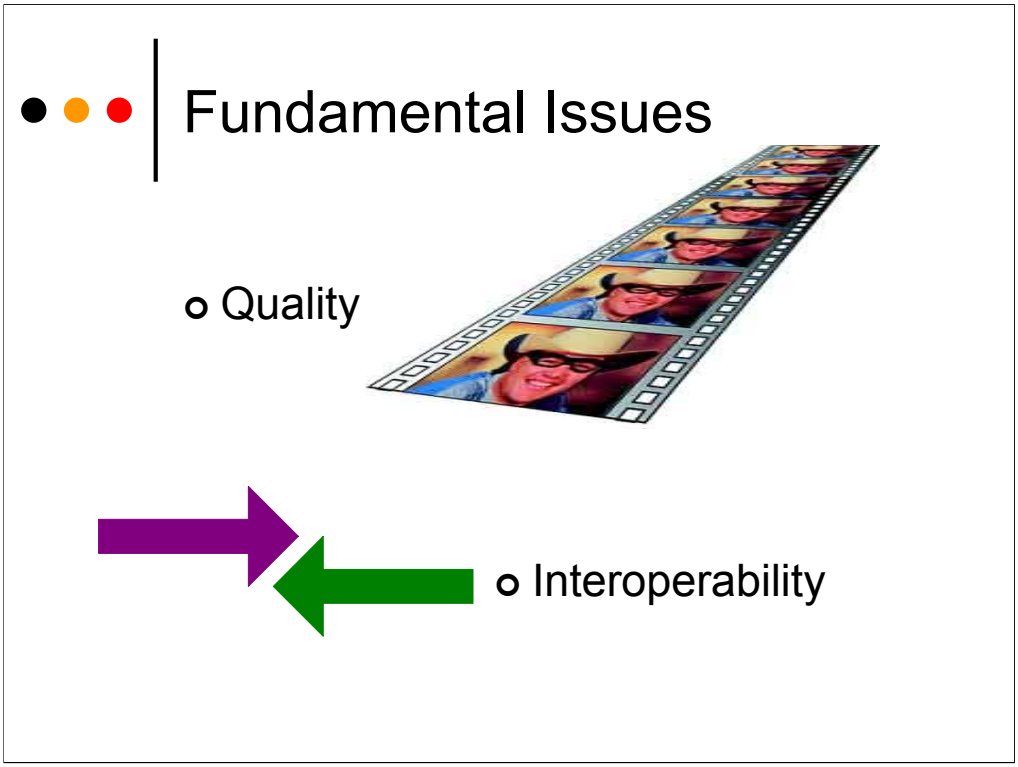
Digital Cinema, New Industries & New Business

by Michael Karagosian



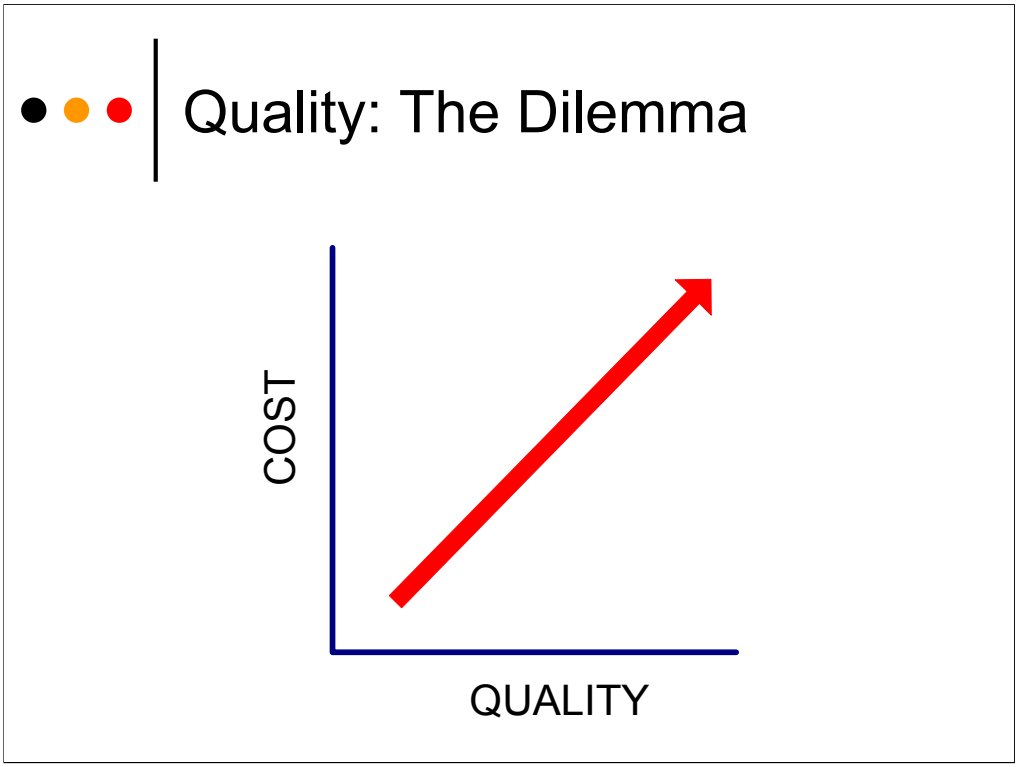
The two major technical challenges that lie ahead for digital cinema are quality and interoperability. If this sounds familiar, you're right. These challenges were with us 10 years ago, and they remain with us today.

However, the industry is making progress. In fact, considerable progress has taken place in the past 10 years, particularly in the area of quality. Had we not achieved a level of quality that met the needs of at least some content producers, we wouldn't be here today engaged in a discussion on digital cinema.

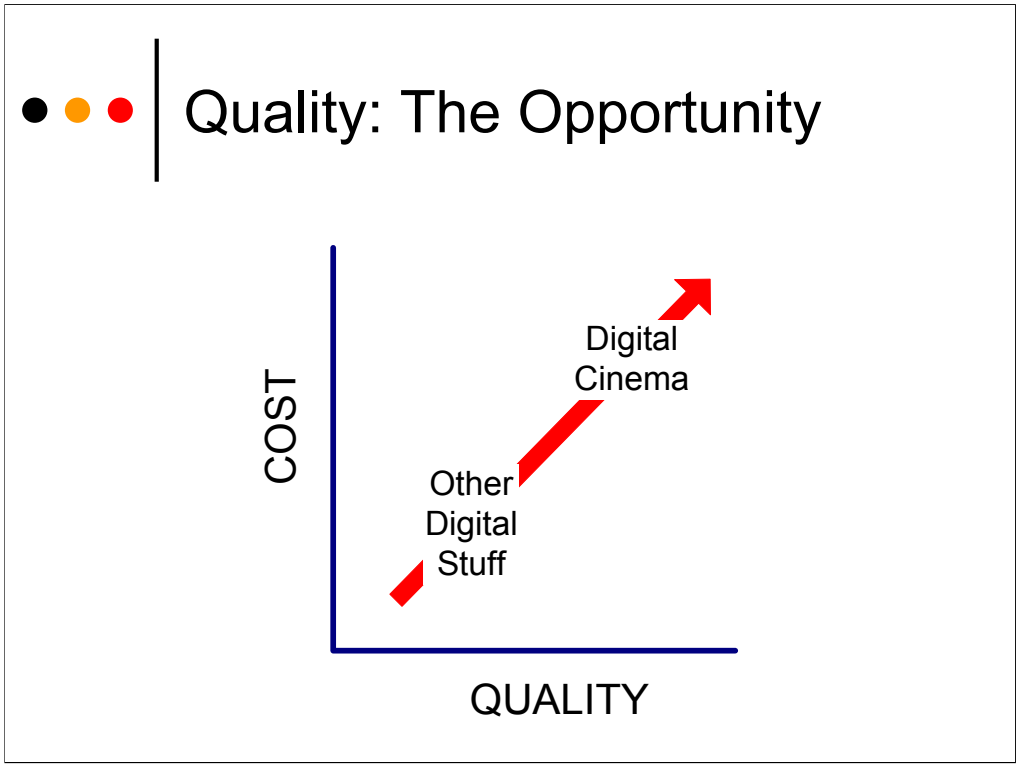
Quality remains an issue because is has an elusive nature to it. Quality relies upon technical advances, but at it's core, quality is also a creative issue. Achieving quality is not a numbers game – we know it when we see it.

Some may think that interoperability is easier to define. We know what plugs into what, correct? However, achieving interoperability isn't as straightforward as it looks.

One roadblock to interoperability has been market size. Cinema is a small worldwide market. Vendors want to achieve a sizeable market share, and often are not interested in sharing the fruits of their development work, since it would naturally help their competition. Other problems hamper work on interoperability. In our limited worldwide set of 150 digital cinema trial systems, not all systems are alike. Regulation of system design is not the answer. We need manufacturers to be flexible to adapt new technologies and offer the lowest possible system cost, thus regulation would be a problem. We also need to take into account the fact that cinema owners are not interested in vanilla systems. They want choices so that they can choose the best possible product for their needs at the lower possible price.



Let's review where the industry is today with each of these issues. In terms of quality, we are at the threshold where practical technology can deliver acceptable images. Because we are only at the threshold, high quality goes hand-in-hand with high cost. This poses a natural dilemma that hampers the immediate introduction of high quality digital cinema. But the low cost of lower quality systems invites the use of this technology for other applications in the cinema.



In the United States, electronic advertising in the cinema is becoming increasingly popular. This may seem surprising in Europe, where cinema advertising is already widespread. But in the US, relatively little film-based cinema advertising exists. The use of lower quality, low cost digital platforms is rapidly gaining ground as advertising is favored as a new source of revenue. Systems lower in quality than that desired for the digital presentation of motion pictures (which is how we define "digital cinema") do not have to be limited to advertising. Many have proposed a range of alternative entertainment which could develop into new sources of revenue for the theatre. To differentiate "digital cinema" from other viable forms of electronic entertainment and advertising, John Fithian of NATO has dubbed this class of systems as "Other Digital Stuff", or ODS.

In early 2002, this author suggested that the industry would "back into" digital cinema by means of ODS. (We didn't call it ODS back then, but that term would have been very applicable.) As audiences demand more quality, and projectors become more affordable, high caliber systems capable of playing 1st release motion pictures would eventually come into demand. In the meantime, exhibitors would be encouraged to install ODS systems for which practical business models exist. Today, many US exhibitors appear to be following this path.

Interoperability

- Driven by business needs
  - To create a market
  - To build confidence in new technology

It was pointed out that achieving interoperability is not as simple an issue as one may think, and that it deserves much consideration. Fundamentally, interoperability is driven by business needs. Users need it, but manufacturers need it, too. Interoperability is the key to creating the right product classes, where each class is differentiated by features, but interface openly to other product classes. Without interoperability, it's difficult to create a market. With it, the industry will create well-defined, competitive product classes, and thus build confidence in this new technology.

Server & Projector

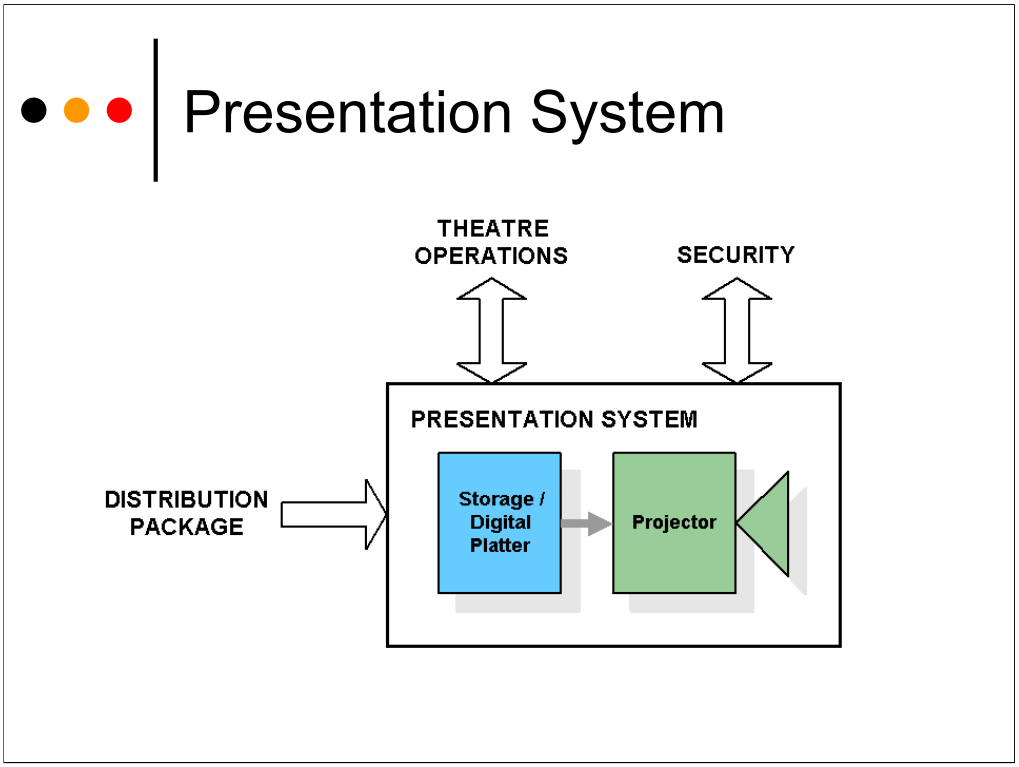
- How important is interoperability between server and projector?
- Who provides the server?

As a case in point, a common interface where interoperability is often sought is the link between server and projector. Interoperability of projectors is important in a market that wants to sell stand-alone projectors.

Let's give this some thought in terms of the cinema. Today's DLP Cinema projectors all have well-defined interfaces, making it easy for any brand of server to connect. Has this brought interoperability to the digital cinema market?

The answer is "no". While interoperability at the projector has encouraged a number of servers to enter the marketplace, none of the servers are interoperable. This has slowed the acceptance of a common digital platform for digital cinema, and certainly hasn't helped to sell projectors. The irony is that the projector companies thought they were doing the right thing by offering interoperability in their products.

What the projector companies have learned is that to achieve reasonable control over their sales, they need to build interoperable *systems*. A possible outcome of this direction could mean that projector companies build the server themselves. This could be very good for the industry, as projector companies don't have a stake to claim in server technology, and could offer interoperable servers in the marketplace while achieving their goal of building a market for their projectors.



This is the first step towards defining where we need interoperability. By combining the server and projector as a system, we create the “Presentation System”, one of our interoperable product classes. Note that a Presentation System does not have to be built in its entirety by one vendor, but could be built by a single vendor if so desired.

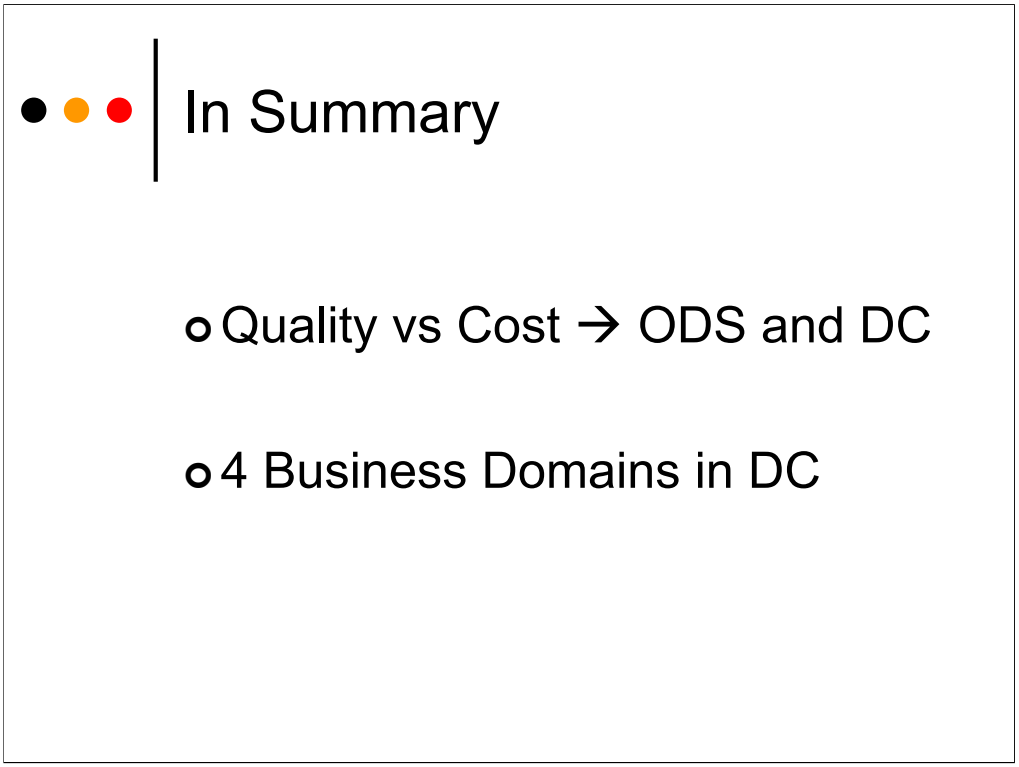
Our Presentation System has three interface points where system-level interoperability is required. It needs to receive a common Distribution Package, containing a digital movie, for instance. The common package could be delivered on standard physical storage media, or it could be delivered over a network using standard protocols, or both.

We need a common manner in which to deliver security keys to our Presentation System. These keys could be delivered by a Security System that resides inside or outside the theatre. The Security System would then be a product class all its own, and would not be part of the Presentation System.

The Presentation System also requires a common Theatre Operations interface. Through this interface, the Presentation System receives schedules, status inquiries, and so on. As with the Security System, the Theatre Operations System can become a product class all of its own. Such Theatre Operations Systems could extend into the exhibitor’s back office systems, and could also become an extension of the booking system used by the exhibitor.

Rather than look at interoperability as the means by which we connect lots of boxes, we have now defined interoperability in terms of the business domains in the theatre. These business domains are the Presentation System, the Distribution System, the Security System, and the Theatre Operations System.

Most importantly, these are not competitive areas of business. Each business domain requires interoperability to develop a market for its corresponding products. By defining the interfaces between these business domains, we help build these business areas, and at the same time, we build user confidence in this new technology. Standardizing these points of interoperability is in the best interest of all stakeholders, including the vendors who will develop these technologies. This sets the course for cooperation in creating standards.



To summarize, we have reviewed the issues of system cost versus system quality for digital theatre systems, and the opportunity that exists for introducing practical, revenue generating systems today.

We have also reviewed how the issues behind achieving system interoperability can be solved by understanding the new business opportunities that will be created through the introduction of digital cinema.

Thank you

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