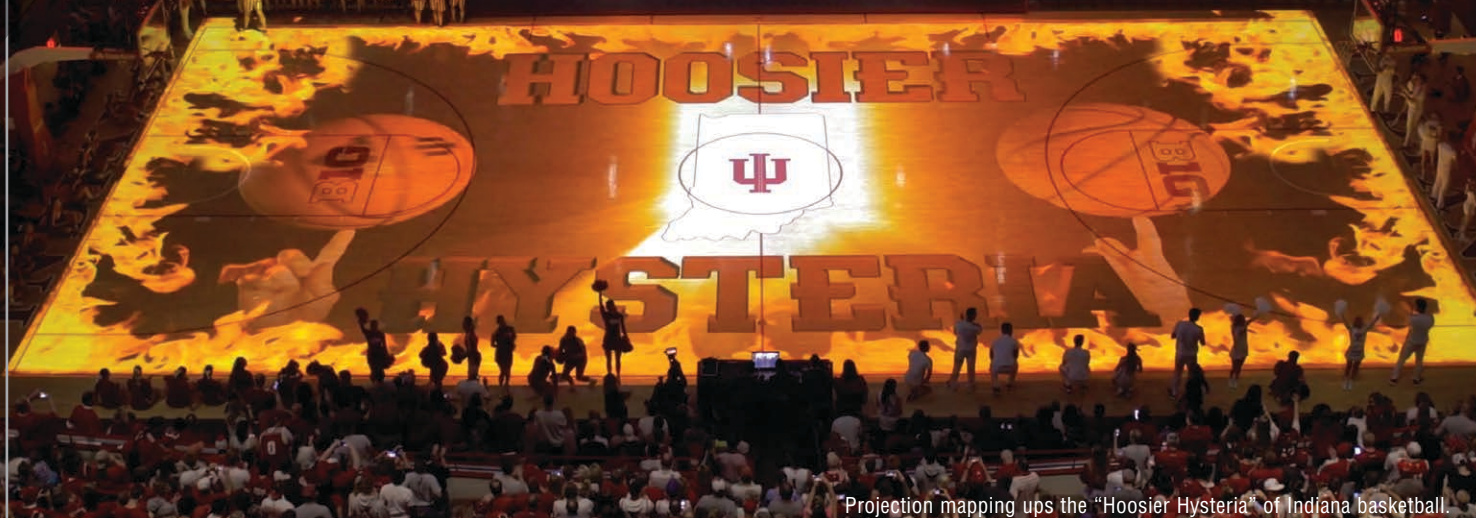


Projection-Mapping Opportunities Abound In Commercial AV

Be it for advertising, education or facilities enhancement, the sky's the limit.

By Kevin Winkler
Blockhouse Studios



Projection mapping ups the "Hoosier Hysteria" of Indiana basketball.

Today's projection technology provides brighter, clearer imagery than ever before. With those improvements come new opportunities to exploit its strengths. Whether it's being used to fire up the crowd at a basketball game or to create a piano keyboard using the canvas of a building's windows, projection mapping has the potential to engage and inspire. And that's just the tip of the iceberg.

So, what is projection mapping, anyway? It is a projection technology that's used to turn objects—often irregularly shaped ones—into a display surface for video projection. These objects might be complex industrial landscapes, buildings, small indoor objects or even theatrical stages. By using specialized software, a two- or three-dimensional object is spatially mapped using a virtual program that mimics the real environment onto which it is to be pro-

jected. This technology is used by artists and advertisers alike, enabling them to add extra dimensions, optical illusions and the appearance of movement onto previously static objects.

Chances are, you've already seen examples of projection mapping. The technology is frequently used at sporting events prior to the start of a game, as well as during halftime. Other recognizable examples include Walt Disney World's projection-mapped Cinderella Castle, as well as St. Peter's Basilica at the Vatican and the Empire State Building in New York NY. (The latter two were created by Obscura Digital, which was recently acquired by the Madison Square Garden Co.) For AV integrators, facilities operators and advertisers—not to mention those who get to enjoy the images—projection mapping offers numerous benefits.

A large part of the projection-mapping process is creating a 3D model and/or design files that represent the real-life object onto which one plans to project. Once that work is complete, repeatability is cost-effective and any further money can go toward the actual content. Although some projection-mapped events might be for special, one-time cases, the work can also be leveraged for repeatable events such as museum displays or efforts to differentiate one's complex from others. Hence, there is real opportunity for AV integrators to install hardware as part of a facility's permanent design.

Key Components

You might be wondering what components constitute a projection-mapping system. First and foremost are the projectors. Depending on the nature of the project, some



Red Rock's Summerlin Ballroom before and after projection mapping was implemented.

amazing results can be achieved with lower-end solutions. However, for larger-scale buildings and interiors, models with 12,000 lumens and up are more viable. The higher-end projectors frequently incorporate features such as integrated motorized lens shift and support for HDBaseT; those features make them well suited to larger projects.

The next part of a projection-mapping system is the central processing unit (CPU)/server. Although these systems can vary significantly, systems powered by an Intel Xeon 10-core processor that can be upgraded to a 22-core processor if more CPU horsepower is required make for a great start. It also makes sense to have systems that, for example, can be expanded from 128GB DDR4-2400 system memory to 512GB. Similarly, Serial Advanced Technology Attachment (SATA) hard disk drives (HDDs) that are configured in a RAID-5 configuration make for a good choice. High-throughput, non-volatile memory express (NVMe) storage for enhanced performance is another item worth considering, as using NVMe drives for both boot-drive and working-space storage increases speed during video rendering.

The third component is distribution. As the global standard for the transmission of ultra-HD video and audio, Ethernet, controls, USB and up to 100W of power over a single cable, HDBaseT is the best choice. Although you can certainly use common HDBaseT converters, there are now specific designs that house a cluster of up to 16 HDBaseT transmitter blades with redundant power. This arrangement greatly improves organization, and it enables a technician to send the signals up to 320 feet with projector control.

The fourth element that must be considered is the projection-mapping software. There are many different solutions available, and they all have their strengths and weaknesses. In that regard, you should select a package that scales well with the hardware utilized in your project. Similarly, you'll want to take a close look at the cue system to know exactly what's about to be output at any given time.

Other Factors

There are other factors to consider when implementing a projection-mapping setup. Key among them are the following:

Budget considerations: Be upfront with your budget. Stay on budget by being realistic with your goals, creative with your resources and focused on maximized space utilization.

Size of the space: This will directly affect the overall cost. The bigger the space, the more projectors that will be required to cover the area.

Ambient lighting conditions and reflective surfaces: Remember, there are limitations when combating the sun and reflective surfaces. An abundance of glass or sunlight can be a showstopper.

Planning takes time: Large-scale projection mapping has many components; therefore, the sooner you start planning, the better. Frequently, you can get better pricing on the projector units by doing so, and you'll have more time for testing and revisions. Inevitably, those things will result in a better outcome.

Prototype ASAP: The sooner one can start to create models, or those items that will be projected onto, the better. Consider 3D printing the room or structure onto which you will be projecting. You can use several inexpensive pico projectors with the 3D-printed models to visualize early on how things will look in the 3D space. It's a little bit

of extra work, but it might very well help you create designs that would have never otherwise been thought of, if working only from a screen.

Brighter is always better: Using projectors with a higher lumen output will always benefit the project. There is nothing worse than dingy, faded, dark projection that someone put a lot of time and effort into, only to have an underwhelming result when the show actually starts.


Additional Considerations

Some additional considerations worth noting include projector placement and power requirements. The projectors require a clear line of sight to the building onto which you are projecting. Sometimes, this can be achieved from an opposing building, but, frequently, truss stands or scaffolding must be erected. Those elements might result in additional cost considerations for the production.

It also goes without saying that the creative process itself is vitally important. I like to think that my own “organic approach” serves as a differentiator from the competition. Simply put, this is where I try my hardest to ask, “What can be created in real life first?” This comes from taking a cinematographer’s approach, and it has resulted in some unique content that stands above other projection-mapping projects I’ve seen. For example, on our firm’s Hoosier Hysteria project, we wanted to have basketballs on fire. Most people would immediately go to their 3D animator; by contrast, we immediately called the fire department and worked with them to light some actual basketballs on fire (safely, mind you). We then filmed them in slow motion, in 8K, on a RED WEAPON. I think we burned six basketballs before we got exactly what we wanted, but it’s so amazing to see those real flames on the court.

Finally, how you present your ideas is extremely important. The better

the job you do in this regard, the more likely the client will sign on to the project. Make it a priority to show the client what is possible with projection mapping. As with every other technology, the price and the size of projectors have been dropping, even as their brightness and other functionality have

increased. Make every reasonable effort to show people what is possible in some of these spaces. Educate the prospective client to consider taking a new approach, and don’t be afraid to use 10 to 16 projectors to cover an entire space. If you make the effort here, you’ll create something truly unique. 

Stewart
F I L M S C R E E N



Hollywood’s Favorite Movie Screen

Greetings AV enthusiasts,

One of the fun things I have always enjoyed about this 4th generation, family owned company is hearing about the locations where our screens are going. One of my favorite stories goes back many years and it was one of the few times that I remember hearing about my father-in-law, Pat Stewart, insisting on going to a job site. When I heard how he trumped one of our technicians to go to an installation, I wasn’t really that surprised...

The customer was J Lo.

He flew out from behind his desk and off he went to Beverly Hills. Can you really blame him?

This week we have seen some nice orders come through. We have a 331 inch diagonal Cascade Grande S6 with GrayMatte LS going to Google and a 135 inch diagonal AT 1.5 with UltraMatte 130 going to Warner Bros.

No other screen company builds to the exacting standards of Stewart. No other screen company has the privilege to do the work that we do.

As always, we appreciate the business.

Mary Stewart

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