



Update on the Digital Cinema Rollout

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I've been working on the introduction and rollout of digital cinema since 1999. My most recent work in this space has been the negotiation of virtual print fee subsidies in Ireland, Philippines, and over this past year, five countries in South America. The industry is very deep in the conversion from film to digital cinema, and in this presentation I will share some insights on how the transition is going as we approach its conclusion.

Worldwide Growth

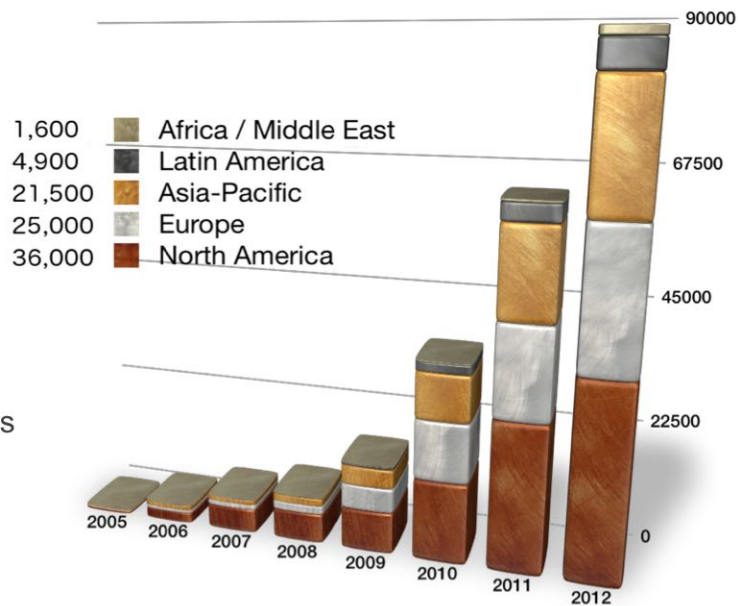
All figures from end of 2012



89,000 digital screens

~\$5B Investment

Driven by 3D and VPF subsidies



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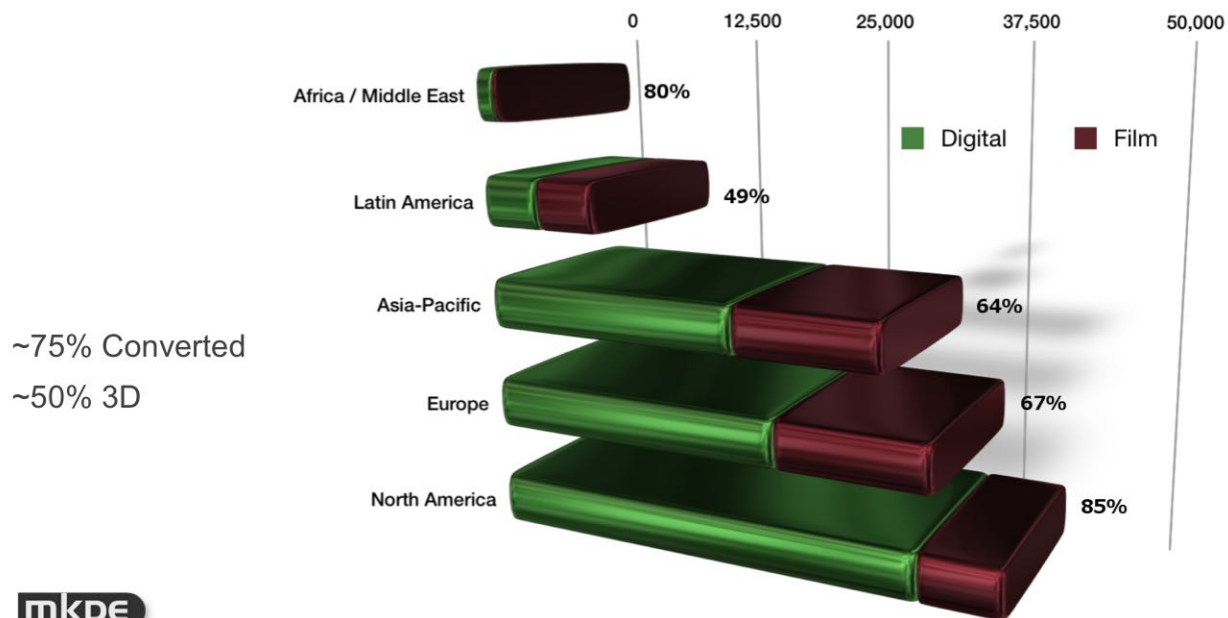
The worldwide growth of digital cinema screens has been astounding. We experienced a sequential growth of about 30,000 screens over the past two years, and today [April 2013] there are over 90,000 digital cinema screens in the world. The chart breaks down the number of installations at the end of 2012 by region.

This huge surge in growth has been driven by the increase in revenue possible with digital 3D movies, and given velocity by the virtual print fee subsidy. The subsidy, paid by distributors, is helping exhibitors with the financial burden of replacing film projectors with digital ones.

Overall, the current footprint of digital cinema equipment represents about US\$5B of investment.

Degree of Conversion

NABSHOW
Where Content Comes to Life



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This slide presents a different view of the data, giving us a view of how far along the transition is. The green bars represent the number of digital installations, and the red bars represent the number of screens by region that remain to be converted. The percentages in the chart indicate the percentage of conversion in each region.

In terms of percentage of growth, Latin America made the most progress this past year, driven largely by Cinemopolis and Cinemex in Mexico.

Overall, the world's cinemas are now over 75% converted, with approximately 50% of digital installations 3D capable.



Is 100%
Conversion
Possible?

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Currency Exchange

Rule of Law

Tight Economies

Expensive Capital

There's a cloud, however, hanging over the conversion of the remaining 25% of screens. The 75% of the market that has been converted represents the low hanging fruit. Newspaper headlines continue to tell us about the tight economy around the world, and it is difficult for a small business owner to convince a bank that it should invest in new technology when it's struggling to keep its doors open. In some countries, the transition is also challenged by government control of currency exchange rates, which not only poses a problem for the major distributors that would otherwise provide a subsidy, but also for manufacturers, as most if not all digital cinema equipment is priced in US dollars. Further, some territories are simply not considered safe enough to set up operations by some digital cinema deployment entities.

35mm
Print
Film
Stock Is
Vanishing

Kodak

FUJIFILM

AGFA



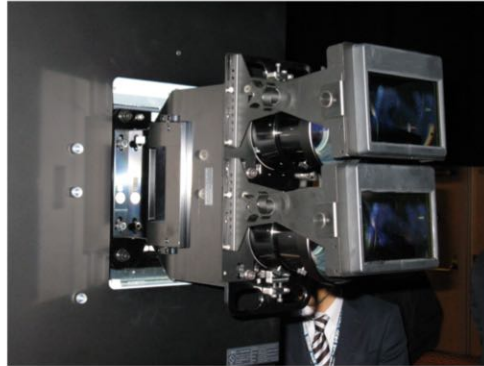
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If the cloud is not troublesome enough, the potential end of film creates even more worry. Fujifilm shipped its last film print stock for 35mm motion picture film last month [March 2013]. AGFA is said to be nearly out of the business, if not already out of the film print stock business. That leaves Kodak as the sole supplier of film print stock, who entered into bankruptcy protection early last year. As part of its plan to exit bankruptcy, Kodak successfully auctioned its patent portfolio in December [2012], and raised an amount that would satisfy the covenants of banks, allowing it to exit bankruptcy. But Kodak didn't raise as much money as it had hoped to, and statements have been made that Kodak will be a smaller company than planned when exiting bankruptcy. We don't know what that means in terms of Kodak's future ability to produce film print stock.

4K Footprint

~ 20,000 4K

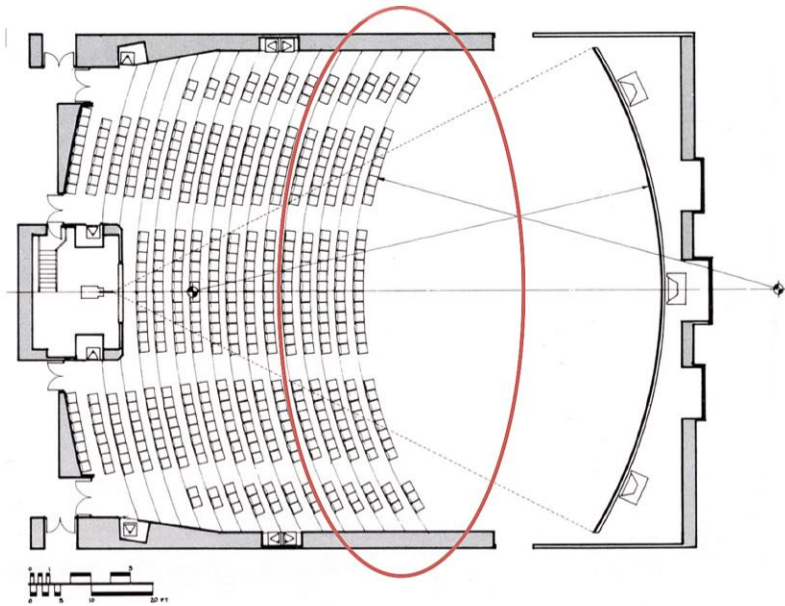
~ 70,000 2K



“4K” cinema may not be what you think

The traction that Ultra-High Definition is getting has raised a lot of interest in the 4K footprint of digital cinema. Based on information from manufacturers, there are around 20,000 4K digital projectors installed, out of a total of 90,000. The majority of that footprint is in the US, which is nearing saturation, indicating that the overall footprint for 4K may not grow in proportion to the future growth of digital projection.

A special note to filmmakers: of those 20,000 4K projectors, the majority of them are configured for 2K, as shown in the picture. Certain 4K projectors require a dual lens for 3D presentation, and they can be cumbersome to replace, so they tend to stay in place. If releasing a 4K movie, it may be necessary to conduct an awareness campaign with cinema owners to make sure the projectors are properly configured for your movie.



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4K Sweet Spot

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Is 4K a Growth Market?

In the mainstream cinema market, 4K has other challenges. Human visual acuity only allows the front rows of the auditorium to best appreciate the value of higher resolution pictures. However, the front rows aren't the seats the audience most appreciates. 4K in mainstream cinema has a mismatch in value proposition. For this reason, it will difficult for 4K to establish its value in these cinemas.

Standards Dilemma

Breakthrough vs Incremental
INTEROP DCP vs SMPTE DCP
Security Key Management
Workflow



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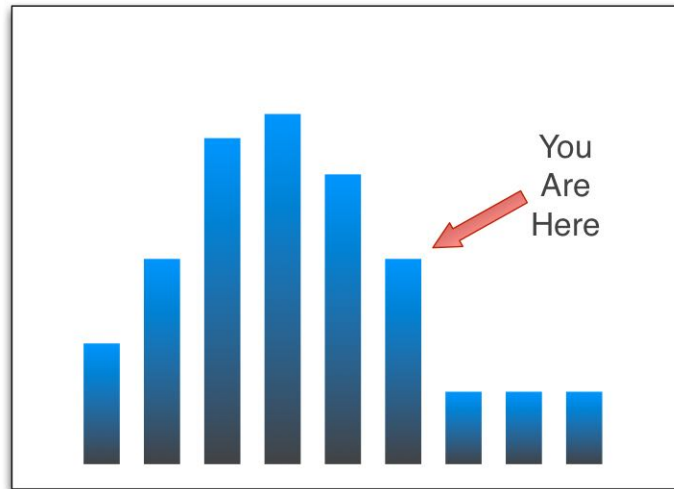
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We've had a dilemma in digital cinema standards for many years. As digital cinema first began to rollout, a common distribution format was needed. The SMPTE standards process had further to go, and so a group of manufacturers took some early drafts and agreed to utilize them as the Interop format. The intent was to convert to SMPTE standards as the standards emerged. At the time that Interop began, there were only a few hundred digital screens. 9 years and 90,000 screens later, we still talk about making the transition from Interop to SMPTE standards.

In the meantime, we continue to improve the SMPTE format, making it all the harder for distributors and manufacturers to make the transition. The truth is that the SMPTE format is still untested in all cinemas in the world, while the Interop format is proven to work. Even DCI testing does not guarantee that the SMPTE format will be fully functional in a cinema, as the test overlooks the full complexity of audio packaging. In addition, we are lacking adequate standards for security key management and efficient workflow. We may have overstepped ourselves with our standards activity, and lost sight of what the buyers and sellers in this marketplace really need.

The Sales Cliff

SALES



If you're a manufacturer, you just experienced the best years of sales since the rollout began. That's the good news. The bad news is that you just experienced your best years of cinema sales, ever. The cinema industry has never seen a rollout of new technology of this magnitude in both quantity and investment over such a short span in its 100 year history. We've had a few magnificent years of sales of 30,000 systems per year, and the pace will begin to slow later this year [2013], to a projected additional 20,000 systems sold. At that point, there will be 110,000 systems installed worldwide, out of a total market of about 125,000 screens. Some attrition in the cinema market is to be expected, and, if film continues to be available, some business owners will simply choose to wait as long as possible. This will be the last of the big years for sales.



Four Phases of Buying

If you're a manufacturer and looking ahead to comparatively bleak sales, then it's time to break out the Harvard business school books and re-evaluate your product lineup. The Four Phases of Buying are shown in the chart. As the focus of the market moves down the list, margins also go down. This list maps nicely to the technology adoption curve. Early adopters are most interested in functionality, at the top of the list. They have little concern for reliability, convenience, and price, which is why this phase has high margins. When selling in a late adopter market, which is where the market is today, products are considered a commodity, and all that the customer cares about is price. Every manufacturer in this room will confirm that they are in a bloody price war today.

To get out of this, it would be ideal to refocus the market on functionality, where the margins are high. So you receive invitations to conferences such as this, where you will be educated in the latest advances in cinema technology such as high frame rates, laser illumination, and immersive sound. All of the manufacturers are glad that you're here.

The Market Cannot Absorb More

- Ticket prices are as high as they can go
- Audience not willing to pay more for “next generation” technology
- Exhibitors burdened with conversion debt



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But there's a wrinkle in the formula. The exhibition market cannot absorb more. Ticket prices are as high as they can go. With the exception of 3D, where the glasses and the effect arguably provide a tangible benefit, the audience is not willing to pay more for new whiz-bang features that can be difficult to differentiate. The bottom line, of course, is that exhibitors are burdened with debt. The US\$5B invested in digital cinema equipment worldwide is sitting on their books, with approximately \$2B of that coming out of their pockets. It'll be quite a few more years before the market can support a major new upgrade in technology.

Where are the Opportunities?



- Squeezing efficiency from existing investment
- Convenience over quality
- Luxury is where the money is

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There are opportunities in this market, but not where technology companies tend to look. The upgrade to digital projection has not lowered operating costs for exhibitors, for example. Key elements of business operations continue to be manual, because we don't have a standardized metadata-driven means to connect booking with playout for reconciliation between exhibitor and distributor. Security keys are still sent over email, requiring manual operations on the exhibitor's end. The new digital infrastructure brings with it plenty of opportunity to increase efficiency of operations, and is an area where no standards work is currently taking place.

Everyone knows, or should know, that the average consumer will gladly accept convenience over quality. Audiophiles passionately moan over the success of MP3. "Convenience over quality" plays out in many ways in the cinema, but for this talk, I'll frame it in terms of branding. Consumers go to the cinema to see a movie, and are not likely to dig into technical details about the resolution of the projector and the number of channels in the sound system. What they'll remember is whether they had a good experience, and they'll associate that with the branding of the theatre. Exhibitors know this, and have introduced distinctive brands for their best auditoriums. That's the market where new technology can take foot.

The sobering truth for technology manufacturers, however, is that the conversion of a cinema to leather seating will generate more ROI than buying a shiny new 4K projector. Luxury is where the money is, and luxury cinemas are growing in upmarket communities.



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To wrap up, the number of digital cinema screens around the world has grown phenomenally, to over 90,000 installed today. The current pace of conversion has limits, due to the finite number of screens to be converted, and the limited ability of the remaining marketplace to participate in the transition. Manufacturers have enjoyed an incredible run of sales, very likely the best they will ever experience in the cinema market, and this run will soon slow down substantially. To stimulate future sales, and move the focus of the market back to functionality, new technologies are being introduced into cinema. The marketplace, however, has a limited ability to absorb these new technologies, as was discussed. However, the marketplace would readily absorb products and methods that bring efficiency to operations, as that's an area that's underserved by current digital cinema technology.

That concludes my talk. Thanks for giving me your attention.