdoor signage, you should confirm how data-hungry your signage software is. Plug in a hotspot device, let a test playlist run for an hour or two, and check your usage stats.
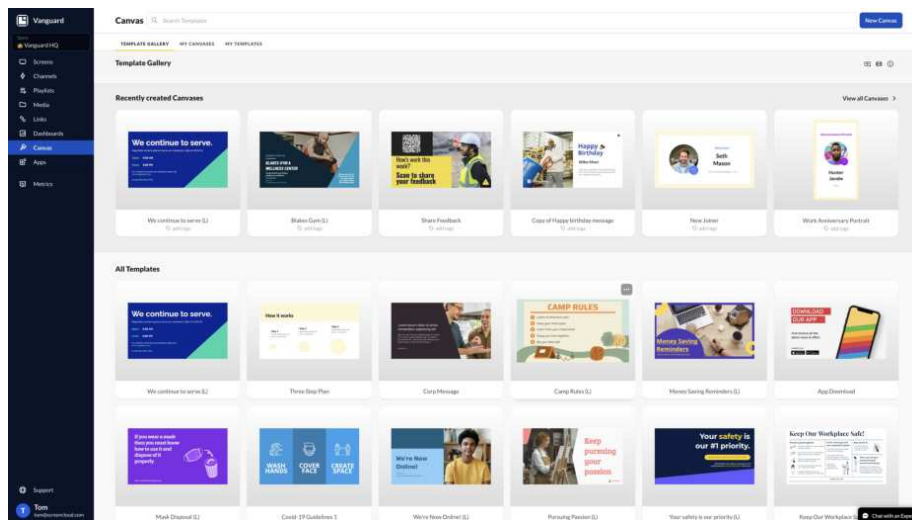
Mounting a new screen

Known as either the Flat Display Mounting Interface (FDMI) or the VESA Mounting Interface Standard (MIS), the hardware you'll likely use to attach your screen to the wall is standardized and optimized for DIY installation. You shouldn't run into any major issues as long as your screen manufacturer clearly indicates which variant and pattern size to use.

TV wall mounts don't always leave room for attached media players. For the sake of ventilation and cable access, the best place to attach a media player is usually close to the edge of the TV with the ports facing outwards. Measure the clearance between the TV and the wall to make sure you have enough room.

In terms of the wall mount, just screw together the TV-side bracket and bracket arms, attaching them to the back of your screen. Then, you can use a stud finder to find anchor points and obstacles behind the wall. Ideally, though, you should work with your building maintenance team to confirm that pipes, cables, and coils aren't at risk.

Line up the wall mount with your anchor points (screens tend to get the most attention when they're at eye level) and screw in the upper left corner. From there, use a level to adjust the other corner until the mount is perfectly level. Lower the TV into its new home and start thinking about what you want it to show.
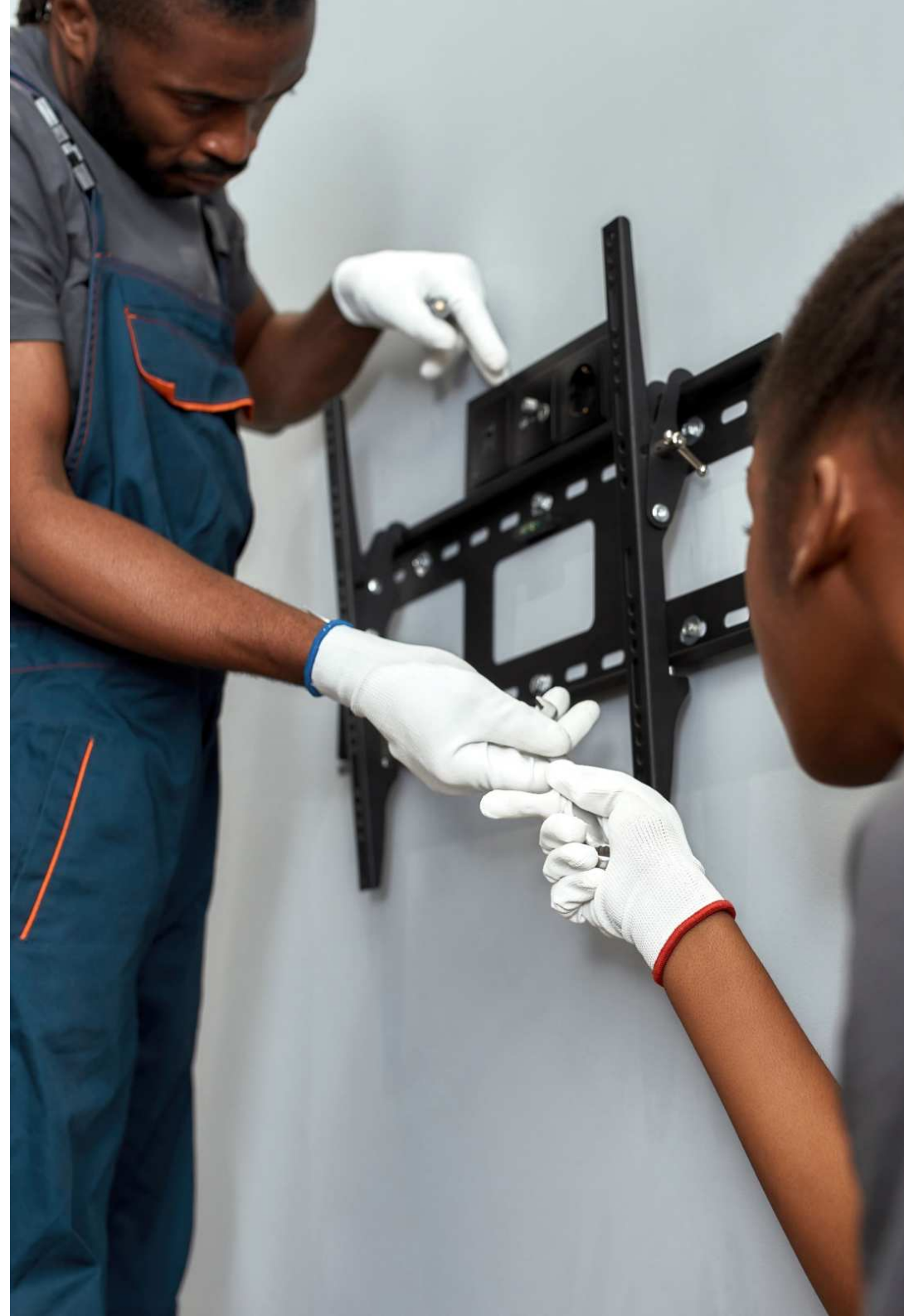
Digital signage pilots and rollouts

Now. What should your earliest signage look like? Start small.

The best digital signage is a screen you already have. An iPad. A spare desktop monitor. A TV in your conference room. Even if that display is normally used for work, and you can't use it as full-time signage, it's a great way to get a feel for signage without any expenditures.

Run a digital signage app on built-in hardware or plug in a Fire TV Stick, a spare laptop, or another media streaming device that you already have around. A tablet could actually be the best device to test digital signage ideas since they're low profile and light enough to mount temporarily and test placement and orientation ideas before a larger deployment.

Then, set up digital signage slides, connect apps, build a playlist of multi-widget screens, and get a feel for how signage could be useful in your company—for the low initial budget of free.

screencloud.com

Starting small is what logistics provider Averitt did. Their first modern digital signage was a single ScreenCloud-powered display. They later followed up by replacing 20 aging screens, before finally scaling up to 96 displays across their office locations.

Athletics center MonLeisure took a similar approach, rolling out seven displays in their initial center, ranging from 52" to 75", depending on each location's needs.

You might even find that older screens repurposed for a test run are good enough to keep using for the long term. That was the Anaplan team's experience: "When we moved into our new office, the previous company had left lots of screens on the walls, probably assuming we'd get rid of them on their behalf." Instead, they turned them into digital signage for little more than the cost of rolling out signage software.

The most important thing about your first digital signage pilot is what you learn from the exercise. A repurposed screen helps you learn your way around digital signage software. Your next screens, the first ones you purchase, let you learn what hardware is the best fit for your business. You'll also need to learn from your team during the testing and rollout process. As the Beiersdorf team found when rolling out signage, their Internal Comms manager hadn't been to production facilities in over a decade, and part of the challenge in—and benefit of—rolling out digital signage was resolving the disconnect between headquarters and their deskless workforce.

It's worth spending a bit extra on your first few signs if that'll help you optimize wider deployments later. If you're thinking about going with consumer-grade hardware, consider also purchasing one commercial-grade media streamer to test in parallel and see if the benefits are worth the extra expense, or if the savings of consumer hardware are worth the tradeoffs. With that info in hand, you can better estimate the TCO of a wider signage deployment.
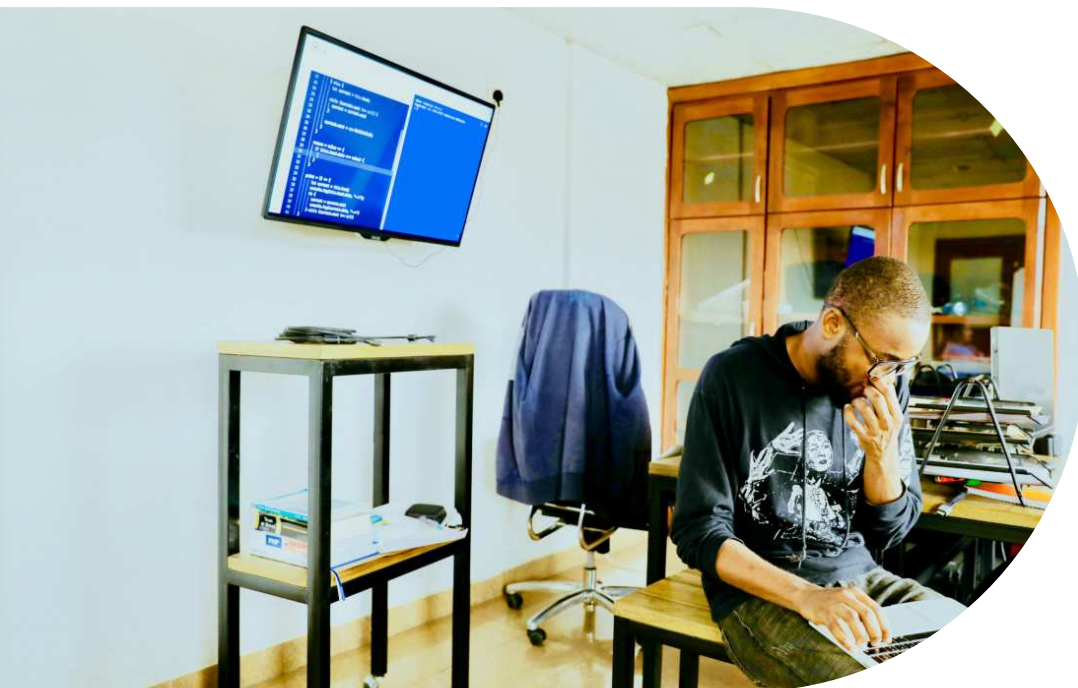
Where to deploy your first digital signage

A digital signage pilot is also the first time to test your hunches about what content works—and doesn't—on digital signage. That will only work, though, if your signage is noticeable by most of your company in high-visibility areas.

The best place to put your first digital signage is somewhere most of your company frequents. In your lobby, along a central corridor, above your water cooler, across from your elevator doors. That's where your first sign will be most likely to be seen.

The right place might differ for each company.

> **A TV in the lunchroom was an easy way to communicate.**
>
> GLS Canada

A lobby might seem like another good option, "but people don't really linger there," found Burn Boot Camp. Instead, "a 65" screen in the main gym area" was visible enough that "200-250 people view the screen daily," with enough time near the screen to notice its content.
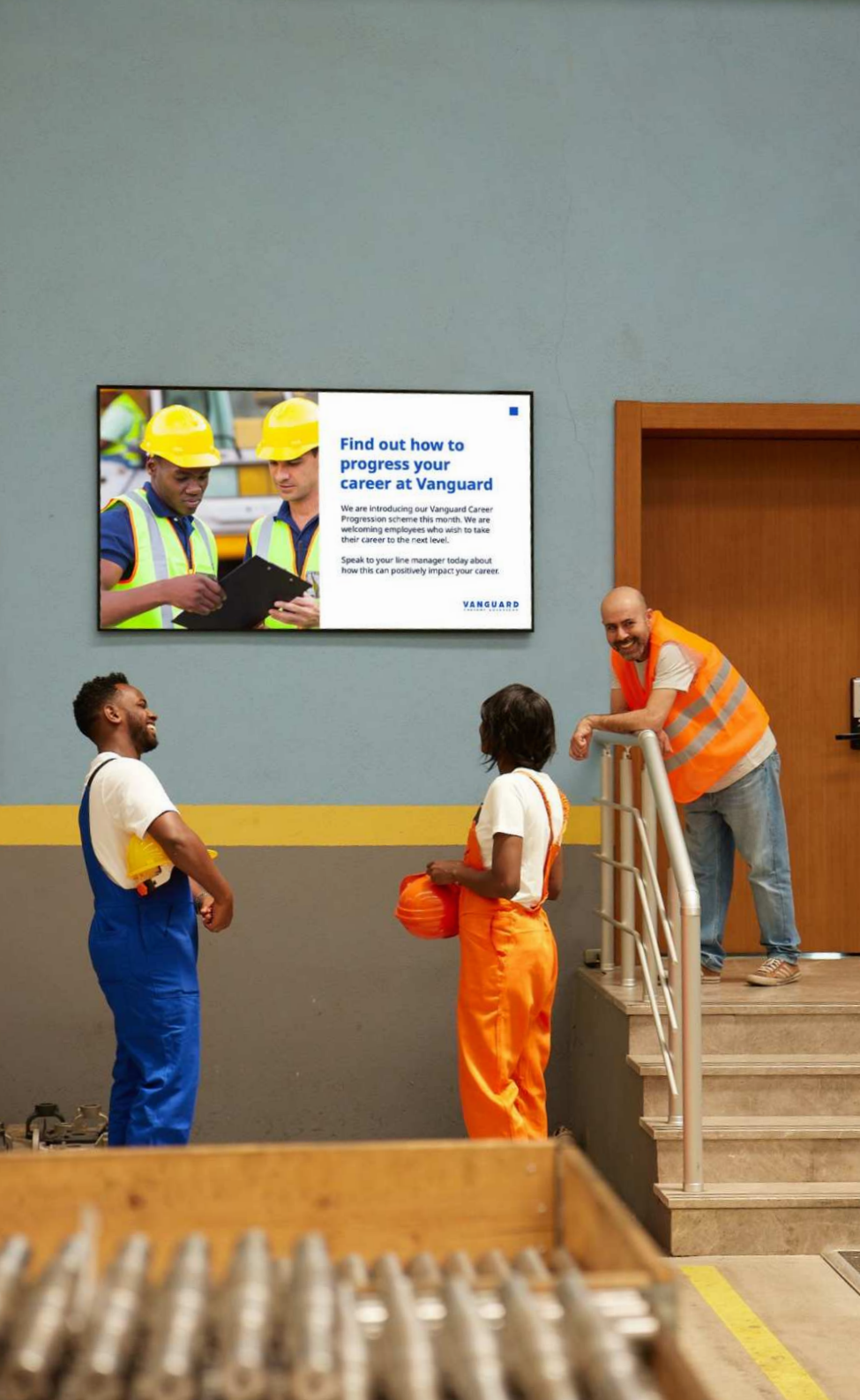
Anywhere your team walks by and lingers for a few moments is ideal for your signage pilot. That's what makes walls near water coolers, coffee machines, and snack bars equally great places for digital signage pilots.

"

I think the most popular screens that we have are the ones above the kettle. People are stood there waiting and they're hanging around for a couple of minutes — having the screen right there engages people**.**

Desklodge

How to test digital signage effectiveness

It's time to measure the data.

You've rolled out your first digital signage screen, placed it where you think it'll be seen most, and queued up content to update your team and share what's happening. Odds are, you'll instantly hear comments about the new screens and start noticing more awareness of company events and other announcements on signage.

After deploying signage, Desklodge noticed an up-tick in people joining events and meeting others from their co-working locations. "I don't think they'll ever realize that it was through the screens that they met," said founder Tom Ball, "but it helps people to naturally know what's going on without having to interrupt them."
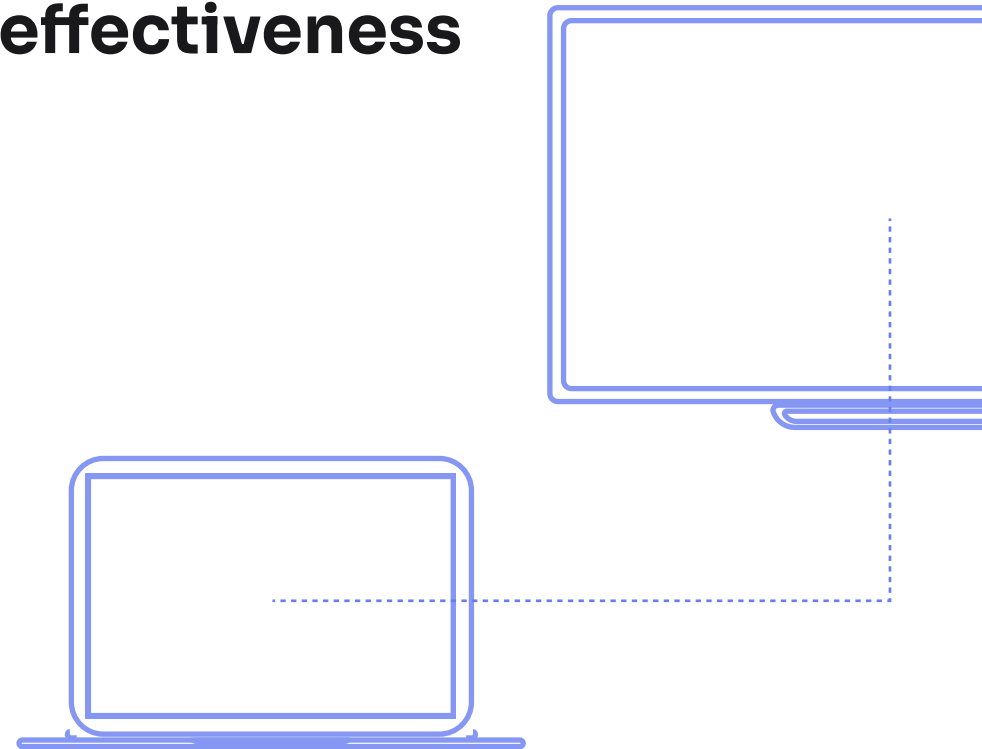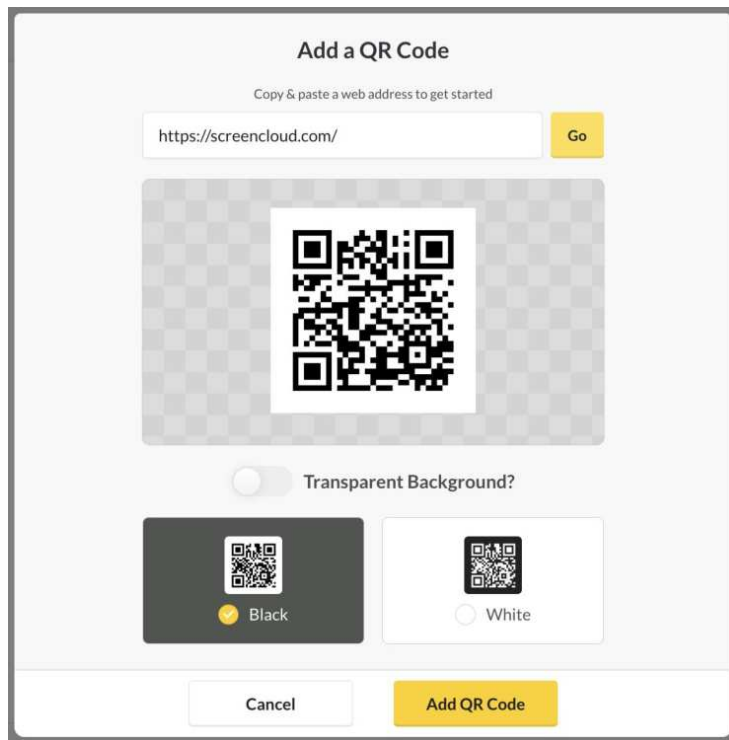
Signage helps people to naturally know what's going on without having to interrupt them.

Tom Ball, Desklodge

Anecdotal data will make your early efforts feel worthwhile, but hard data is the best way to build the case for a wider signage deployment. One of the best ways to gather that is to associate an "impression" (i.e. a view) with a networked-connected device. Like a phone scanning a QR code.

Say you're sharing details about an upcoming industry mixer on your signage. You could just list the venue, date, and time — or you could add a QR code to RSVP to the event, giving your events team info about who's attending and your IT team more data about signage effectiveness.

ScreenCloud includes a built-in QR code generator in its built-in Links, Canvas, and Ask a Question apps, or you can generate a QR code in any other app and add the QR code image to your signage slides.

If your pilot deployment includes multiple signs, use unique QR codes on each sign to see which screen attracts more attention. Or, consider rotating in different versions of a slide – with a unique QR code for each one – to test which style gets more reactions.

Then, check your QR code's stats to estimate how many people notice info from your digital signage and what times of day they're most likely to respond to it.

Another way to test your signage effectiveness is to survey your team via the signage and a QR code, or perhaps with an email or Slack-based survey. Ask a few general questions about the signage, along with a few questions about recent content, to test recall rates. That can shed additional light on which of your first signs were noticed most and how effective your first signage slides were at sharing info with your team.

Tip: Learn more about testing signage effectiveness in our guide to QR Codes for Digital Signage

Expand your pilot to a wider digital signage deployment

By now, you should have a feel for the hardware, software, and locations best suited for digital signage. It's time to start planning the next signs your company needs most.

High-traffic locations like the ones you ideally tested in the initial pilot are great for sharing general information. List other similar locations across your offices, factories, stores, and other facilities. Measure the available space and visibility, to decide which size of screen would fit best.

Then, think through other signage use cases and the hardware that best fits those needs. Smaller signage may be helpful for smart wayfinding in larger facilities or as placard signage near conference rooms, updated with names of ongoing events and current meetings.
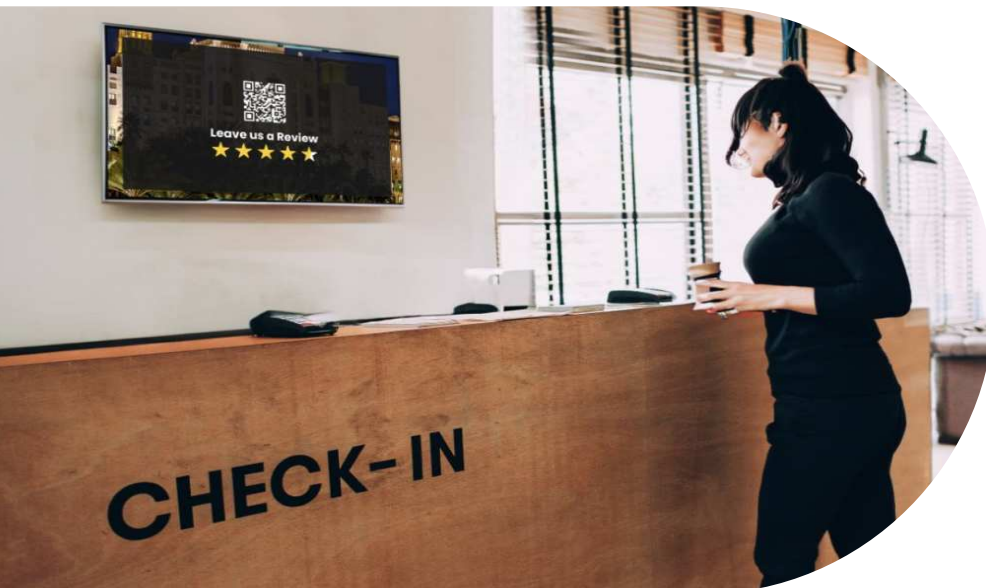
Video walls can be useful for immersive lobby and stage displays that pull together your company's branding with at-a-glance information and engaging content.

Touchscreens can be helpful for information kiosks, vending controllers, and other interactive use cases that show both ambient and active information. IoT (internet of things) sensors, including smart thermostats, traffic monitors, air quality detectors, and proximity sensors, can power unique signage that displays real-time data and perhaps saves energy by only powering on when people are nearby.

With those ideas in hand, you can build an estimated signage budget and deployment schedule to add digital signage across your business. It could be a staged rollout, too. List your company's most pressing signage needs, and target those first before following that up with the nice-to-have signs.

Most of the signage you deploy will be stationary, ready to display content until your office is redesigned. But not all of it. You might want to use TV floor stands for temporary signage during events, or get a tablet or all-in-one PC to run double-duty as signage at an industry booth table. Keep a few spare digital media players around, and you could adopt conference room TVs at hotels and exhibition halls into your company's digital signage network for the duration of an event. The Global FoodBanking Network, for example, "used three screens that the venue already owned, with Amazon Fire TV Sticks to power the screens, using the hotel WiFi," for effective event signage without purchasing or transporting displays.

Simplify how you deploy new signage in your company

Manually entering WiFi passwords and queueing up signage slides is simple enough for your first digital signage. When deploying dozens of screens, you need a more effective way to scale up signage deployments.

With your company's PCs, you might have a custom image you install on every new computer, paired with Active Directory or Intune to deploy apps, accounts, and settings to each employee's devices. If your signage is powered by PCs, you could use those same features to manage signage computers and deploy your signage software. You could also power signage with thin client hardware, with digital signage software run on mass-deployed virtual machines.

For digital signage-specific media players, ScreenCloud OS offers similar USB provisioning features. You can centrally set your network configuration, ScreenCloud account, and screen name prefixes to identify screen locations easily and even preset the default content to play on newly deployed signage. That's one of the many features that make professional media players worth the additional investment beyond consumer hardware.

Most digital signage software—including ScreenCloud—also offers tools to group signs by region, building, and area of building. Set those up ahead of time in anticipation of new signage rollouts, and start building the slides and content needed for each location. Then, as you roll out new signage, add it to the correct location in your signage software to start playing the content you want moments after installation.

The good news is that deploying new content takes less time per screen, on average, the more screens in your network. It might take a half hour to build a new playlist for your first est signage, say. For a larger network of screens, the Frasers Group spends around 4 hours on average to update the 72 ScreenCloud-powered screens across their Shirebrook, UK facilities—for an average of just over three minutes per display.

Tip: Learn more about deploying digital signage with ScreenCloud USB Provisioning

Time to update signage content: 3 minutes per screen

(via the Frasers Group, which spends 4 hours to update their 72 screens)
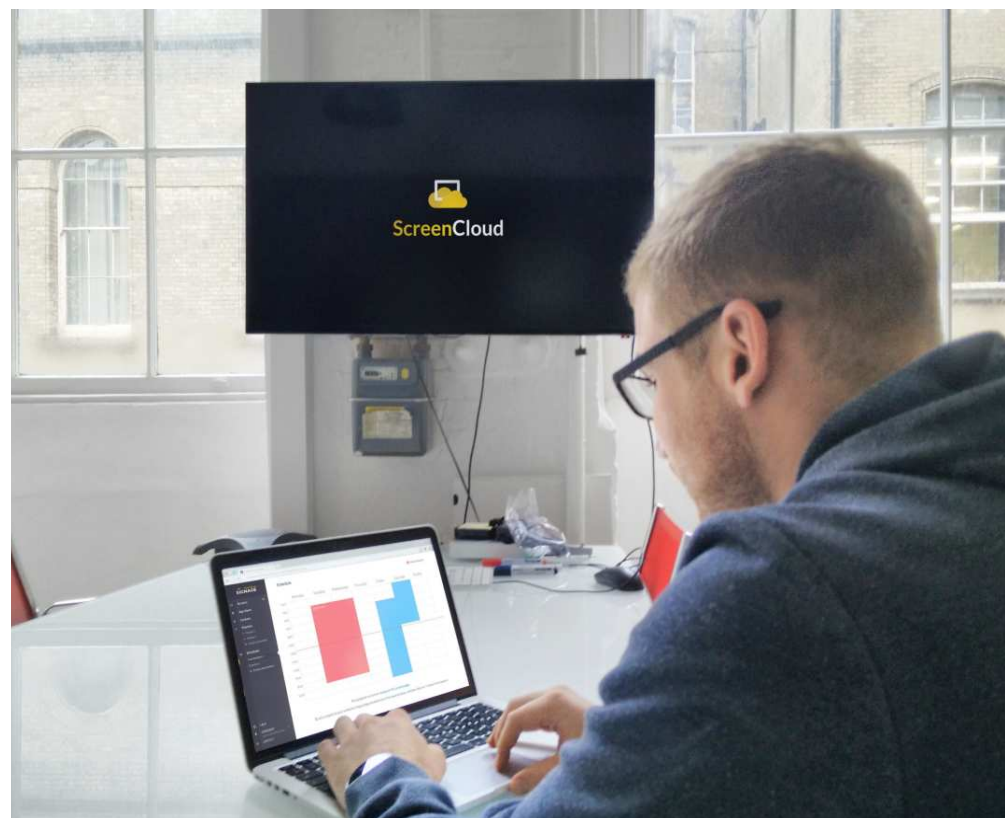
Ongoing management of digital signage components

Keeping the technical side of a signage program running smoothly doesn't require a significant amount of upkeep.

At least, not as long as you schedule the occasional maintenance check-in. Obviously, you'll see your screens every day, and that's one way to keep tabs on how they're performing. You might watch out for laggy transitions or screen degradation (color, brightness, dead pixels, etc.). But on top of that, it's worth setting one day aside per month or quarter to take a closer look at your screens and their media players.

Check-ins should include a handful of tests and diagnostics. A good starting place is running a display calibration slide on all screens. That would include color gradients, video samples, text blocks, all-black, and all-white zones for you to examine more closely. Go screen-by-screen looking for defects, artifacts, and abnormalities. If a screen looks good, download and install firmware and software updates, restart all hardware, clear caches, confirm everything works, and move on to the next one.

screencloud.com
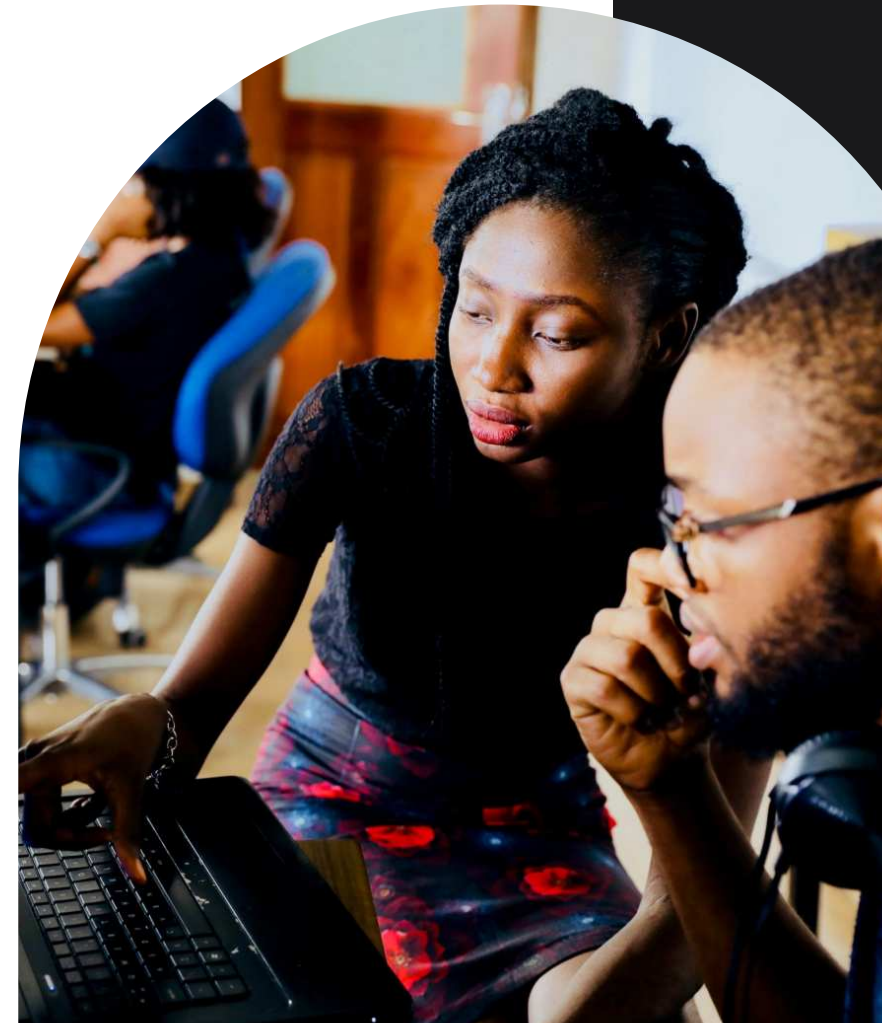
Offices, retail shops, and warehouse floors are constantly changing. Take time during your signage survey to reevaluate screen locations themselves. Has the lighting changed? Adjust the brightness. What about furniture placement? Swivel, tilt, and rotate accordingly. Is foot traffic significantly lower than when you picked the location? Think about moving the display so it gets enough attention to be worth the investment.

For moderate to severe hardware problems, document the issue, take a photo, and make a note to deal with it accordingly, whether that means swapping out a fraying cable or getting approval to purchase a new screen. The same goes for software, with screenshots or recordings minimizing the need to troubleshoot the issue on-location.

Displays and devices will need to be replaced, even under the best circumstances. Keep a log of when hardware is first deployed and estimate its lifelong runtime, in hours. This will help with warranty tracking and proactive maintenance as certain assets near the end of their lifecycle.

At a certain company size, it's worth keeping backup hardware on hand for quicker replacements and shorter downtime events. Media players and cables are inexpensive enough that a few spares shouldn't impact the overall budget. TVs and LED panels are a different story. Try to keep a couple of depreciated and "passable" screens lying around for emergency replacements. That'll ensure your signage never goes down completely.

▶▶ **Consumer-grade TVs** typically **last 25,000 to 50,000 hours** under optimal conditions, which digital signage is not.

▶▶ **Commercial-grade TVs** are rated for **50,000 to 100,000 hours**, sometimes guaranteed by the warranty.

▶▶ **Consumer-grade media players** (Chromecast, Fire Stick, etc.) can vary widely depending on content types and environmental factors. Expect around **2 to 4 years of life**, with relatively frequent downtime.

▶▶ **Commercial-grade media players** (like our Station P1 Pro) should last at least **5 to 7 years**, with operating system updates to match that.

▶▶ **Cables** (power, HDMI, Ethernet, etc.) can last anywhere from **5 to 10 years**, depending on build quality and environmental factors.

Tip: Learn more about deploying digital signage with ScreenCloud USB Provisioning

The most memorable signage comes from IT

#7

Few knew of the Vegas Sphere, outside of Las Vegas residents, during the half-decade it was under construction. Once the switch was flipped and software lit up the dome, it was hard to open social media without seeing clips of a building-sized emoji or basketball in Vegas.

Just about any digital signage will do the same for your company's displays, turning them from black rectangles into central elements of your office and retail spaces. With the right software, you can connect the software your team already uses. Slack and Microsoft Teams for company announcements. Google Calendar and Outlook for events. Power BI and Excel for dashboards and data. Zoom and YouTube Live for meetings and conferences. PowerPoint and Google Slides to repurpose existing content for signage.

In ScreenCloud, pushing content to these integrations doesn't require any technical expertise. So, after all the hard work of researching signage options, deploying screens across the company, and setting up the software, you can hand things off to comms, HR, marketing, and management teams.
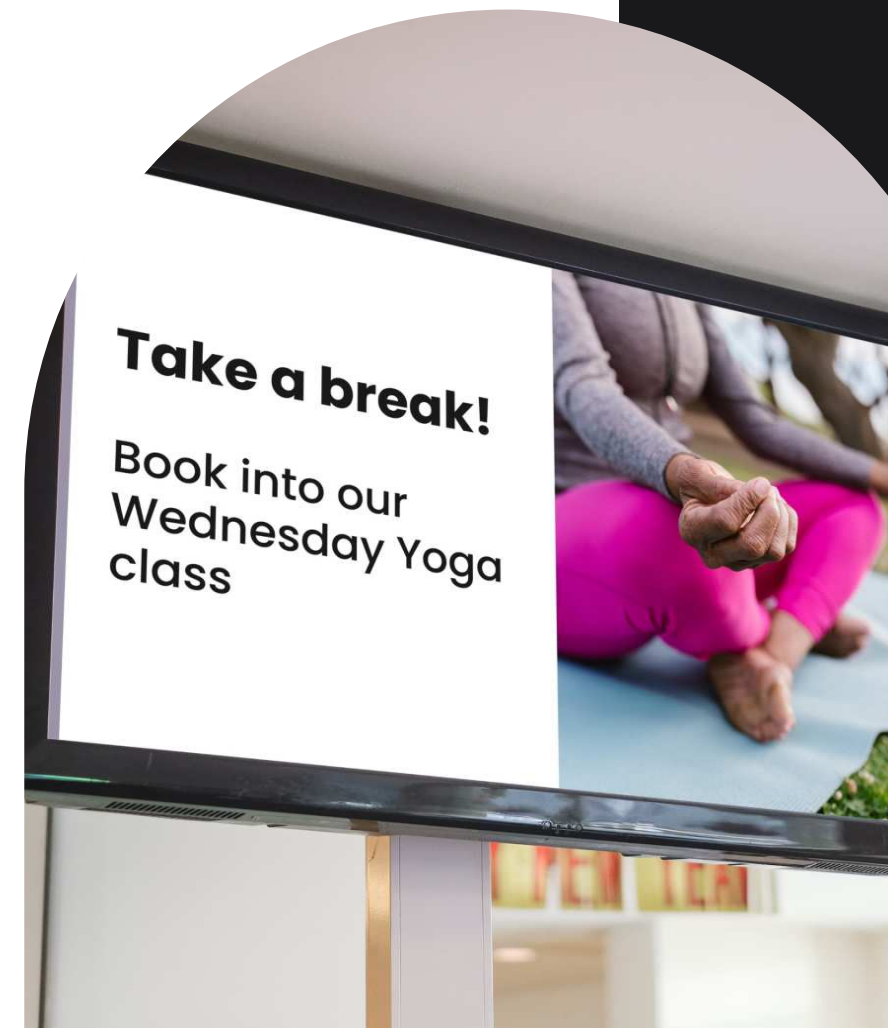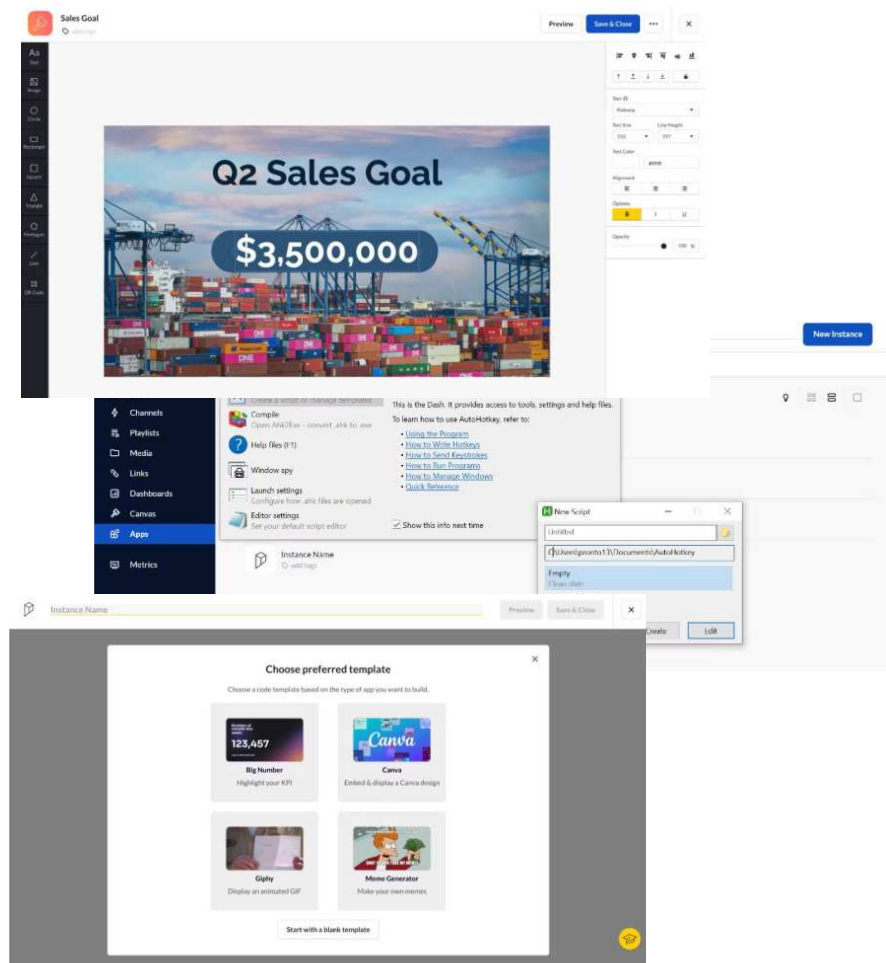
screencloud.com

You can also turn HTML, CSS, and JavaScript into signage content with built-in hosting from apps like ScreenCloud's Playgrounds. That opens the door for building custom team leaderboards, or code that animates JSON data from a webhook. Non-technical people can take advantage of your builds – using an AutoHotKey shortcut that runs a cURL command without writing it themselves, or running an Apple Shortcut that sends base64-encoded images to a slide without knowing how it works – but only thanks to your technical skills and imagination. The Peninsula team went so far as to build a custom integration between Salesforce and ScreenCloud with Playgrounds and ScreenCloud's API, an upfront time investment that helped "sales team motivation when it comes to hitting targets," their team shared.

That's not to say that non-IT people don't have valuable suggestions. They likely know more about what a comms dashboard should look like or how to get users excited about sending comments and photos to your screens. They just need someone who can set up the content moderation API calls and build custom integrations to bridge the gap.

The screens you mount, connect, and automate are visible to everyone. They're a topic of daily conversation and a visual representation of your contributions to the company. All you need to get started is the right app.