



THE LONG VIEW OF GS THEATERS

A Proposed Solution for the Future of
Institutional Giant-screen Theaters and Fulldomes

by John W. Jacobsen

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This article outlines a short- and long-term vision for immersive giant-screen theaters in museums. My intent is to put forward a draft proposal to be commented on and modified by any interested parties. I have no relevant portfolio except as the facilitator of the Digital Immersive Giant-Screen Specifications (DIGSS) initiative, and I have no agenda other than my love for the field and respect for our professional community. My interest is in only the museum/institutional sector of giant-screen theaters.

INTRODUCTION

For close to forty years, the museum sector of the global giant-screen field has provided immersive learning experiences that have enjoyed both popular appeal and educational impact. During the '80s and '90s, box-office revenues allowed giant-screen theaters to operate in museum contexts as net revenue generators, which led to a mature field of filmmakers, distributors, museum operators, and marketers. Now, attendance is down, and the buzz is off the medium. The upcoming conversion to digital projection should be regarded as an opportunity to transform giant-screen theaters, still within the architectural envelope of an immersive learning experience, by leveraging digital's other strengths to create new kinds of experiences that are even more engaging for tomorrow's audiences.

Another significant potential of the digital transformation is the dramatic growth in the number of institutional theaters when some portion (15–25%?) of the 500+ digital dome theaters (a.k.a. fulldomes) join the global leasing network. In the digital future, domes will predominate, and solving dome technologies and programming is the cornerstone for conversion. Fortunately, the fulldome community is making active advances.

In the short term, while this transition is being prototyped within the fulldome community, giant-screen theaters that meet the specifications of the **Giant Screen Cinema Association's** Technical Task Force, chaired by **Andrew Oran**, should follow the branding recommendations soon to be issued by the GSCA Marketing Task Force, chaired by **Mike Lutz**. To encourage quality educational films, the GSCA, the **Museum Film Network**, and the **Dome Alliance** should support a small number of museum-oriented giant-screen films, given the realities of declining box office in the near future.

SITUATIONAL ANALYSIS

Certain of the following observations and their possible implications may seem obvious, yet it is worthwhile stating them to make sure we all agree, as these observations provide a foundation for the vision of the future outlined in the following sections. The observations are based on over two decades of involvement in and study of the field from many perspectives. You will find branding, programming, technical, and economic threads among the points; of course, they are all inter-related:

- ◆ Giant screens are distinctly different from conventional screens in that their greater resolution, brightness, and giant size can produce a viscerally immersive experience that is unlike conventional screens.
- ◆ Used well, giant-screen films can be powerful, both educationally and economically.
- ◆ The size of the global network of flat and dome giant-screen theaters supports commercial film production, resulting in a large and diverse library of films produced by experienced professionals.
- ◆ The overall quality of the library, and the field's ability to attract talent and build expertise, grows and shrinks with the size, revenues, and continuity of the network.
- ◆ For institutional giant-screen theaters, films made by GS professionals expressly for the GS network are better, in terms of mission and margin, than films made for conventional theaters and repurposed for GS screens. This is true for most museums during regular operating hours; in some cases, other programming can have higher margins after hours.
- ◆ Eventually, all analog theaters will have to convert to some form of digital, or shut down. The survival of the global network of institutional theaters depends on our working together to establish our own standards that will enable an open market of system suppliers, producers, and distributors who can help us transition to the digital world on our terms and leverage our significant investments in this powerful educational and economic medium. This is what the Digital Immersive Giant-screen Specifications (DIGSS) initiative is trying to address.
- ◆ We have to look for ways to make digital giant-screen experiences connect with tomorrow's family audiences in the way analog giant-screen films did for audiences in the '80s and '90s. The challenge ahead is less about converting from analog to digital technologies than about transforming from analog expectations to digital potentials.
- ◆ There are significant identity issues in the field due to both public and management confusion between commercial and institutional theaters and films, with both sides blurring the edges for short-term benefits.
- ◆ The institutional side of the giant-screen field is in decline in attendance (with occasional exceptions and good years), with no clear answer from traditional sources.

Growth in the inventory of institutional giant-screen theaters is flat, and while the number of educational films remains high, there is a feeling that *high-quality* films are in short supply. Quality means having an institutional orientation and being a box office success.

- ◆ Determining the source of the decline may be impossible, but it is useful to observe that it is hard to produce a rich inventory of high quality films with a declining revenue source. Hence we have a vicious cycle, regardless of who is at fault, that will not reverse without a significant change in the way we think about the institutional sector of the giant-screen field.
- ◆ As the industry shifts to digital, we can't separate content from technology and hope that showing the same old films through new types of projectors will work. Digital offers significantly different opportunities from analog, and because of the declining spiral of the current model, the shift to digital needs to be part of a global transformation of the giant-screen field, not just a new set of black boxes in the projection booth.
- ◆ The future of the giant-screen field has to be somehow better than the present. This does not necessarily mean, "better" by exactly the same criteria — brightness, resolution, etc. — but in ways more relevant to future audiences. Analog offers an ultra-high-quality picture, but digital has other strengths we should consider. Digital can be customizable, immediately relevant, interactive, and socially inclusive, even if the images are not as good as film.
- ◆ Therefore, solving the technical questions of digital is not independent from creative content production when defining a vision for the future. With new technologies and resources, we will be able to create new kinds of experiences. We will want these new immersive learning experiences *and* the economic health enjoyed by the museum side of the giant-screen business during the '80s and '90s.
- ◆ Our most fixed investments are in the architecture of our GS theaters: the cement seating platforms, the domes, screens, and sound systems. Any vision, particularly a green vision, should try to build on these existing fixed assets.
- ◆ Architecturally, these spaces are set up to be immersion theaters for a seated audience that changes all at once with lights up. The vision for the future should build on the strength of museum-quality immersion experiences lasting a period of time for a seated audience, who pay good money for the experiences again and again. The consistency of the architecture is why immersive learning experiences are common to both analog and digital.
- ◆ I hypothesize that giant screens are perceived by learners as more immersive than shorter and wider screens, and that giant screens have the potential to offer unique learning experiences. The DISCUSS proposal to NSF includes a preliminary test of

this hypothesis. See also James Hyder's article in the November 2008 issue of *LF Examiner*.

- ◆ The GS form of immersive learning is associated with our institutions. Now that **Imax Corporation** has opened nearly 70 digital theaters and **Real D** and other companies have spread conventional digital 3D into multiplexes, we need to differentiate what we offer from those commercial establishments. In commercial theaters, viewers are seated passively in front of a comforting proscenium frame. In our giant-screen theaters, the viewers can be viscerally inside the action.
- ◆ Digital projection for GS domes is the hardest technical issue to address, and if we can solve the digital projection and production questions in the dome, it will be relatively easy to adapt those systems for institutional flat screens.
- ◆ The most likely source of digital dome solutions will come from vendors currently supplying the fulldome field. They are already developing competitive systems around an open-source set of specifications shared by fulldomes (the "Dome Master"). There is no dominant brand in fulldomes, and shows can play on multiple platforms.
- ◆ Unlike the giant-screen field, fulldomes are growing at 40 per year. Most of these are new equipment installed in existing planetariums. The result is a highly competitive field of system developers, each trying to outdo the others with increasing brightness, flexibility, resolution and other factors, including 3D. From the perspective of innovation and growth, fulldomes seem to be a healthy field.
- ◆ Fulldome shows, on the other hand, do not have the box-office track record enjoyed by giant-screen theaters, perhaps because production, distribution, and marketing budgets are a small fraction of those of giant-screen feature films, and perhaps because financial returns have seldom been a key objective.
- ◆ It is my hypothesis that fulldomes' reliance on computer-generated images (CGI) and GS's use of live action (real *Everest* vs. CGI *Everest*, for instance) puts a limit on the relative popularity of current fulldome programming styles.
- ◆ This leads to the observation that GS dome theaters are likely to turn to digital video and fulldome system providers unless Imax Corporation comes up with a digital solution for the them first. Paris, Copenhagen, and Stockholm's institutional GS domes have already taken this route, although they continue to run films as well.
- ◆ The corollary is that fulldomes and giant-screen domes will probably have technically compatible equipment. It used to be that planetariums put stars on their domes while IMAX Domes put pictures there; in the digital future, both will be able to do both, if they want. In the long run, convergence of fulldomes and GS dome theaters could be more of a policy choice and less a technology distinction. Achieving con-

vergence will require management; this is another aspect of the DIGSS initiative and is also a role for GSCA, **IMERSA**, and the **International Planetarium Society**.

Let's look at the numbers :

GS & Fulldome Inventories, as of March 1, 2009

	Commer- cial Thea- ters†	Institu- tional Theaters	Total Thea- ters
GS Dome Theaters*			
IMAX	12	50	62
Others	4	53	57
Sub Total GS Domes	16	103	119
GS Flat Theaters*			
IMAX	218	67	285
Others	31	30	61
Sub Total GS Flats	249	97	316
Both Types of Screens	3	2	5
Total GS Theaters	268	202	470
3D Capability	207	50	257
Fulldomes**			
Academic (Schools, Univ.)		189	189
Museum/Science Center		182	182
Observatory/Astronomy Club		24	24
Government/Municipal		26	26
Private/Commercial/Theme Park	39		39
Unknown/Misc	?	?	48
Total Fulldomes	39	421	508
Total GS and Fulldome Theaters	307	623	978

**LF Examiner*, White Oak Associates

** Loch Ness Productions

† An estimated 50–60 of these lean toward institutional programming (Hyder, 2008)

Note: Five theaters have both dome and flat screens, and there are other anomalies, so totals do not add up.

While three-quarters of commercial giant-screen theaters have 3D capability, only one-quarter of institutional theaters do.

- ◆ Only 6% of the commercial theaters are domes, while 51% of the institutional theaters are domes. Only 6% of Imax's commercial theaters are domes and Imax has supplied only 62 domes in total. Is the potential conversion of those 62 domes to digital sufficiently attractive to make it a high priority for the company?
- ◆ Looked at collectively, however, the number of domes in museums is 524 (103 + 421) versus 97 flat giant screens. Having five times as many domes is another reason why solving the dome problem is more important than flat screens, which should in any case admit of simpler solutions.

- ◆ Even if technical compatibility allows for convergence and the exchange of programs between giant screens and fulldomes, it is unlikely that complete convergence will happen soon, if ever. Any vision for the future has to allow for several categories of operating policy among those willing to play by any rules, plus a recognition of a large maverick factor in the field.
- ◆ Fulldome technologies are not yet ready to handle the GS audiences' expectations for giant-screen films, particularly on the larger institutional giant screens.
- ◆ Fortunately, fulldome technologies show good signs of maturing in the next few years. The big question is whether analog giant-screen theaters can survive until the technical transformation is accompanied by artistic and creative program solutions with box office appeal. Who will produce the equivalent of *To Fly!* for digital giant screens? And perhaps more importantly for planning, when will it happen, and how long will it take to build the library of digital shows to its *Everest* ?
- ◆ We need solutions for analog GS theaters in the short term, until digital is ready. This solution has to rely on the existing library of films, and on the GS field's most talented producers to continue producing classic 15/70 institutional films, perhaps using the same approach into digital's early years.
- ◆ Many such films are being made, but at a lower level of impact than earlier hits. The institutional sector of the market should focus its attention on those film projects that seem most promising. While project green-lighters, if such exist, should evaluate all sources, in the short-term it may be better to harness existing GS experience than to invest in new talent for a medium approaching its sunset. So expert professionals are the least risky source of new product during this transition time. These GS-savvy film producers need to have the incentives and security to produce high quality, popular films, in a time of declining box office.

BRAND IDENTITY AND INTEGRITY

We need a distinguishing brand identity for giant-screen theaters. Defining and positioning this brand is the scope of the GSCA's Marketing Task Force. I believe that institutional theaters need to distinguish themselves further from commercial theaters.

The giant-screen community is understandably annoyed at Imax's strategy of using one brand for both giant analog and smaller digital screens, arguing that the newcomers are trading on the brand expectations originally defined in the public's mind by the museums' marketing investments. If we are concerned that Imax is blurring the image, we must recognize that we are doing so as well, when we run DMR films in museum settings. There are no angels in a declining market.

Brand identity is about clarity, and if we wish to distinguish ourselves from commercial theaters, then we must do it not only in image, but in practice. Tempting as the short-

term-revenues from DMR films may be, institutional theaters need to be very careful about separating their Hollywood programming from classic immersive learning films. The safest route is to show only educational films. Some theaters (St. Paul, Boston Museum of Science) are successful showing only classic films because they keep more of the gate and keep their whole schedule full of family fare; other institutional theaters depend on DMR revenue.

Clarity and positioning need to be consistent to be effective. We all know this, yet DMR is a short-term answer for declining box office revenues, masking the optimism that GS theaters can once again operate as profitably as they did in the '80s and '90s. "One-brand-fits-all" is also Imax's wishful thinking at a time when a single digital projector can be only so big, so bright, and so clear. DMR is not the answer for institutional giant-screen theaters; rather it is a symptom of a larger problem, which is that our business model no longer works as well as it once did.

The goal for the new business model should include economically sustainable, high-volume programming that is consistent with institutional giant-screen brands and values, not a model that depends on brand loopholes.

It would be nice if this new model could return us to capacity audiences at premium prices, and perhaps the digital transformation will do that for a few years. However, I suspect the new model will work long-term when both distributors and museums take the time to add related revenue sources (programs, merchandise, themed rentals, etc.) to a show title's platform, rather than rely on the box office alone.

Suggested Positioning Table

Digital Immersive Giant-screen Specifications		
	Commercial Theaters	Institutional Theaters
Core Programming	Hollywood fiction movies	Museum non-fiction films
Promise	Entertainment and escape for young adults	Entertainment and engagement for families
Basis of appeal	Narrative drama	Immersive learning experience
Experience positioning	Highest-quality 3D immersion	Largest size and highest quality natural immersion
Branding	IMAX	Classic Giant Screen (W.T.)
Business model	Operated within the practices of the megaplex commercial theater model	Admissions, plus the theater is a platform for other museum services resulting in combinations of earned and support revenues.
Outputs	Spending by teens and young adults on their own passive leisure	Spending by families on their children's learning and active leisure
Desired Outcomes	Profits	Experiential learning (1 st); museum brand enhancement (2 nd), and net revenues (3 rd)

Table 2

Source: White Oak Institute

LONG-TERM, POST-DIGITAL SOLUTIONS

Once the giant-screen field has shifted over to digital, new possibilities open with the convergence with at least part of the fulldome field, which is already digital. Domes have a small majority among the current institutional giant-screen theaters, but once joined by some of the fulldomes, most of the combined market will be domes.

This predominance is likely to shift the focus of production attention to domes, further distinguishing the field from commercial 3D flat screens. While fulldomes are now capable of handling 3D, so far it has been more of an effect than the substance of the experience.

Based on the responses from fulldome managers in a recent White Oak Institute survey, not everyone will want a complete convergence of both fields, and another layer of positioning will be necessary to distinguish among giant-screen dome theaters, starfield planetariums, and digital visualization theaters.

Performing arts centers provide an apt metaphor, as they may have an experimental theater, a more formal traditional stage, and other types of venue. The experimental theater is open, informal, and intentionally funky; it is an edgy venue for vanguard work, and its audiences are looking more for “new and exciting” than “polished and popular.” The traditional theater, on the other hand, has posh detailing and plush seats facing a large stage for operas, dramas, musicals, and other professionally staged presentations with proven popular appeal.

Some fulldomes may choose the experimental route, continuing with live presentations of the stars tonight, while developing in-house presentations that emphasize live feeds and local artists. Others may join the giant-screen theaters in showing first-run feature “films,” while some will work a middle ground of film festivals, classics, and offbeat productions. Once there is networked technical compatibility across the field (the DIGSS goal), and once we share annual conferences and screenings, these layers will interact more and provide a more robust economic model.

Curiously, the pessimistic view gets us to the same long view: we are stuck with these unique architectural spaces that we can’t use for anything but seated audiences facing a screen. In a bad economy, we cannot afford to tear them down and replace them with new architecture, so we need to find something to do with the spaces. Our cheapest route is to let lots of folks around the world work on the problem from a wide number of angles with the hope that eventually some transcendent use of digital technologies and relevant show production will emerge from the primordial network.

The optimistic approach embraces this direction as a clear strategy for the field: We can mine the potentials of digital technologies to create exciting new forms of popular immersive learning. We can expand the network of collaborating institutions by recogniz-

ing a continuum of immersive learning theaters and artistic and technological potentials. And we can structure audience expectations to be aligned with different kinds of immersive learning experiences, just as they are among different kinds of legitimate theaters.

This continuum finally provides the GS field with a scalable route to develop new ideas, starting with low-budget student work in university fulldomes, then experimenting with show production approaches and digital interactivity in science-center fulldomes, some of which will use innovative approaches through NSF and other grant funding, and finally to the large, formal, giant-screen theaters (the current GS institutional inventory) as the “Broadway” goal for all the aspiring artists and producers in the Off-Broadway and Off-Off Broadway sectors. Part of the GS field’s current problem is that we have only Broadway houses, which need films with significant budgets. We don’t have a business model that encourages experimentation on the cheap, but we might with this future digital convergence of GS theaters and fulldomes.

SHORT-TERM SOLUTIONS

Averaging the responses to the front-end survey we conducted of GS professionals last year, the field believes it may have six years before we have to convert to digital. We need a bridging, short-term solution to cover this period of time. During this transition period, we can learn about digital technologies and experiment with how they might affect programming and increase visitor appeal. At the same time, we should be conservative as we continue operating the analog theaters, by focusing our scarcer leasing dollars on fewer selected short-term projects that will keep the field afloat until the promise of digital systems and productions can be realized. We still need immersive analog films, and in the early years of this transition, most of our resources should continue going in that direction, while some minor share is invested in experimentation in the fulldome field with revolutionary approaches. As digital solutions become possible, and as suppliers enter the GS field and theaters start converting, the share of conservative/experimental investment can shift.

This kind of focusing of resources puts the GSCA and/or the subset of its institutional members in a much more active role as backers of selected film projects. The Museum Film Network is a good model for organizing support and lease commitments around selected titles, and some more active version of it might be helpful at this stage.

I don’t care as much about any specific branding solution, as I do about the need for some distinguishing term, and Mike Lutz’s committee should recommend a final choice.

VISION SUMMARY

The long view for institutional giant screens is that digital technologies will allow a continuum of institutional immersive theaters, from scrappy, home-made experimental

theaters to large and elegant houses. The 200 institutional giant-screen theaters might be joined by the fulldomes in museums and science centers (155), as well as a handful of others to create a global network of 350–400 technologically compatible digital immersive giant screens with a museum mandate.

The continuum allows/demands a new business model. While it is too early to say what it will be, it is likely to be more diversified than the current emphasis in the GS sector on gate admissions, with digital immersive giant screens becoming more integrated into their museums' other activities. We will also need new kinds of immersive learning experiences to re-engage tomorrow's audiences. Again, it is too early to say what these will be, but it is likely to come from mining the overlap of digital potentials with immersive screens.

In the short term (six years?), the institutional side of the giant-screen industry needs to distinguish its brand from the commercial screens, particularly the smaller digital screens in multiplexes. We also need to build our core promise of family learning, as another way of distinguishing our theaters from commercial ones that appeal to teens and young adults. During the transition, theater operators should support fewer, but more focused and better funded film projects from trusted producers. Meanwhile, GS professionals should become more familiar with the fulldome field, monitoring the development of technologies and show production approaches, possibly leading toward joint conferences and screenings.

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