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THE DIRECT VIEW LED VIDEO WALL

OPPORTUNITY BY THE NUMBERS

Our “State of Selling and Installing LED Video Walls” Survey Reveals Momentum and Trends Behind Direct View LED Video Wall Adoption

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CHAPTER ONE

THE DIRECT VIEW LED VIDEO WALL OPPORTUNITIES – BY THE NUMBERS

Our “State of Selling and Installing direct view LED Video Walls” survey reveals momentum and trends behind direct view LED video wall adoption.

The video wall landscape has changed significantly over the past few years. Customers who have deployed video walls in the past often chose LCD solutions, as the technology was available and reliable. However, direct view LED video walls have entered the Pro AV market with great success. In many cases, customers are forgoing, and sometimes replacing - traditional LCD in favor of direct view LED technology.

Direct view LED has redefined the market for video walls in several ways. Light technology provides brighter images with higher contrast than traditional LCD displays, giving system designers the flexibility to use direct view LED video walls in nearly any environment, opening immeasurable digital signage and communication opportunities.

More and more organizations are recognizing applications for direct view LED video walls that simply weren’t considered when LCD based video walls reigned supreme. Three major factors have contributed to this shift: A more dynamic and finer pixel pitch, the removal of the display bezels providing for an unobstructed image, and the tiled installation process of direct view LED that allows for creativity in the design. These customers are often new video wall candidates who are providing an escalating opportunity for integration firms that sell and install direct view LED video walls. It’s a much discussed market trend within the AV integration community.

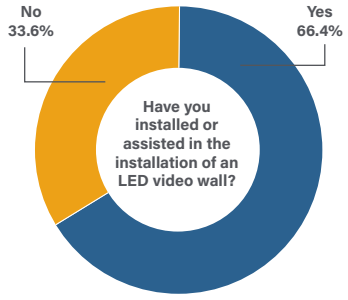
We decided to dig into the direct view LED video wall market opportunity by surveying AV integration firms who are resellers of the technology. The 229 respondents demonstrate that, indeed, many firms are benefiting from the rising opportunity to sell and install direct view LED video walls. This is not just a volume-based opportunity, as respondents describe direct view LED video walls as high-ticket items that drive revenue and present profitable labor and service opportunities.

Here's a closer look at the numbers behind our "State of Selling and Installing direct view LED Video Walls" survey:

QUESTION

Have you installed or assisted in the installation of an direct view LED video wall?

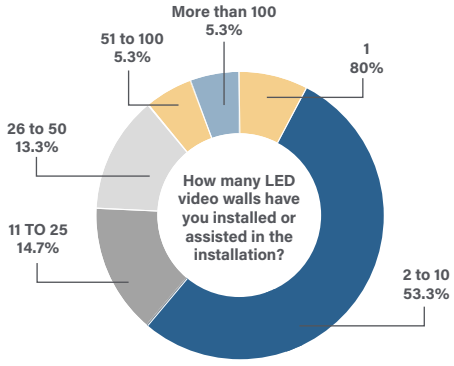
Two thirds of the 229 respondents have installed or assisted in the installation of a direct view LED video wall. Considering that Commercial Integrator asked its audience of integration firms in 2018, if they had installed a video wall within the last year, only 45% responded yes. Just over a year later, powered by demand for direct view LED technology, it's easy to conclude that video wall adoption is growing, and integration firms are playing a solid role in these deployments.



QUESTION

How many direct view LED video walls have you installed or assisted in the installation?

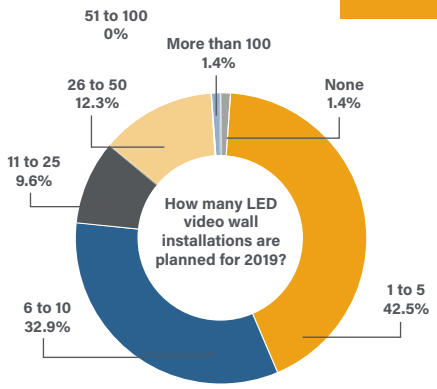
More than half of the respondents surveyed said they had installed between 2 and 10 direct view LED video walls, with very few – only 8% – of the integration firms noting a direct view LED video wall installation as a one-and-done event. There are also notable segments having reported the installation of 11-25 (14.7%) and 26 to 50 (13.3%) direct view LED video walls.



QUESTION

How many direct view LED video wall installations were planned for 2019?

The momentum around direct view LED video wall deployments is strong. A negligible percentage of respondents indicate that they didn't have direct view LED video wall projects in the plans for 2019. The largest percentage, 43%, say all told they expected to deploy 1 to 5 direct view LED video walls during the year while another one-third expected to provide 6 to 10 wall installations. Notable were those respondents planning on the installation of 26 to 50 direct view LED video walls in 2019.



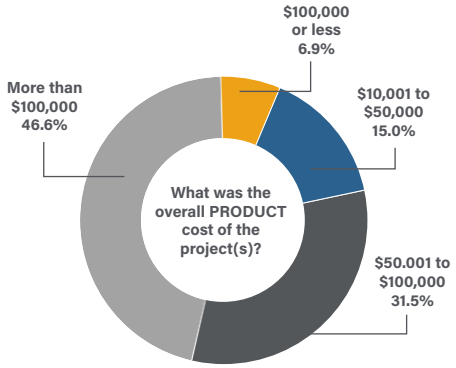
QUESTION

What was the overall product cost of the project(s)?

Again, the video wall opportunity isn't just one of increased volume. It is the new capabilities of direct view LED – finer pixel pitch, bezel-less displays leading to seamless vibrant content, and endless creativity, which has spurred new video wall customers. In addition, direct view LED video walls can provide added revenue.

Nearly half of survey respondents indicated that a typical cost of product and hardware for a direct view LED vide wall deployment was more than $100,000. Another onethird responded between $50,001 and $100,000 was typical for the products and hardware needed for a direct view LED video wall projects. Of course, the size and complexity of direct view LED video walls is based on customer need.

A smaller number, just 15% of respondents noted between $10,001 and $50,000 was a typical range for their projects. And lastly, less than 7% of those surveyed said the project costs were expected to be less than $10,000. The bottomline is that direct view LED video walls can be an extremely significant source of cash flow for integration firms.



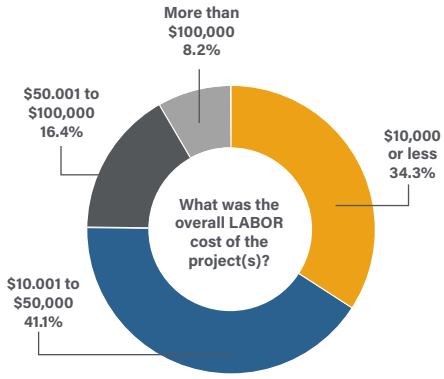
LESS THAN 7% OF THOSE SURVEYED SAID THE PROJECT COSTS WERE EXPECTED TO BE LESS THAN $10,000

QUESTION

What was the overall labor cost of the project(s)?

Most integration firms – at least most profitable integration firms – are less focused on revenue from product and hardware sales than they are on the value they bring to customers via system design and labor services. Survey respondents indicated that direct view LED video walls are a strong source of labor revenue.

While approximately one-third said that typical labor costs for a direct view LED video wall project were $10,000 or less, most said they were much higher. More than 41% noted labor costs between $10,001 and $50,000; while 16.4% reported costs between $50,001 and $100,000; and another 8.2% said direct view LED video wall projects generate more than $100,000 in labor revenue.



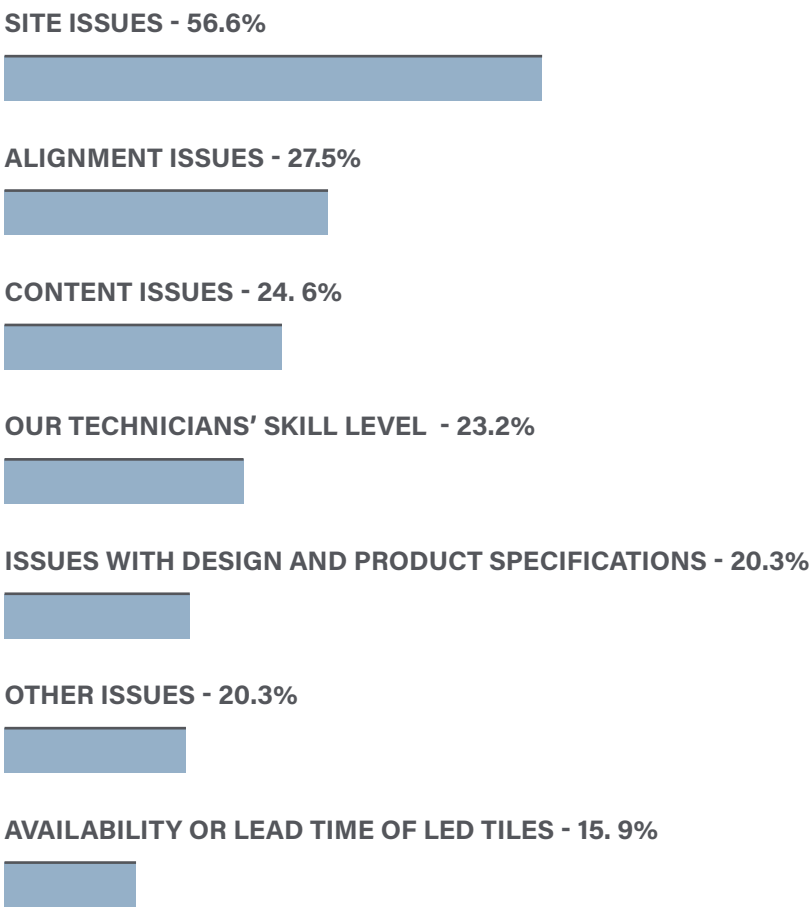
MORE THAN 41% NOTED LABOR COSTS BETWEEN $10,001 AND $50,000

QUESTION

What challenges have you encountered during direct view LED video wall installations?

Of course, the adoption of direct view LED video walls hasn't come without its logistical challenges. Of the surveyed integration firms that have deployed direct view LED video walls, many reported obstacles across several categories. To begin, more than half, 56.5%, indicated they've experienced site issues.

These could include challenges related to access to the location, unforeseen site limitations and more. Meanwhile, 27.5% said they'd run into alignment challenges when installing direct view LED panels for a video wall. And along those lines, 23.2% said they'd run into issues with technicians' skill levels. While direct view LED video walls have opened up significant opportunities for integration firms, there is still plenty of room for streamlining the design and installation processes.



QUESTION

What are the reasons for not choosing to install an LED video wall?

One of the important considerations to note about these findings, is that many of the reasons for not choosing to install direct view LED walls comes from a lack of knowledge, in fact, 44% of respondents cited a lack of knowledge as the direct reason for this choice. Almost 50% of respondents were unsure of costs, while 30% of respondents were unsure of the ROI from direct view LED video walls, and nearly 27% were not sure how to get started.

All these problems are solved with proper education, which comes down to thought leaders in the industry providing education materials, such as this whitepaper. However, it's also important integrators reach out to manufacturers and hold them accountable - asking for better training, asking for resources to demonstrate ROI, asking for instructional materials, and with these resources your firm will be better suited to understand the many benefits of direct view LED applications and installations.

While surveyed integrators indeed reported challenges related to direct view LED video wall design and installation, they also indicate a comfort level. When asked to rate their comfort level on a scale of 1-10, with 10 being the most comfortable and confident, respondents averaged a rating of 8 on the comfortability scale.

Perhaps most importantly, though there is room for improvement when it comes to being able to overcome direct view LED video wall deployment obstacles, surveyed integration firms indicate overwhelming satisfaction with the finished solution. Asked to rate their satisfaction level with the finished installation of direct view LED video walls on a scale of 1-10, respondents indicated an impressive rating of 9. Given that customer satisfaction is the most important indicator of integrator satisfaction, it's a sure sign that direct view LED video walls are being well received.

COST OR UNSURE OF COSTS ASSOCIATED WITH INSTALLING AN LED VIDEO WALL - 48.8%

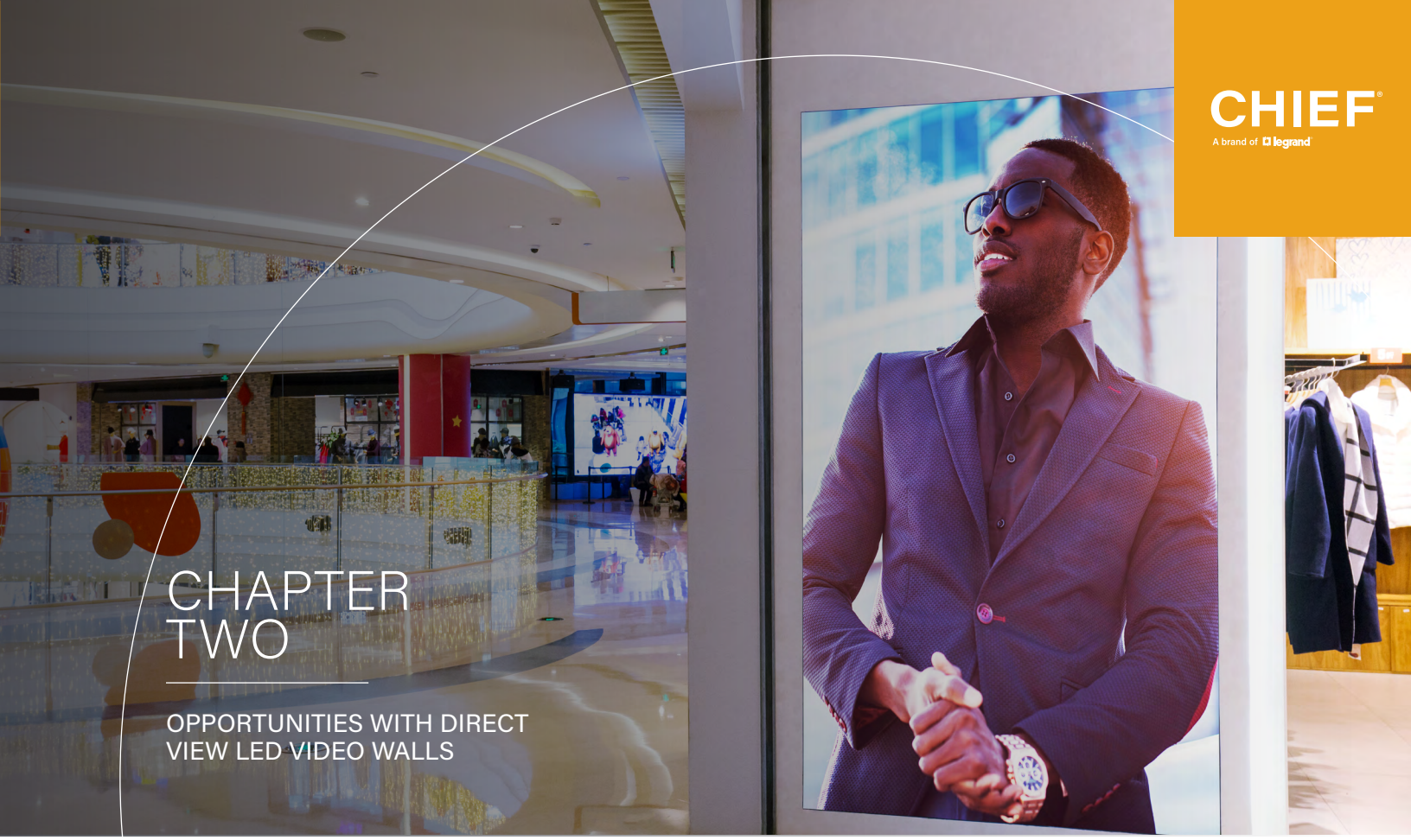
KNOWLEDGE OF LED VIDEO WALL PRODUCTS - 43.9%

CHOOSE TO INSTALL LCD OR PROJECTION IN LIEU OF LED VIDEO WALL - 34.2%

UNSURE OF CUSTOMER'S "RETURN ON INVESTMENT" - 29.3%

NOT SURE HOW TO GET STARTED - 26.8%

HAD ISSUES OUTSOURCING THE INSTALLATION - 0%



CHAPTER TWO

OPPORTUNITIES WITH DIRECT VIEW LED VIDEO WALLS

After surveying integrators to ask about industry experience and results with direct view LED video walls, there are clearly many reasons to be optimistic about this technology.

Direct view LED video walls are gaining traction in commercial spaces. We surveyed integrators to learn more about the details of these types of installations, and the findings point to clear optimism around this technology across the industry.

In addition, customers find benefits in the quality of the picture, bezel-less screens, and longevity of the system. A majority of integration firms are installing direct view LED video walls, and the majority of those firms are installing multiple video walls per year. The potential for profit from the cost of these systems themselves, offers integration firms the chance to see real gains from these types of projects. These integrators also report high satisfaction with the systems post-installation.

DIRECT VIEW LED VIDEO WALLS ARE GAINING TRACTION IN COMMERCIAL SPACES

LET'S DIG INTO THE NUMBERS TO LEARN MORE

Proliferation of Direct View LED Video Walls

Often the prevalence of a technology is the best way to understand the opportunities around it. Of our integrators surveyed, two-thirds have installed or assisted in the installation of a direct view LED video wall. Meaning, the majority of the industry integrators surveyed have customers who have mplemented direct view LED technology. While integrators design the system, the customers must sign off and this statistic indicates that many integrators have customers who are willing to install new or upgrade to direct view LED – whether by recommendation or by their own decision.

We coupled that with the number of video walls these integrators have installed or assisted with an install, and 53.3% fall into the range of two to ten installations, meaning a majority of integrators are installing multiple video walls. The number of integrators that have installed only one direct view LED video wall, just 8%. Meanwhile, 5.3% of integrators have installed 51 to 100, and an additional 5.3% have installed over 100 direct view LED video walls. For every integrator that has installed only one direct view LED video wall, there are nearly twice as many who have installed more than 25 video walls.

When asked to comment on the driver behind choosing direct view LED over LCD or projection technology, the answers from respondents often cited similar reasoning:

"Customers' desire to achieve the look of flat-panel display versus projection, yet still have a very large image size," says one respondent. "LCD video walls are complex to align, configure, and bezels are obstructive. Nowadays, clients are looking for: 1. Zero bezels. 2. Bright images. 3. Higher contrast ratio. 4. Outdoor capabilities. 5. Vivid colors," says another.

"It is total cost of ownership and life of the product. With direct view LED you can get 11 years of life, with LCD maybe three years. Also, clients hate bezels on video walls," says a third.

Many of the integrators surveyed are installing multiple direct view LED video walls per year, and customers are seeing the return on investment in terms of visual clarity and lifetime cost of ownership.

Potential for Profit

When looking at product cost beside labor cost of direct view LED video wall projects, we start to see an opportunity for integrators. Starting with the overall product costs, 15% of respondents reported spending between $10,001 and $50,000. The largest share of respondents at 46.6%, said product costs totaled more than $100,000 for direct view LED video walls, while 31.5% noted the total came in between $50,001 and $100,000. Very few, just 6.9% claimed product costs were less than $10,000.

Imagine a 20% markup on product costs to the customer for direct view LED, and with nearly half the systems reporting product costs of more than $100,000, integrators would yield $20,000+ in profitability per project. Meanwhile, more than 40% of all respondents indicated labor costs of between $10,000 and $50,000. With direct view LED video walls, both product and labor markup can result in significant profitability for the integrator.

Comfort and Satisfaction

The potential for numerous direct view LED video wall installations, is the opportunity for strong profits. Although a moot point, if the installation itself is a detriment to the integrator. Integration firms need to be comfortable installing this technology in order to recommend it to customers and build it out. They also need to be satisfied with the installation after the fact, in order to continue to install a given technology. In the case of direct view LED video walls, it seems both those factors are prevalent according to our research. We asked each of our respondents to rate their comfort level for the next direct view LED video wall installation they undergo on a scale of 0 to 10. The average score of comfortability with the next direct view LED video wall installation was 8.4. We also asked respondents to rate their satisfaction level of the finished installation of direct view LED video walls they've installed on a scale of 0 to 10. The average score of satisfaction with their direct view LED video wall installations was 8.9.

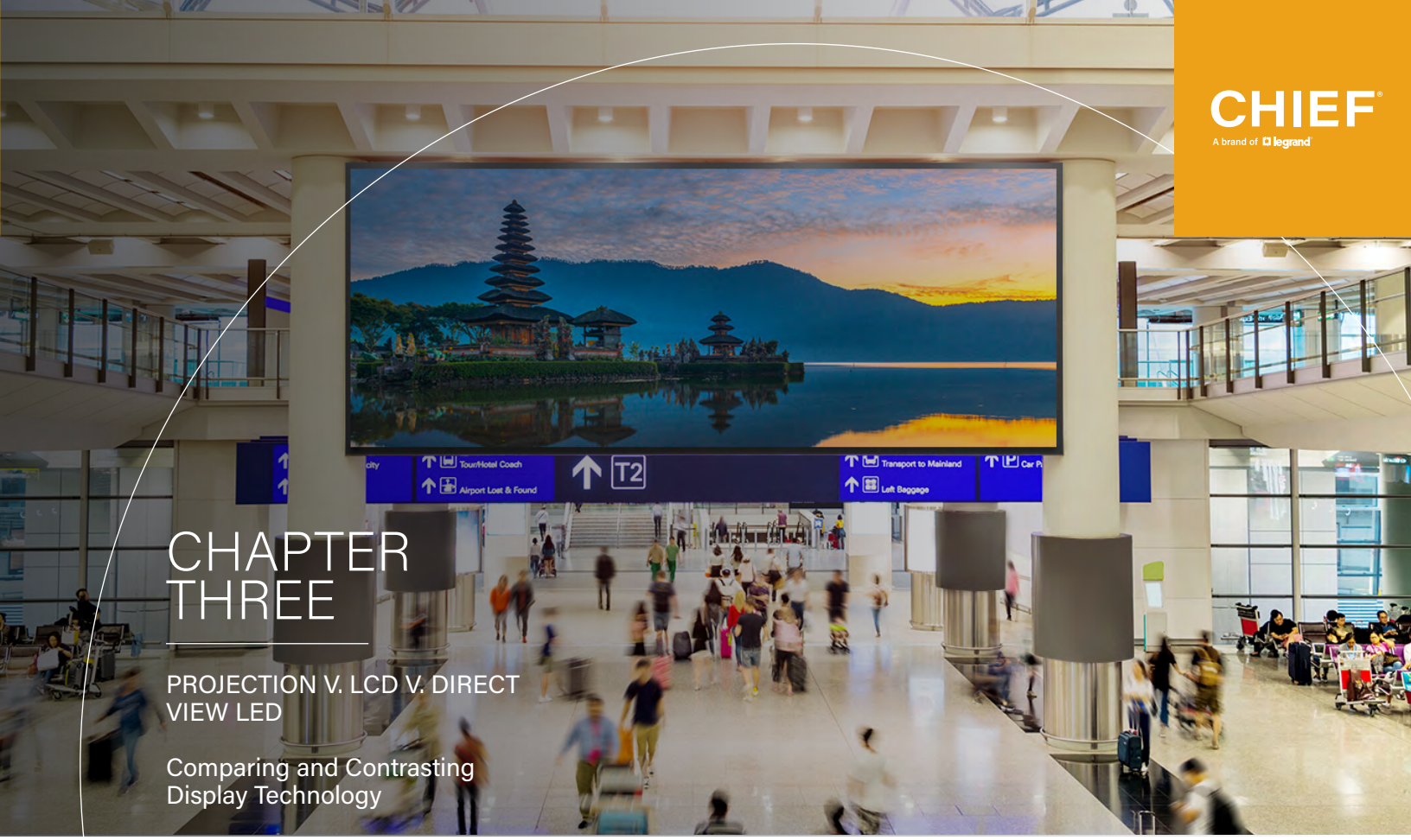
The findings suggest that integrators are comfortable with installing direct view LED video walls, and satisfied with their installations. It's safe to say most integrators would be able to gain the same level of comfortability and would come away satisfied with their work.

THE FUTURE OF DIRECT VIEW LED VIDEO WALLS

Moving forward, integrators expect to see more direct view LED video wall installations.

According to our respondents, 98% of integrators planned to install anywhere from 1 to 100 direct view LED video walls, and just over 1% planned to install more than 100. Breaking this down further, one-third of respondents planned the installation of 6 to 10 video walls, while approximately 10% planned to install 11 to 25, and 12% planned the installation of 26 to 100 video walls.

There is clear optimism in the industry around this technology – almost every integration firm planned the install of at least one direct view LED video wall during the year. Integration firms should be optimistic about the potential for direct view LED video walls. The findings are clear – the majority of firms are comfortable, satisfied, and planning on multiple future deployments.



CHAPTER THREE

PROJECTION V. LCD V. DIRECT VIEW LED

Comparing and Contrasting Display Technology

For an integrator to choose the right display technology for any application, they must first understand the advantages and potential challenges with each type. Let's break it down.

In order to begin the discussion on the differences between projection, LCD, and direct view LED technology, we first need to understand the process of doing technical comparisons. We are going to maintain objectivity here – a true comparison is not meant to promote or discourage one type of display technology over another. The goal here is to present the verifiable advantages and potential downsides of each type of display technology. This means thinking about features versus benefits versus potential challenges.

No matter what you hear, one size, brand, or type of display technology does not fit all applications. The project, environment, and even budget will dictate to an AV integrator which technology is the best solution. No matter what the choice, there will be tradeoffs. The secret is in knowing how to manage those tradeoffs.

Next, put all the marketing hype to one side. Every manufacturer will claim they are better in one way or another, and they may or may not be right. It is up to the integrator to explore the untarnished facts to see if a vendor's claim is valid or relevant. This allows the integrator to determine if a certain display technology fits the specific application.

THE DISPLAY MARKET

In order to tackle the advantages and potential challenges for each technology, the opportunities and growth of these applications for the integration community must first be addressed. While marketing hype should be downplayed, the market should not be ignored.

According to reliable market research, the commercial AV market is growing at just under 10% year over year. This is great growth when you consider the US economy as a whole is growing at just under three percent year over year. In fact, the large venue digital signage market (a hotbed for commercial display technology is growing at over 20% per year. Some niches are even growing at over 30% annually. Clearly, the market for these types of technologies is significant. Let's discuss the advantages and disadvantages of projection, LCD and direct view LED.

PROJECTION TECHNOLOGY

When we think about large venue design options, projection is still at the head of the class. It is the only display technology that provides a nearly unlimited number of screen size options. Other than the behemoths of light output, most projectors can be moved around easily, positioned on a table, mounted in the ceiling, and used for front- or rear-screen applications.

Projection can be edge blended for seamless ultrawide or tall images. Mapping allows integrators to make spaces take on new and expanded dimensions to impress viewers. The biggest detriment to projection technology is ambient light.

PROJECTION ADVANTAGES

- Low cost per square foot of image
- Portability of display (in most cases)
- Variable image sizes based on lens options
- Brightness and light source options to fit many applications
- Edge blending and projection mapping
- Various types of screen surfaces to fit many applications
- No glare

PROJECTION DISADVANTAGES

- Impact of ambient light and image visibility
- Maintaining color and contrast of the source material
- More complex design due to positioning of projecto relative to the screen
- Environmental challenges such as vibrations from HVAC, door slamming, foot traffic, etc. can misalign projector post-installation
- Outdoor application is often unavailable

LCD DISPLAYS

By far the most popular display technology in general use today is large flat panel LCD displays. Commercial models come in sizes from 32 inches to approximately 100 inches. They are single or multi-display solutions – which can be wall or ceiling mounted, a freestanding solution or attached to the floor.

LCD displays are sufficiently bright in standard form, and high brightness models are out there. They are not as susceptible to ambient light when compared with projection. They are also high resolution, with 16K ultra-high definition (UHD) models beginning to be released. LCD display technology prides itself on image detail. They certainly provide good color and contrast performance.

Flat panels are commonly used to construct larger videowalls. Most commercial displays have a basic video wall processor built-in, and outboard processors with additional capabilities are readily available.

The major disadvantage of LCD displays are the bezels. Although new models are now available with a minimal bezel width compared to a few years ago, the bezels are still noticeable, and narrow bezels come at a higher cost with more fragility.

LCD ADVANTAGES

- Single display approach
- Simple design, but requires precise installation
- Potential higher aggregate resolution (1080P or more per panel)
- Low maintenance – no light source to change or screen surface to maintain

LCD DISADVANTAGES

- Cost – potentially higher per square foot than projection
- Bezels – breaking up the image content with black lines
- Glare – even matte screen surface models are susceptible to glare to a certain degree
- Off-axis viewing – LCD displays may experience color shift or brightness fall off as viewing angles increase
- Complexity of setup (processing)
- Outdoor applications can have high cost & polarized light can cause poor visibility

DIRECT VIEW LED TECHNOLOGY

Although direct view LED technology has been around since the mid-1990s, it is now the most heavily promoted large venue display technology. This is due in part to the introduction of indoor fine pixel pitch products, as well as a change in business models from manufacturers.

The benefits of direct view LED technology are obvious when you look at the screen. Direct view LED is bright and colorful, with high contrast. Depending on the brightness of the model, it can be unaffected by high ambient light. It's also totally seamless – no bezels equate to no breakup of the image in a video wall.

The biggest obstacle of direct view LED technology remains the cost versus other options – however the saying remains that you get what you pay for.

DIRECT VIEW LED ADVANTAGES

- Seamless display with zero bezels
- Brightness and glare resistance
- Color and contrast are easily maintained
- The image remains uniform at nearly all viewing angles
- Image size capabilities
- Low maintenance

DIRECT VIEW LED DISADVANTAGES

- Higher/highest cost per square foot
- Resolution may be limited by pixel pitch and screen
- Complexity of installation requires careful handling and precise installation – the fine pixel pitch is extremely fragile and susceptible to edge pixel damage

THE SELECTION PROCESS

Ultimately this article has pointed out the advantages and potential downside of each display technology in comparison to one another. What the integrator selects will depend on many factors. The point here is for integrators to educate themselves and be sure to look before leaping.

If there is true ambient light then projection is probably not right for the application (unless you use an ambient light rejecting projection surface), but if the setting is indoors with lighting control and the customer needs ultra-wide or ultra-tall images, this may be the best bet. If the customer loves the look of a video wall and wants to show the image details in high resolution, then LCD should be the consideration. If ultra-bright and seamless is a requirement then direct view LED is likely the way to go. In all cases, budget will come into play. It is a balancing act of features, benefits, and disadvantages, which the integrator will need to navigate on a case-by-case basis. However, with the help of some education

CHAPTER FOUR

CLEARING UP CHALLENGES WITH DIRECT VIEW LED INSTALLATIONS

Integrators are running into similar challenges around direct view LED installations so let's review some advice on how to clear up these challenges.

Direct view LED technology is complicated. Successful installations are vital in order to achieve clear, bezel-less video walls. Integrators are still gaining experience in the field, but learning from trial-and-error can be costly. We asked integrators what challenges they've run into installing direct view LED video walls. We found similar answers popping up more often than others. Below, we'll address those challenges and offer some advice on how to limit the impact of common challenges. First, we need to know who is installing this technology.

INTEGRATORS OR MANUFACTURERS

Who is Installing Direct View LED Technology?

Few installations are done in a vacuum, and in the case of large-scale direct view LED video wall installations, it's understandable to lean on help from both the mount and display manufacturers. It takes time to learn how to self-install a technology, and often different products from different providers can have unique features that must be addressed at installation.

According to our survey of active integrators, the number of installers that implement direct view LED technology on their own versus those installing with the assistance of a manufacturing partner is fairly similar. While 47% of integrators self-install direct view LED technology, 37% use manufacturing partners. The remaining integrators answered both, meaning they handle the installation with some help from the manufacturer.

Diving deeper, we asked those who self-install direct view LED technology how they learned to install the technology. By far the largest number of installers answered reading the manuals and technical documents provided by the manufacturer was enough to allow them to successfully install direct view LED video walls. Many more answered that training and certifications gave them the technical knowledge to install the technology sufficiently. Whether direct view LED video walls are being installed by an integrator, the manufacturer or in partnership, challenges will always arise when implementing technology. Now that we know who is installing this technology, let's take a look at what kind of challenges can pop up, and discuss some ways to avoid them

COMMON CHALLENGES AND SOLUTIONS

Challenges often arise when setting up even the most simple of installations. On that note, there are going to be challenges when installing technology as large and sophisticated as direct view LED.

We surveyed active installers to learn the most common challenges they face when installing direct view LED technology. Let's run through the list while offering some tips to mitigate each challenge:

What challenges did you encounter during the installation(s)?

SITE ISSUES - 56.6%

ALIGNMENT ISSUES - 27.5%

CONTENT ISSUES - 24. 6%

OUR TECHNICIANS' SKILL LEVEL - 23.2%

ISSUES WITH DESIGN AND PRODUCT SPECIFICATIONS - 20.3%

OTHER ISSUES - 20.3%

AVAILABILITY OR LEAD TIME OF LED TILES - 15. 9%

CHALLENGE

Site Issues(56.5%)

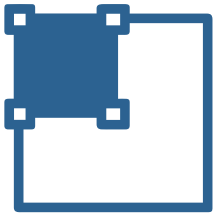
Site issues are a problem on many installations, and unfortunately there is no simple solution to the problem. However, there are some ways to mitigate problems with site issues before they occur.

When the installation is part of a new space build-out, be certain there is open communication between your integration firm and the architect or contractor on the project. More often than not, site issues are a result of integrators working with building plans that have already been constructed or finalized. In these cases, it may not always be possible to work around a metal pipe, wood beam, or some other obstruction. The customer needs to understand that the integrator should be just as much a part of the discussion as architects, plumbers, electricians, etc. in order to get the most out of an installation.

However, integrators often outfit spaces that are already constructed. In these cases, it helps to collect as much information about the space as possible. Any original building plans can help foresee immovable obstacles in ceilings, walls, and underneath the floor. For integrators relatively new to LED installations, feel free to bring the manufacturer in for consultation. A manufacturer sees countless installations every year – they'll have more experience with potential problems in spaces and could point out areas that will be tough to build around well ahead of time. In these cases, it may be best to design around difficult areas.

CHALLENGE

Alignment Issues (27.5%)



Alignment must be perfect. You don't have the luxury of a bezel when it comes to direct view LED. As the pixel pitches become finer, there is very little room for error. One of the most important things is to pre-plan and ensure columns and rows of the mounts, are perfectly level and aligned from the beginning.

The right mount will support and provide critical alignment adjustments to make installations easier. Reference technical drawings to specify power and signal outlets in the correct locations and validate the wall substrate and dimensions of any recessed areas. Reference the cabinet manufacturing manuals to plan the needed power draw, and plan for all necessary ventilation.

It's also important to get to know the tiles, as every tile has its own story and connects cabinet to cabinet in a different way. They may also connect power and signal in a different way. It's important to get to know the LED tiles you are working with in addition to the mounting solutions. In many ways, the right mount is the solution to alignment issues.

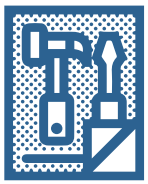
CHALLENGE

Content Issues (24.6%)

Content issues can be a problem, but a number of companies offer services to solve these problems relatively easily. Industry associates and referrals from manufacturers reveal a number of firms offering high-quality content for even the most sophisticated build. Many of these organizations even offer content as-a-service, a potential new revenue stream for integrators installing these walls, that prefer the content go through them to the customer.

CHALLENGE

Technician's Skill Level (23.2%)



There is no accounting for experience, and the most effective way to improve a technician's skill level, is to do the installation. However, there are plenty of opportunities for training when it comes to direct view LED video wall installations. Reach out to manufacturers of the products and ask them for instructions, manuals, or any other literature that can assist in improving technician competency.. You can also ask if they provide any practical, hands-on training. Online video or written training can also be helpful. Often, you'll find opportunities for free training sessions from manufacturers.

CHALLENGE

Issues with Design and Product Specifications (20.3%)

When it comes to design and product specifications, the manufacturer is going to be your best friend. Instructional material is always helpful, but often speaking with someone on the manufacturer's side, that knows the product inside and out, can give practical advice that can guide and even save an installation. Lean on other partners, mount manufacturers, power distribution manufacturers, content providers – there are many opportunities to find help when it comes to designing and installing direct view LED technology.

CHALLENGE

Availability or Lead Time of LED Tiles (15.9%)

This is perhaps one of the most frustrating problems when installing any technology. You're ready to go, but the product, or certain components of the product, have not yet arrived. In this case, the best option is to be proactive. When you win the bid and begin the design process, you should already be in discussions with the necessary manufacturers including cabinet, mount and power, or looking for in-stock options. Aside from the assistance a manufacturer can provide, staying in constant communication can ensure the components are delivered in the appropriate time frame.

CHAPTER FIVE

ARE THERE REASONS NOT TO CHOOSE DIRECT VIEW LED?

We surveyed integrators to find out why they chose NOT to install direct view LED video walls.

Some concerns are legitimate, while some may come from misunderstanding of the technology.

Without a doubt, there are several concerns that must be addressed when it comes to direct view LED video walls. This is a relatively new technology, and as installers get used to implementing direct view LED there will be a learning curve.

When surveying integrators, we asked for some of the reasons they decide NOT to install direct view LED video walls. Let's take a look at some of those reasons, acknowledge the legitimate concerns, and assuage some of the misunderstandings:

DIFFICULTY OF ALIGNMENT

Direct view LED video walls can often have complicated, tiled designs, making alignment more technical than traditional LCD video walls.

This is certainly a fair concern for integrators to have. From cabinet to cabinet, perfect alignment is required with a direct view LED video wall because you don't have the luxury of a bezel. With LCD walls there is a bit of a margin for error, but as pixel pitches get finer with direct view LED that margin for error doesn't exist.

One of the most important things prior to installation is to pre-plan and choose a mount which has the ability to adjust and level columns and rows perfectly level from the beginning, which will set you up for a better experience as you fill in the rest of your configuration. It's important to start things out level and to keep checking throughout the installation. You should also get to know the manufacturer's direct view LED tiles. They all have their own story and can have different cabinet, power and signal connections, as well as module installations and removals, etc.

Choosing the right mount is imperative. Not all mounts are created equal, and when installing direct view LED displays, the mount will drastically impact alignment – the right mount will make alignment simple, while the wrong mount may keep the system from ever aligning properly. Do your due diligence when choosing the mount and lean on mount manufacturers to make sure that it fits your installation.

THE RIGHT MOUNT WILL MAKE ALIGNMENT SIMPLE, WHILE THE WRONG MOUNT MAY KEEP THE SYSTEM FROM EVER ALIGNING PROPERLY.

LACK OF UNDERSTANDING

Many technicians are not yet prepared to install direct view LED video walls, and installation mistakes can be very costly to the integration firm.

Direct view LED video walls are expensive and fragile. Even installers with experience often expect to have a handful of chipped edges, and it is common that the manufacturer will quote additional modules to be prepared for damage on site. Being new to direct view LED video wall installation can be intimidating, and luckily there are training materials available to gain understanding prior to installation.

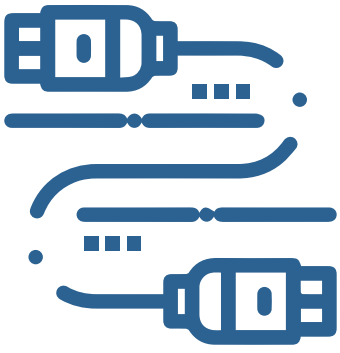
Nearly every manufacturer will offer training resources that gives insight into their products, and many manufacturers and partners offer training courses on installation. Take advantage of any instructional material you can find and get ahead of the game before the installation.

SUPPORTING TECHNOLOGY

Direct view LED video walls often require power distribution, cooling, and other technology that makes the installation more complicated.

While a valid concern, installers will be happy to learn that many display manufacturers build secondary technology such as power distribution and cooling into the cabinet.

When it comes to powering the video wall, you'll want to preplan the outlet locations, as to avoid the need to run cables all over the room to power the system. Reference technical drawings to help identify power locations.



DESIGN DIFFICULTIES

Direct view LED video walls allow for unique designs, but in some cases taking the time and effort to create those designs isn't worthwhile for the integrator.

This shouldn't be a concern, but an opportunity for integrators, as the flexibility in design of direct view LED video walls gives added value, allowing for ultimate creativity. Where LCD walls are often typical rectangles, direct view LED video wall design capabilities open up a host of new applications and possibilities. Being able to configure video walls into different shapes gives you the ability to "techorate" and to do things you couldn't or didn't think were previously possible. Many firms have created archways, columns, and other uniquely shaped direct view LED video walls. It helps to have a mounting system that can handle such creative installations without having the additional time constraints that accompany custom mount solutions.

With direct view LED, you can provide something to customers that your competitors offering LCD video walls cannot. That's a benefit, not a concern. The concern comes with choosing the right mount in order to install a custom solution. Obviously, if you don't have a standard screen then a standard mount won't support it correctly. Alignment will be an issue. Make sure you're reaching out to a manufacturer that can provide mounts for custom installations.

LONG INSTALLATIONS

Installations of direct view LED video walls often take more time than LCD video walls, and integrators would rather get something up more quickly.

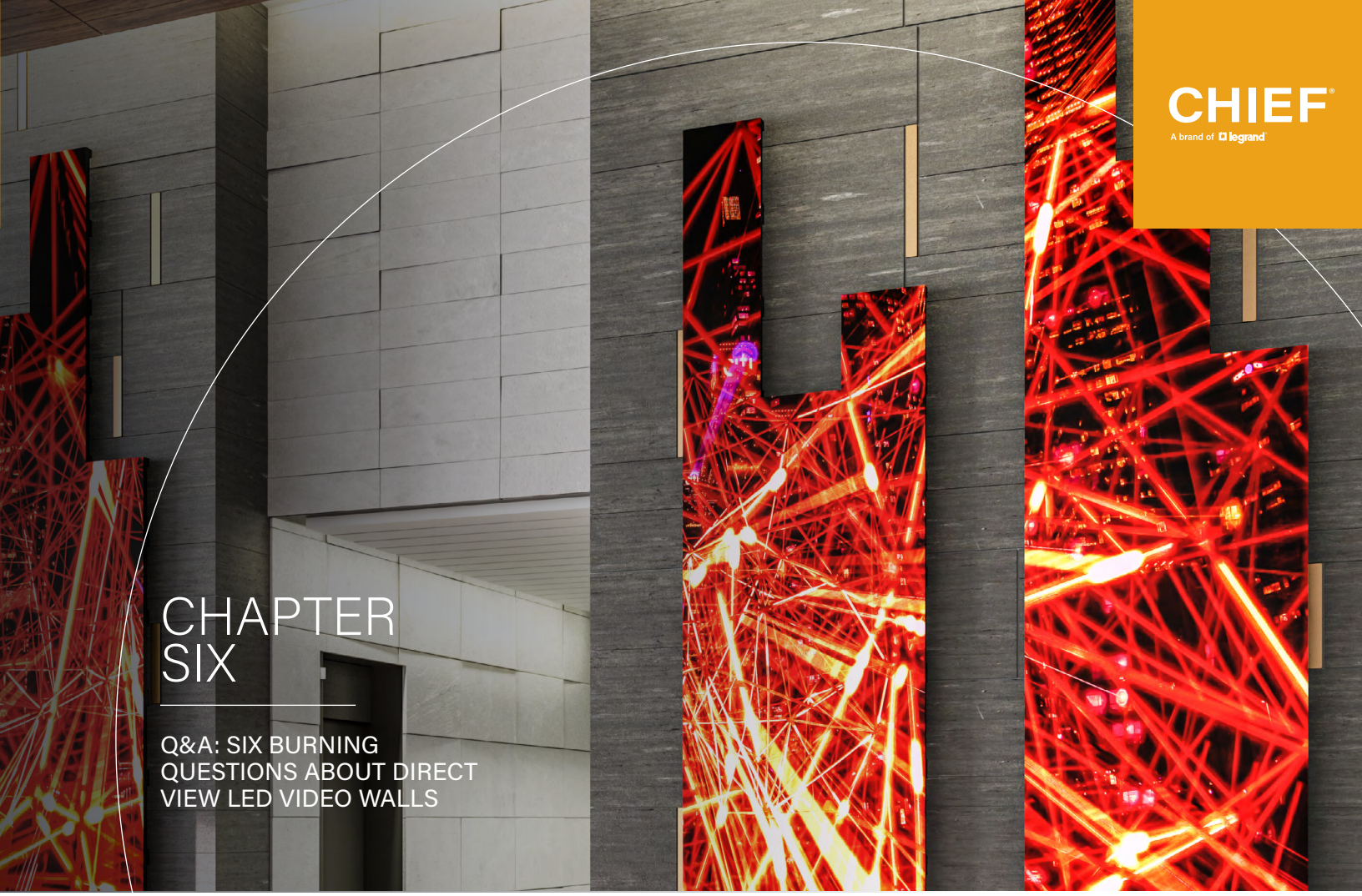
With every new technology there's a learning curve, and integrators are still riding that curve right now. If the technology progresses the way it has for projection and LCD, then eventually direct view LED installations will become as standard as LCD and projection installations.

COST, COST, COST

Direct view LED costs more than any other display installation.

Cost is certainly a concern right now but give it some time. As the technology continues to advance the cost will come down. Currently, costs are associated with pixel pitch, the finer the pixel pitch, the greater the cost, but as the cost of finer pixel pitch resolution comes down, direct view LED may start to compete with LCD. As increased experience and advancements of technology occur, installation time will shorten as well.

While the cost is higher, direct view LED is one of the only ways to get a big, bright image without the tradeoffs of bezels for LCDs, or ambient light sensitivity for projection. There's a better end user experience, and that typically comes with a cost.



CHAPTER SIX

Q&A: SIX BURNING QUESTIONS ABOUT DIRECT VIEW LED VIDEO WALLS

Luke Westin, Senior Product Manager for Chief at Legrand, answers some of the most common questions about direct view LED video walls.

Whenever an integrator begins installing new technology, learning curves can be a challenge. Technical training always helps, and manufacturer partner assistance can go a long way in shortening the curve. Ultimately, though, there is no equivalent to experience.

We asked integrators what questions they had about direct view LED installations. Some questions popped up more often than others. Luckily, Luke Westin, Senior Product Manager for Chief at Legrand, was there to answer some of the most common questions around direct view LED installations:

QUESTION

How do you choose the right mounting solution for direct view LED installations?

ANSWER

Compatibility is key with the current state of direct view LED. There are a number of manufacturers producing direct view LED cabinets. So, compatibility is number one – you'll need to find a suitable mount that is already designed, compatible and ready to ship, or find a mount manufacturer that will design something custom for the project. Once you find something compatible, the next things to think about are the lead time and cost.

If it's a unique solution it will likely cost more and have extended lead times. What we're trying to do here at Chief, is get ahead of the compatibility challenge and custom lead time phenomenon. We have a mount finder tool on our website, you can enter a direct view LED model and it will suggest a compatible mount solution. We've created a configurable product, that may be unique to a particular manufacturer, but it's modular, in-stock and ready to ship. Chief is also working on solving that compatibility challenge ahead of time and eliminating that long lead time and high cost associated with customized solutions.

QUESTION

When designing a custom or unique installation, how can we better address coordination of LED tiles?

ANSWER

I can't speak for the manufacturer in the sense of arriving on time, but what I can say is that we've recently had customers order direct view LED tiles that have gone unknowingly obsolete and been replaced by other models. Now they have the coordination challenge of securing a mount that's compatible with this newly released tile.

Another thing we've run into is coordinating the order of the tiles as they are installed. They can be pre-programmed to be synced-up in a certain order, and it's important that when you install them, that they go back in the same order they were programmed. When it comes to coordinating the up front effort, labeling, marking, and knowing the sequence of the installation is essential.

QUESTION

What should be expected in terms of power distribution when installing a direct view LED video wall?

ANSWER

It's important to pre-plan the power when you're looking at a configuration. You can only run a certain number of modules or cabinets from a set number of circuits. You're going to need multiple circuits to power up these large walls, and power consumption should be planned accordingly.

You'll want more than enough power outlets available, and not just the physical number of outlets, but also the locations. You're going to want to look at the mounting system – where you'll have open spaces in the mounting system. It's definitely something that should be pre-planned.

QUESTION

What hidden or add-on costs should be accounted for?

ANSWER

I think labor is a big one. I've heard so many people talk about the cost of the mounts, but in comparison to the cost of the LED tiles or lost time on an installation, the cost of the mount is pretty much negligible. It's really important to have a mounting system that's been proven and will save you time on the job site.

Anyone that's installed a direct-view LED video wall knows that if you don't use a quality mounting system, you can chase your tail forever trying to get these things perfectly aligned. You want to pre-plan installation and use a quality mount. It may sound cliché, but they say - if you buy on price you buy twice, and I think with direct view LED it's totally true when it comes to mounting solutions.

QUESTION

What is the longevity of these systems in terms of future-proofing?

ANSWER

I think it's going to take a while to future-proof this technology. I think we're going to need some standardization on the side of the direct view LED manufacturers. We need consistency, so we can focus on standardizing and future-proofing the mounting portions. But I do think it's coming soon.

QUESTION

What should the manufacturer's role be in the process of installing direct view LED video walls?

ANSWER

With the current state in the industry I feel like there's a lot of need for extra guidance. There are a lot of on-site services to help integrators and installation crews with field support. I think that's because it's new and people aren't always comfortable with all the details.

Ideally, I think we can design some of those complexities out of the installation so that they can be a little more routine and time-efficient. Education and up-front training are key. Dream state, we don't believe we will need to be on-site all the time. As a mount manufacturer, it is our job to design that complexity out of the installation and to train and educate correctly so integrators can successfully install these on their own.