Smart Workplaces:
How Display Technology Optimizes Workplace Operations

An IAdea White Paper

Introduction

Workplace digital signage has evolved from a timely, eye-catching way to communicate with staff and guests to being an integral toolset for monitoring productivity, managing facilities and optimizing the use of available space in both white collar and blue collar working environments.

Early digital signage in workplaces was typified by a screen behind company reception counters, welcoming guests and showing corporate videos. Today's digital signage covers everything from smart, sensor-fed meeting room sign and directory systems, to data-driven KPI dashboards and lobby video walls that communicate the brand and set the building's experience for both staff and visitors.

Where the success measure for early systems was being able to distribute staff messaging more quickly than print, today's digital signage systems are generating analytics that are helping the people who run companies or manage buildings to make more informed choices about how to optimize their office and meeting spaces, and in some cases, realize dramatic cost savings.

This white paper looks at the range of digital signage-related applications now being used across a broad spectrum of workplace environments, including a look at how they're used, and why. The paper examines the mistakes to avoid and keys to technical success, as well as the models and technology that ensure hassle-free business operations.

Digital Signage On The Job

The technology mix that drives digital signage is being widely adopted in workplaces globally because it solves problems, advances business goals and has the potential to trim operating costs or optimize existing spends.

Visit a typical business - everything from SMB to enterprise - and you may see a diverse range of screens around the workplace, and a variety of applications. Here's what you may encounter:

Reception areas: The notion of positive first impressions is very widely held and accepted, and one of the simple ways organizations do that is via digital screens in their lobbies and waiting areas.

For a smaller company or branch office, that might be a single screen welcoming a visitor or company delegation by name, or a video that cycles through visuals that show key company messages.

Larger companies may use multi-screen video walls to make a big impression. Very large tech and media companies, and banks, who often populate entire office towers, are making their entire lobbies digital experiences, with some of them even becoming tourist attractions.

Large footprint health care and higher education campuses, and mass transport facilities, that intermingle staff and the general public use digital tools like directories and interactive, touchscreen-driven kicks to help people find where they need to go and how to get there.

Office areas: The first iterations of workplace digital signage solved a basic problem of speeding the production of staff messaging, as well as lowering overall costs and improving their timeliness.

Printed material had to be planned, created by graphic artists, printed, shipped to site and both put up and taken down based on schedules. Everything took time and often, a date-sensitive poster that should have been removed a week earlier remains up.

Digital signage solved all that, as well as enabled a single poster position to cycle through multiple messages from a single "face".

That simple application has been supplemented by screens thoughtfully deployed around office areas that are using data and messaging from company systems to do everything from relay the current state of sales efforts to showing real-time KPIs like production and on-time deliveries. Status spreadsheets and chart-filled PowerPoints that managers developed and sent around by email, hoping they'd get opened and viewed, now run on highly-visible screens around offices, showing the current numbers through dynamic charting.

Organizations are also tapping into workplace collaboration tools, like Slack, and curated social media streams from Instagram, Twitter and Linkedin, to visualize messaging that celebrates the work of colleagues and more broadly the customer affection for products and services.

Meeting facilities: The dynamic in offices of all sizes has been changing in recent years because of the rapid rise of digital meeting room signs, which end much of the confusion, conflict and frustration that surrounds meeting space availability and usage.

Simple name plates that indicate "This is Meeting Room 102B" or "The Oakview Room" are being replaced by tablet-sized smart displays that indicate the room identification, whether it is booked or free and variety of other details relevant to staff.

If booked, screens show who has reserved the room and the meeting's purpose, as well as its duration. In many cases, the screen also shows later availability for that room, or current availability for other meeting spaces on that floor or elsewhere in that building.

If free, the room can be booked on the spot, that information feeding into a central room booking management system.

That central management system can have a separate screen, or screens, that show the state of all meeting spaces: the basics like free or booked, and for what, but also useful information such as the technology mix for each space. A staffer may, for example, need a meeting space that includes a projection system, e-board or large flat panel display.

Working with Internet of Things sensors, some companies are using devices that read the occupancy of hot desks - workspaces that are not permanently assigned to specific staff and available on a first-come, occurrence basis.

Similar to meeting space availability dashboards, hot desk occupancy screens give facilities managers and visiting staffers or contractors quick, at-a-glance views on the best desks available.

Back of house/operating areas: Away from office spaces - in production, warehousing and distribution environments - traditional communication methods for staff are often unworkable. Staff don't carry staff phones or use company apps. They're not at assigned desks (or at desks, period) and don't have company emails. Printed material posted in breakrooms or locker areas is rarely noticed. And staff or team meetings are usually at the start of a shift, or even more periodic.

So traditional communications are hard to execute, but there's a lot going on in these working environments, and much, therefore, to communicate.

Digital screens in those sometimes harsh working areas are increasingly solving that problem. Production numbers that might otherwise only be seen on the office screens of ops managers can be curated and visualized for at-a-glance dynamic graphics and charts on digital signage displays positioned in highly visible locations. Those screens can do everything from raise early warnings of a key machine malfunctioning or depleting parts supplies, to messaging about safety, HR programs or career advancement opportunities.

Control rooms/network operations: Large video walls, using flat panel displays or direct view LED technology, are giving a variety of organizations a large and malleable overview of the state of company activity. What had been the domain of public utilities and transport systems is now widely used by organizations of all stripes. While conventional control room visuals show the state of operations, a new breed of control rooms uses video wall technology to do things like monitor social media, watching and measuring consumer sentiment about company products and services, as well as more broadly understanding societal trends and attitudes.

Making Smart Technology Choices

It's relatively easy to get a basic digital signage network operating in workplaces, but understanding the technical and operating challenges, having a workable plan, and making solid, informed technology choices will mean the difference between a solution that turns into a problem, and a solution that steadily solves problems and advances business needs.

Here's are some key Need-To-Knows ...

Commercial, Not Consumer: Using consumer TVs as digital signage displays technically works, but TVs are not engineered or warrantied to run in a portrait format or operate for 16 or even 24 hours a day, seven days a week. They'll fail.

It's worse for tablets, which which were commonly been used as meeting room door displays when software applications first emerged. Consumer tablets are intended for leisurely media consumption, and not intended to be plugged in 24/7, which can over-charge their batteries. Those batteries are time-bombs, gradually swelling, and risking fire and injury.

By comparison, commercial displays of all sizes - starting with tablet-sized screens - are engineered for uninterrupted use, and for the specialized needs of signage applications. They also have remote management capabilities - built-in software and related engineering that allows a company to easily manage, monitor, troubleshoot and revive screens and related technology without the complications, delays and added costs of field technicians who would be needed for on-site repairs.

Appropriate Operating System: It may be tempting to cut corners and costs by using technology that's been adapted, just like TVs, for commercial purposes. But lower cost media playback devices like HDMI TV sticks, set-top boxes or "smart" displays with embedded computing capabilities can present a variety of problems for users.

There are issues with long-term availability and variations on the components used, as well as concerns about long-term reliability of equipment that, like TVs, were never intended for demanding 24/7 use.

But the big challenge can be the operating system. While Windows is common in office environments, at the desktop and for servers, it is rarely used for specialty device applications like signage and kiosks. That owes, in part, to the cost of Windows licenses.

With smart displays, two of the largest commercial display manufacturers - Samsung and LG - use proprietary operating systems that require custom development, and are subject regularly to new software versions that may no longer be compatible with older displays that started on earlier software versions.

Increasingly, the same operating system that dominates the smartphone business globally is being used for workplace devices. At any given time, there are some 2 billion active Android users around the world.

The Google-built and supported operating system has now matured to a level that it fully supports the specialty media and interactive demands of digital signs and kiosks, and is open for third-party development. What attracts organizations that are deploying 100s or 1,000s of devices is the open-source status of Android, which means there are no licensing fee costs.

Tight Security: Network security is an issue for organizations of all sizes, and digital signage and related technology presents a threat unless the underlying architecture used to communicate to and update devices is properly safeguarded.

End-users and their business partners should be ensuring the screen technology is compliant with Network Access Control guidelines. Many devices have after-market Ethernet adaptors that do not support network authentication.

Think of authentication as the security firm hired to protect access to a building. In this case, enterprises use an authentication server that is trusted to receive and respond to requests for network access. It allows or blocks access and has a battery of settings to control activity.

Software security is also critical, and end-users should look for a management platform that avoids security breaches by controlling how operators log in. Look for software that supports something called Single Sign-On, or SSO.

Users should also look for technology suppliers who meet Information Security Management Standards, or ISMS. Those are internationally recognized controls and processes that ensure the technology protects information moving around networks from threats and vulnerabilities.

Remote Management: Trouble-free operations is critical for IT and facilities management teams, particularly in organizations that have large building footprints or multiple offices and locations in a city, country or globally.

Low-cost devices, or devices adapted from consumer use, rarely have built-in tools for monitoring, troubleshooting and updating. What that usually means is that operators aren't aware of problems when they develop, and when they are informed, they need to send someone on-site to address and fix the technical problem. It's time consuming, and potentially costly.

Technology that has robust device management capabilities built-in solves that problem. Look for hardware and software solutions that support device monitoring and configuration from across a building campus, or from the other side of the world. Good remote device management tools include the ability to do:

- remote screenshots

- device heartbeats
- remote configuration, commands and software/firmware updates
- system log retrieval

Operating Efficiencies

Integrated Workplace Management Systems (IWMS) are used by everyone from the companies that run buildings to those that occupy them to manage and centralize facilities data, and use that data to improve operations.

IWMS software systems have been around since the 1980s, but their relevance and capabilities have been heightened by the rise of Internet of Things technologies, and both the access and simplification of building data. Where "integrating" with a building's operational data was, for a long time, expensive and complicated, programming interfaces (APIs) have made the task relatively simple.

What that means, in practical terms, is systems that easily work with each other can make real-time information available and actionable by facility operators and the people and companies working in those buildings.

For example, room booking systems that were once isolated and proprietary now have APIs that enable people looking for an available meeting space to do so off a touchscreen, instead of inside a specific desktop or web-based system.

IWMS principles help building operators and company administrators, like Finance and IT, analyze how their owned or leased spaces are used. Insights, for example, on how often meeting rooms are booked and how many people attend meetings, on average, can shape decisions around office design and costs.

If analytics generated by building systems, such as meeting management, show an average of four people attend meetings in conference rooms designed for 12, those larger rooms can be rebuilt and right-sized to suit the real need. In some cases, leased space can be reduced - and with it leasing costs - to reflect the "real" needs of that office.

Analytics can also help "load balance" office facilities and optimize operational efficiency. Shared real-time information can, for example, tell a working team looking for impromptu meeting space that while there is nothing available on their floor or area, there are rooms free on the floor below.

IoT sensors can also drive efficiencies and lower costs by doing things like turning on lights and equipment just ahead of booked meetings, or even as people walk in. That can dramatically reduce energy costs and bring companies in line with "green" initiatives.

Room booking and space planning are both in the top three use cases for IWMS outlined by Verdantix in a 2019 report on building operations. A key driver identified in surveys of building operators was using systems such as room booking to inform and improve their real estate planning.

Applying IAdea Technology

IAdea has 20 years of direct experience creating innovative, commercial-grade digital signage media players and integrated displays, and workplace has developed into a key market vertical. Numerous organizations are using IAdea's hardware and supporting software to deliver reliable room and desking booking displays for offices and entire building campuses.

IAdea has more than 300,000 devices in the field through a wide variety of applications and vendor partners, with the largest network involving more than 10,000 screens. IAdea devices are used in more than 50 countries, with North America and Europe-Middle East (EMEA) the largest markets.

For example, Australia's Monash University works with IAdea and the room booking platform Concierge to deliver a room availability solution. There are 10-inch wall-mounted units outside rooms, with color coded messaging about the current status of each room: red meaning the room is in use, green for available.

Students can conveniently view the availability of meeting rooms and schedule bookings from their Google Calendar smartphone app or a browser. For those in the building, they can use a room's touchscreen to book that room, or find one that's free.

IAdea's products feature high-brightness interactive touch panels with integrated LED light bars, which allows staff to see available meeting rooms even from a distance. Specialized mounting options allow the screens to completely fit in with interior design of high-end buildings. Remote device management software – called IAdeaCare - drastically reduces the total cost of ownership and maintenance down time, which is critical in an always-on enterprise environment.

All-in-one displays running Android 7 range in size from 10 to 22 inches, and range from basic all the way to hyper-secure HID approved panels that use multi-factor authentication.

Making A Difference

Meeting and work spaces are fundamental to most white collar environments – regardless of industry or activity. From engineering companies to health care and education, people need places to work and collaborate.

But space is expensive and often in heavy demand, so technologies that can optimize what's available, and provide insights about what's really used versus what's available, is invaluable.

Good room booking solutions, paired with the right display and playback technology, can resolve the simple challenge of ending meeting room conflicts. But that technology can also provide the kind of insights that can save money and make an organization more efficient.