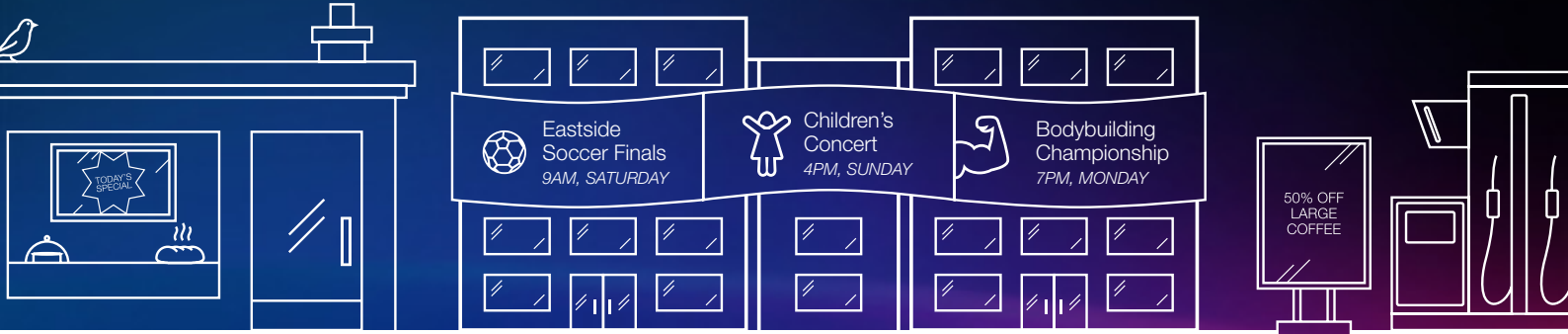


# The Ins and Outs of Digital Signage

Recognizing the business benefits of digital signs



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# Introduction

People rely on screens everywhere they go. They've come to expect up-to-the-minute information and interaction from their favorite businesses, day or night – whether trying to catch a flight, dodge traffic or just find a good local bagel. Increasingly, smart digital displays are there to help, with the technology to offer easy, immediate access to information that improves lives: Cancellations and delays. Amber alerts. Updates on the big game, even from the concessions counter. Daily restaurant menus and details about local ingredients, offered while people wait in line to order. Digital signage can even help drive social media interactions, further enabling omnichannel retail strategies.

Consumers are paying attention. A recent Nielsen survey showed that people respond well to digital signs, both enjoying and remembering what they see. Digital signage in retail has been

shown to increase sales volume by more than 30%, and reduces perceived wait time by as much as 35%.<sup>1,2</sup> These kinds of positive responses may explain why more than 40% of IT professionals from different industries who use digital signs told us in a recent Spiceworks survey<sup>3</sup> that they think smart digital signage solutions are underutilized.

At the same time, many of those not using or considering the technology said they're still learning about the potential of digital signage and aren't yet sure how it fits into their particular industry. How difficult is it to install and maintain display panels and video walls, create and update content that gets real results, and manage the entire implementation? And will the implementation justify the initial costs of purchasing digital displays? This eBook takes a look at these issues, so you can consider digital signage in the best possible light.

*"Consumers are paying attention to the information presented to them and acting on it, whether they are drawn to a location featured on an ad, discussing the ad with friends and family, or attending an advertised event."*

Nancy Fletcher, *Outdoor Advertising Association of America*<sup>2</sup>

## CHAPTER 1

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# Digital Signs, Inside and Out

# The Building Blocks of Digital Displays



According to a Spiceworks survey of more than 150 IT professionals in the U.S., about half of respondents are already using commercial-grade digital signage, primarily for public information, internal communications and/or marketing promotions. Of those, almost three-quarters are using indoor LCD signs, while 24% use outdoor LCD and 20% reported use direct view LED.<sup>3</sup> If these distinctions sound like nit-picking to you, they're not – how a sign is built determines where it can be used. Here's a quick overview of some significant differences.

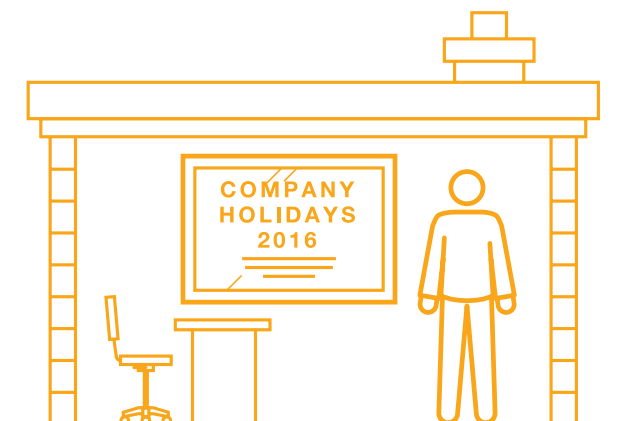


almost  
3/4  
are using  
indoor  
LCD signs



## Indoor LCD

Most indoor flat-panel displays use LCD (liquid crystal display) technology. The commercial-grade version of displays used in commercial TVs, LCD displays typically consist of a protective glass layer, an LCD sheet (a liquid sandwiched between two plates), with a light source behind them. Today's LCD displays often use LED backlights to light the display. They have brightness measurements up to 700 nits, which is bright and readable in indoor situations but washes out in full sunlight.



## Outdoor LCD

Outdoor LCD displays are built to withstand temperature highs and lows and elements such as rain and wind, as well as using special glass and coatings that protect against vandalism and graffiti. They're designed to be readable even in bright sunlight, which requires a high brightness level of at least 2,500 nits. These screens may also feature technology to make them clear and sharp to people wearing polarized sunglasses.

## High-brightness window displays

These displays are designed to hang indoors but face outdoors--and still be easily visible and readable in the bright sunlight. They typically generate up to 2,500 nits of brightness, but do not feature the rugged enclosures of outdoor LCD displays. They are often used in storefront windows, either individually, stacked in totems, or grouped to make a video wall.

## Direct view LED

Rather than using LEDs as the lighting source (as most LCD displays do), direct view displays use LEDs as the screen itself. In other words, the LEDs act as the individual pixels of the displayed image. A key measurement here is pixel pitch, or the distance between individual diodes. Generally, the smaller the pixel pitch, the closer a viewer can stand to the screen and still see a great image. Indoor displays may have a pixel pitch as low as 1.5 mm (and therefore a lot more LEDs), while large outdoor displays can have a 6-25 mm pixel pitch or higher. Direct view LEDs offer outstanding brightness and energy efficiency, and can bend around curves and wrap corners. They also come in modules that fit together seamlessly, without a visible bezel.



# Consumer TVs vs. Commercial-Grade Displays



The Spiceworks survey indicated there's a lot of gray area when it comes to digital signage. In fact, a number of respondents even said they were using consumer HD TVs as "digital signage," which means these companies are missing out on important features that consumer TVs simply don't have.

So what are the differences? One is that consumer TVs are rarely on more than 12 hours a day – plus, their warranties will be void if used in commercial environments. They're also built to support lower specs, so their components are lower capacity/grade than what businesses need. Digital signs for business use often need to be on 24x7 and to work both indoors and out, which means these displays need to stand up to more wear and tear and be able to handle greater temperature extremes.

In response, manufacturers build commercial-grade displays with heavy-duty materials, design them to withstand heat, severe weather, vandalism

and hacking, and offer extended, more robust warranties. In addition, digital signs can be used in both landscape and portrait modes--not just landscape, like TVs. Another difference between consumer and commercial applications is that commercial-grade signage is easier to network and control. Consumer TVs use IR-based remote controls, while commercial displays can be controlled via RS232 and Ethernet connections. TVs are primarily supported through multiple HDMI connections.

Commercial displays offer various inputs including VGA, Display Port, and Video Control Signal Loop Through. These connections simplify distributed digital signage applications.

Finally, consumer-grade TVs are designed only to receive content, while commercial-grade smart signage platforms can enable content distribution across a network of displays and can actually help you manage it – an important distinction.

## CHAPTER 2

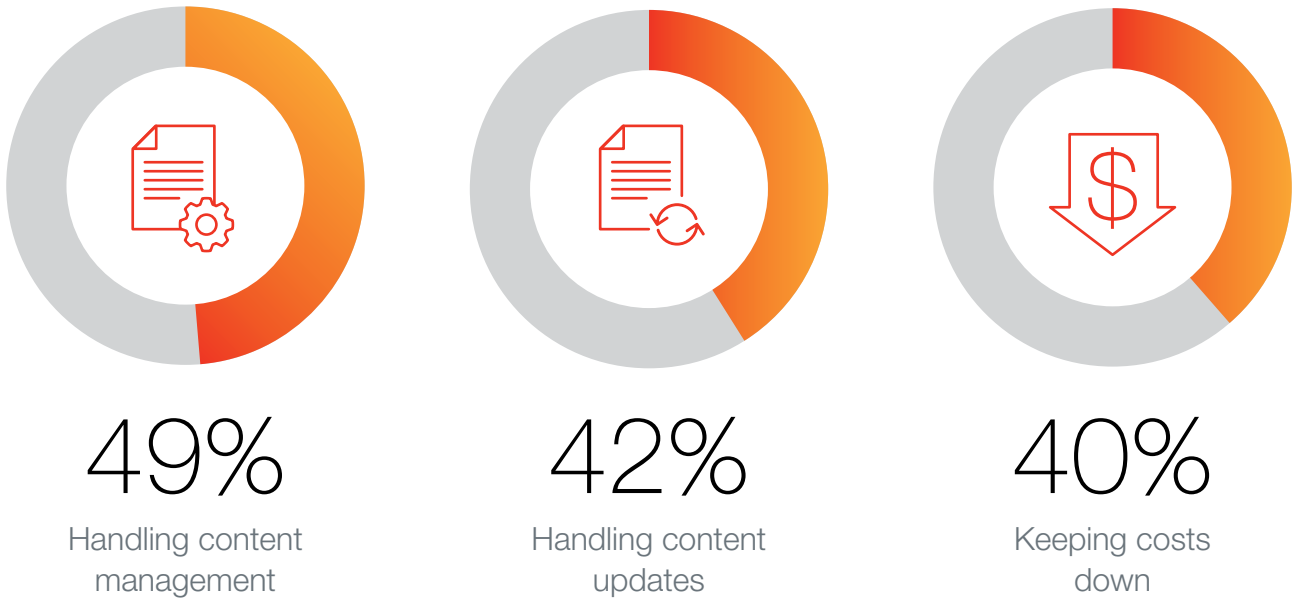
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# Overcoming Challenges



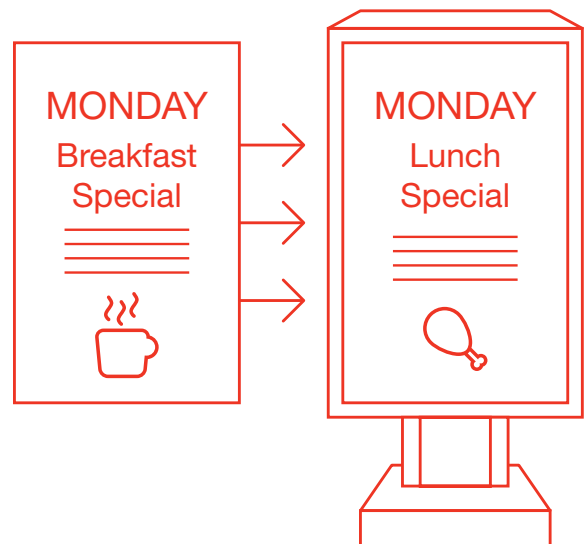
IT professionals reported the biggest challenges they experience or expect to experience is managing complexity – specifically, handling content management (49%) and updates (42%) – as well as keeping costs down (40%).<sup>3</sup>

### Biggest Challenges for IT Pros:



## Content

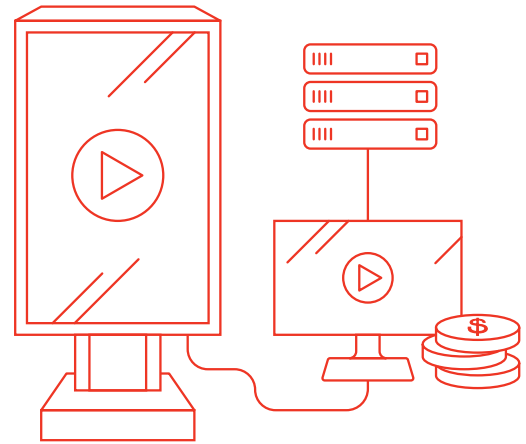
Content poses several challenges for organizations. One, of course, is the challenge of creating it in the first place. Then to upload content, IT professionals may need to learn how to use a proprietary content management system, and may also need to make seasonal, weekly or even daily changes to what's on screen. And they may need to do all those tasks across multiple display types and locations. These tasks can be tackled in-house or contracted to an agency or vendor, who can provide content, content management, network monitoring and other services. These tasks can also be addressed with an out-of-the-box digital signage solution that comes with content management software and templates to help you quickly design and schedule simple content.



Another option? Digital signage managed services, in which content management and updates are done by a third party.

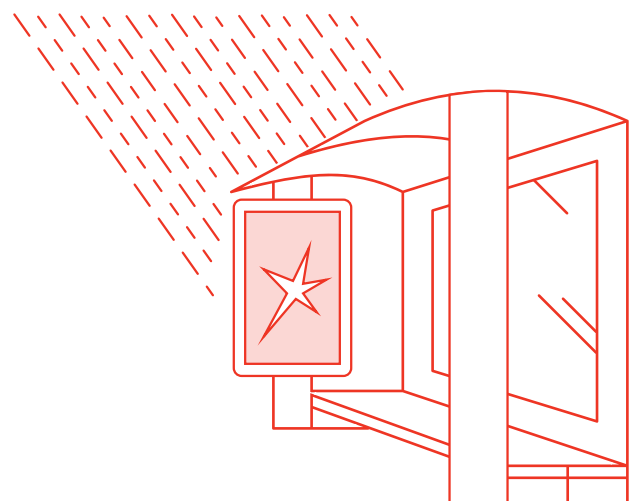
## Costs

The most basic cost in digital signage is the display hardware itself, which can be expensive, particularly in large installations. Traditional digital signage solutions often require separate media players or computers to host and play content. Complex installations can require additional mounting hardware, devices and cables – along with the expertise to put it all together. Businesses have to consider the day-to-day costs of powering, maintaining and repairing the signage installation. Given this math, IT pros need solutions that are long-lasting, energy efficient and easy to deploy and maintain, with as few components as possible.



## Reliability and security

Another consideration is everything digital signage must weather, including actual weather such as extreme heat, cold, dust and rain. In addition, digital signage is often located in public places with potential access by the general public. Outdoor displays can therefore be tagged and scratched. To keep both equipment and sensitive data safe, IT pros need digital signage solutions with strong built-in protections – not only from the elements, but from deliberate physical damage.



The right digital signage solutions can help overcome these challenges.



## CHAPTER 3

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# Seeing the Benefits

Many IT professionals surveyed recognized potential benefits of digital signs, including improved internal communication, improved ambiance, increased marketing effectiveness, and increased audience engagement.<sup>3</sup>

Finding the digital signage solution that brings you and your organization the same level of satisfaction depends on a number of factors, including cost, reliability, ease of set up and management – as well as, of course, display quality. Here's what the right digital signage could do for your business.

## Out-of-the-box solutions

For promotional digital content to really work in busy environments, including retail and restaurants, it needs to not only be high quality and engaging, but also easy to create and update on site. Plug-and-play commercial solutions offer smaller businesses all the tools they need to do their own digital signage right out of the box, including TV

entertainment and custom content. More advanced solutions that leverage system-on-chip (SoC) processing integrate the media player into the display, reducing the need to install multiple devices and cables. WiFi-enabled displays allow remote, wireless content updates. These integrated solutions have a lower TCO and are more easily managed.



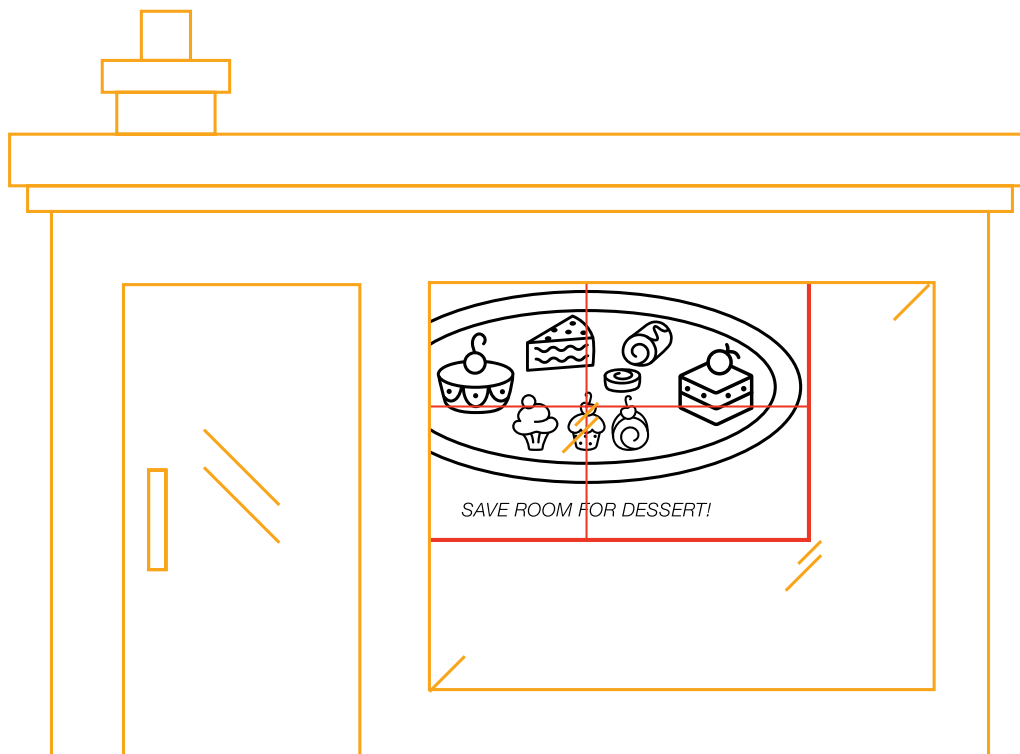
## Custom solutions for more complex applications

Video walls with embedded media players can display stunning, high-quality visuals, showcase products/services, and help create an open, modern and friendly environment that encourages conversation and consultation. A large, high-brightness display installation that's also easy to read through store or lobby windows can help draw in sidewalk traffic and prompt people to seek more information. These are examples of complex deployments that would likely benefit from support from an experienced digital signage integrator.

Large digital signage networks are increasingly built using smart signage displays that connect directly to the cloud over IP, enabling dynamic updates

across multiple locations. Behind the scenes, software solution providers can leverage a software developers kit (SDK) that allows them to tap into the smart signage display's built-in system-on-chip (SoC) media player. This approach can provide significant cost savings, as it eliminates the need for external media players and simplifies installation.

IT professionals can work with their preferred software provider to develop custom applications for these displays. The potential applications and integrations are virtually limitless, from touch or gesture interaction to on-the-fly viewer analytics or beacons to connect with consumers' mobile devices.



## Direct view LEDs for outdoor use

An integrated digital signage program that includes outdoor signage can help grab attention, entertain and inform customers. Coordinating outdoor signs with indoor displays can encourage interest in new products, cross promotions and loyalty programs.

Direct view LEDs are bright and easy to see across a parking lot in any kind of weather and at any time

of day or night. They're also viewable from any angle, in any light. Commercial-grade components provide IT professionals high uptime and reliability, as well as the ability to quickly update and upload new marketing campaigns.



Outdoor signage can help grab attention, entertain and inform customers.

## CHAPTER 4

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# Choosing the Right Solution



Commercial-grade digital signage offers businesses of every size the tools to elevate and expand their marketing and sales reach. Leveraging powerful new display technologies and smart content platforms, IT pros can design creative, customized deployments that transform the previously mundane landscapes of business – parking lots, waiting areas, even delivery trucks – into opportunities to connect and engage with customers in more personalized and entertaining ways. In doing so, they get a return on investment that goes beyond higher sales volume to higher levels of service, both to their customers and their communities.

From indoor promotional displays to outdoor direct view LED installations, Samsung can help you find the smart digital signage solution that works for your business.



### [SMART Signage Platform \(SSP\)](#)

Allows businesses to work with our partner ecosystem to implement cloud-based digital signage applications. They can be centrally and securely managed across multiple locations and on a variety of Samsung displays of various sizes, brightnesses and run times.



### [High-brightness LCD Displays](#)

Helps promote business and engage customers day or night. These solutions combine bright displays certified to withstand the elements with customizable, integrated solutions to remotely manage and distribute content—and allow easy viewing from any angle, in any light.



### [Direct View LED Displays](#)

Samsung and its subsidiary Prismview offer a range of LED display modules for both indoor and outdoor use. These can be configured in any formation and even curved around structures to deliver bright, dynamic messaging.

“Savvy companies recognize that partnering with digital media in new and creative ways can only increase consumer loyalty and their bottom lines.”

*Digital Signage Today*<sup>4</sup>

LEARN MORE

## About Samsung

Samsung Electronics Co., Ltd. leads the global market in high-tech electronics manufacturing and digital media. Through innovative, reliable products and services; talented people; a responsible approach to business and global citizenship; and collaboration with our partners and customers, Samsung is taking the world in imaginative new directions.

### Sources

<sup>1</sup> “10 key stats accelerating digital signage adoption,” *Digital Signage Today*, July 2015.

<http://www.digitalsignagetoday.com/blogs/10-key-stats-accelerating-digital-signage-adoption/>

<sup>2</sup> “New study highlights effectiveness of digital billboards,” OAAA, August 2015.

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<sup>3</sup> “Samsung Digital Signage Research Report,” *Spiceworks on behalf of Samsung*, February 2016.

<sup>4</sup> “Using digital to its potential wins customers over and over again,” *Digital Signage Today*, Feb 2016.

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