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Where do you see your company's comparative advantage in this crowded marketplace?

Thran We think that our long-term relationship and the personal contact with our clients combined with our efforts to always be the first, with fair prices, are what makes us stand out.

Dello Iajo Because we operate in a market where only price seems to determine a company competitiveness, we boost a set of factors that make IMS an ideal partner. They include Antipiracy and security certification from CDSA, Quality ISO certification, respect of royalties contracts, sophisticated IT system, a high pressing capacity for an independent, high levels of commercial service, and, being the ex-EMI CD Europe plant, we have a cultural and historical understanding of European practices.

Schwengler sofatronic's Kaleidoscope is the leading solution for codeless designer-friendly application development on Blu-ray/BD-Live and now for varying iTV platforms. Providing a cross-platform solution, any C&A facility or application developer can use Kaleidoscope to realize their creative ideas as efficiently and easily as possible by delivering on as many different standards that emerge in the market. By providing a Mac version of Kaleidoscope we are filling an important gap for everyone looking for a complete BD workflow on Apple.

Schwab In our segment (physical tester and process control) the market is not really crowded. dr. schwab IT is the only company having a clear focus on optical discs, especially on Blu-ray Disc.

Mullins I continue to lead the way in new formats and I will be especially strong in BD 3D.

Gutowski Infodiscs' comparative advantage is the flexibility and fast adaptation to our customer's requirements. As a small company we react quickly to any change and thus are able to meet our customer's timelines. Furthermore, we offer a one-stop solution with services like product management, authoring, replication and

license evaluation, so that we can support our customers for every need. We thereby save costs and are faster and more efficient as we don't have to rely on third parties for these services.

Roue As our clients look to exploit their content in the new media landscape we ensure we're always one step ahead of the technology, providing service and advice at every stage to help our clients achieve their revenue goals. It's a win-win situation for our clients as they benefit from economies of scale as well as the convenience of being able to leverage the most out of their content from a single supplier.

Fitzgerald EDC has extensive experience in developing optical disc manufacturing products and custom supply chain solutions in Europe. EDC has a fully integrated replication and logistics offering from one pan-European location. Service and quality levels are among the highest in the industry. Turnaround times are among the fastest as well, and the IT structure is sophisticated and flexible.

Gilliat-Smith Fortium focuses on building secure digital solutions for file and disc based distribution. In reality this is technologically very challenging to achieve and maintain and we could only do this with our loyal team of developers who are an eclectic mix of lateral thinkers. Our USP is in being able to develop solutions to a level that other companies have not been able to do. After 10 years of trading, we now reap the benefits of the strong relationships we have built within the industry and we tend to be awarded development contracts based on our continuing innovation and track record of delivering.

Leye Verbatim focuses on quality products, a wide product range, high availability and good support. Those are our key features for success being the No.1 player. Verbatim is typically at the forefront of technical development, being among the first to introduce new products to the markets.

Amongst the range of services you offer, which ones grew over the past two years and which ones were reduced?

Thran We see a growing demand for everything connected to HD content, namely BD, BD-Live and digital delivery. Standard definition is naturally a declining market. At the moment we see a huge demand for interactive digital distribution concepts that add social network features directly to the products in the living room.

Dello Iajo Specialising in the home entertainment sector, we see DVD

volumes strongly decreasing, whilst CD manufacturing increased thanks to a contract with a multinational company.

Leye We don't think that any of our products or services lost importance. However, marketing support and sales support got more important.

Fitzgerald Music manufacturing volumes in general are declining. We see an increase in volumes of audio

books, software, video and games. Logistics, IT and business services will also be more and more the focus.

Schwengler Our iTV services have definitely gained some ground this year after having waited so long some great progress has been made in the USA and Europe. We are seeing a number of very appealing applications being prepared for deployment to extend the interactive viewing experience of TV, while BD-Live still waits for its breakthrough. Technically everything is set up and ready to go, yet most content owners do not understand or have not explored the potential of bridging physical disc media with online connected content and services.

Schwab The biggest growth rate is registered with standard BD formats, but there is also a growing demand for the new multilayer and recordable BD formats. Despite the decline of the DVD market we note an increase in this segment because competitors are backing out of this business.

Gutowski We see a significant increase in the demand for Blu-ray. However, it is not yet on the level we want it to be and it doesn't compensate for the decreasing DVD demand. We expect the volumes of DVD and BD soon to be equal.

Roue Digital media asset management is on the increase, whilst the bubble that was DVD seems to be on the wane.

Gilliat-Smith Our Patronus DVD anti-rip copy protection has become increasingly popular for its reliability, and many of this year's Academy Award and BAFTA screeners were Patronus-protected with some very good results. Patronus is also gaining good uptake where it is now offered at the VDC and Technicolor replication plants. Our new File Based Pin Play solution, where download or streamed files can only be accessed with a pin number locked to the recipient's PC, is generating a lot of interest.

We have seen a growing demand for outsourced software development from the larger companies and have won a number of contracts on this basis. I believe that the 'not invented here' mentality is changing especially in this economic climate where the larger companies have already downsized their own technical resource.

Demand for our Similis fingerprint service has not grown which I think is mainly because of a crowded market place with lots of different solutions which are endlessly trialled and not purchased. For now we will stick to the core demand we have for detecting unsuitable content on MMS networks in countries concerned about cultural issues.

Mullins Ability to provide high-quality Blu-ray product. DVD shrunk as a result.

Are there lessons in the development of the DVD format that could/should be applied to Blu-ray (pricing, positioning, marketing strategy, etc)?

Thran I think authoring houses could do so much more with the discs than is done today due to "market pressures" that we are not responsible for.

Leye Keys to volume sales are price and application. High pricing will inhibit volume sales. Missing applications lead to the same issues. We need to overcome both, e.g. recording options for broadcasted HD content must become available. This led to the current high market share in Japan for BD recordable products.

Dello Iajo Only one lesson: do not invest in a market where 80% of the manufacturing capacity is in the hands of only one company!

Fitzgerald The long battle between Blu-ray and HD DVD was counterproductive for a successful story. Blu-ray may very likely have a shorter life-cycle than DVD due to some of the factors mentioned, plus online delivery.

Schwengler I think it's dangerous to draw parallels between the VHS to DVD move with the introduction of BDs. Regardless I would say that Blu-ray has done well for itself, even if it has not quite hit the expectations of the industry. If Blu-ray is to stay healthy and continue to move forward, all parts of the industry have to make damn sure that Blu-ray will stay a quality product for as long as possible. When people begin to see that Blu-ray is a premium product with a premium price, every part of the supply chain has to create not just

premium work but also provide value-added content as well.

Gutowski The price decrease of the BD in its first years is even more alarming than with the DVD, so unfortunately the same mistake as with the DVD has been already made. The prices don't display the quality of the product. The format is not yet stable and there is no reason for such a fast decrease that only lessens the perceived quality of the Blu-ray disc and decreases the margins. It becomes less and less attractive for publishers and manufacturers to invest into this format.

Roue DVD and Blu-ray Discs are going to be around for at least a decade. The quantities produced will decline, but the gifting market is huge. We don't have any plans to leave this market, it's still going strong.

Gilliat-Smith New formats take time to be understood and adopted so the lesson is to be patient and do better marketing to educate the consumer. If the consumer has not personally experienced Blu-ray quality how can they appreciate the difference and justify the expense of upgrading. The US consumer is catching on quickly to Blu-ray now and even though the UK is still some way behind it is bound to increase especially with the apparent consumer enthusiasm about 3D in the home.

Mullins Yes to all. We should emulate that model as much as possible.

the content really requires it. This is reflected in our corporate Blu-ray work to date, which includes technology companies showcasing high definition and 3D TV to consumers, architects and engineers demonstrating 3D renders, and agencies reproducing campaigns and showreels shot in HD.

In terms of traditional, message-based communications DVD is still more than adequate and an increasing number of customers are asking for file-based delivery, but BD comes into its own for the right content.

Dello Iajo Yes, but not as I would like. Here again, a strong level of centralisation and concentration stops us from playing the role we could be playing.

Do you think Blu-ray discs will eventually replace DVDs completely or will they only partially replace them, becoming a niche, albeit big?

Thran There will be co-existence between DVD, Blu-ray and digital channels. We expect 3D to give a boost to Blu-ray. DVD will be the preferred format for Kids and TV content, and digital channels will grow in all areas for those consumers who just want to watch a movie.

Fitzgerald The question is: How to convince the consumer that he/she needs a high-definition disc? I believe that DVD and Blu-ray will exist in parallel for at least the next five years. It remains to be seen how household penetration of HDTV sets and BD players run and if there will be a substantial impact from other substitutes like online services.

Leye Due to the backward compatibility of BD hardware, DVD will be around for a long time. It will never be replaced completely by BD. Probably BD will never reach the market size of DVD's peaktime, though it will reach a significant volume. This is also due to competing storage formats like HDD, SSD and USB.

Dello Iajo Blu-ray will only partially replace DVD, and only when 3D will be successfully introduced.

Schwengler The content owners will decide this question. As long as DVDs are sold as a cheaper alternative, consumers will always go for the more reasonable option if they are not real fans of the content. Only exclusive content on Blu-ray, be it filmed content of features or online connectivity, will convince people to fork over more for it. I also see BD/DVD combos as a good way to educate consumers and create revenues. This way people have the option to buy a future-proof product.

Gilliat-Smith We have a significant demand for Patronus protection from videographers and others producing special-interest DVDs such as sporting and memory events, education, training and so on. Piracy figures can be exaggerated by the number of people who will happily watch whatever pirated movie content they are presented with, but would never actually go out and purchase it.

For special-interest content you are unlikely to watch it unless you are specifically interested in it which means there is a perceived premium to be charged. This market could be more substantial if it was marketed better so that consumers could more readily access more content that interested them.

Schwab Like DVD did not replace CD, the Blu-ray Disc will not replace DVD. Every format has its own segment and will last for the next few years. BD production volumes may not compensate for the shrinkage of DVD figures, but current growth rates and market forecasts give a promising view to the near future.

Gutowski We think that in 2 to 3 years, Blu-ray volumes will be equal to those of DVD, and in about 5 years Blu-ray will outperform DVD. But there won't be a huge gap between DVD and BD sales.

Roue The leap in quality between DVD and Blu-ray isn't as great as between VHS and DVD, so there will always be a considerable group of consumers who will not see the point in upgrading their equipment. The cost of Blu-ray hardware and software will continue to drop, especially in the current economic climate, so there will be no reason for consumers not to upgrade to Blu-ray when their DVD players start to fail.

More studios are marketing their Blu-ray titles as "triple play", so that the consumer has the ability to watch the content on Blu-ray, DVD and as a digital file all within one package, depending where they are and what viewing equipment they have.

Gilliat-Smith In the western markets I think BD will grow rapidly over the next three or four years and equal DVD sales. After that, DVDs will gradually fade out. New device purchases are obviously more likely to be Blu-ray than DVD.

Mullins Yes, I think it will be 90/10 home video universe eventually, maybe as soon as 3 years.

The non-home entertainment, corporate market is a very substantial one, but rarely mentioned in DVD statistics. Do you service this market segment as well?

Thran Yes, we are very much involved in the European automotive industry. Our BD-Live technology is perfectly suited to the corporate clientele where the disc contains the HD video material while the latest update and info are accessible from the Internet.

Leye Verbatim is probably the No. 1 player in this segment for recordable media due to our widespread distribution and product range like discs designed for long archival, printable media e.g.

Fitzgerald Yes. With our supply chain strategy we are focusing strongly on the changing requirements in the marketplace. Our customer's requirements are diverse and they need tailor-made solutions. Our

services are tuned to the requirements of several markets as well as the corporate market.

Schwengler There are still only few enhanced Blu-ray discs for the corporate market out there. As the market share of Blu-ray is improving release-by-release and the potential target group is growing, we are seeing a lot of ideas for showroom discs or Blu-rays as give-aways. However, the costs for copy protection are still a problem if you want to use replicated discs for marketing campaigns.

Roue With the economic downturn and the investment needed for Blu-ray playback we find that the corporate communications market only uses HD and Blu-ray content when

Interactivity and BD-Live, in particular, are Blu-ray's key unique selling propositions. Do you think enough publishers and studios will commit extra production resources to spread their usage? Which feature you think may become a killer app? Or do you see consumers mostly interested in no-frill 'vanilla' film-only – and cheaper – BD discs?

Thran I think putting out vanilla BD disc with only the movie will have a dramatic negative impact on the lifetime of the HD format, as consumers will transition to digital platforms much faster. One of the benefits of DVD has been all the "special editions" with a lot of features, bonus. DVD menus have been a real revolution in home entertainment.

With solely the movie in a superior format, a vanilla BD would be a step back to VHS times. Why should I buy a disc if I get the same more cheaply from download? I think a feature-packed Blu-ray disc with BD-Live and a lot of interactivity should be the premium format. – 'just the movie' is for the digital distribution channel.

Dello Iajo Thinking only about films, my personal believe is that DVD is more than enough. Regular consumers do not seem to give a very high economic value to the quality difference between DVD and Blu-ray, even though there is one. The push for 3D will certainly help the BD format. As regards the gaming, BD is certainly winning with game consoles, the same way DVD won with PC games.

Schwengler There will not be a single killer app that will set itself apart in the BD market. It will be a combination of features that extend and enhance the viewing experience which will help with sales; and only if they are closely tied to the content and are exclusive in some way. However, we have only seen the tip of the iceberg in terms of interactivity on so far a very select few BDs. The continued proliferation of HDTVs and players will definitely see greater commitment from Hollywood and the Networks down to the independents in devoting resources to content specific features to grab consumer attention. There will always be a market for unique discs in terms of features and packaging that brings high returns on investment. A consumer who just wants to see the movie may consider to buy a cheap disc instead of renting it, however, there remains a huge market for special editions for real fans - those who are also willing to pay a few Euros more for an outstanding BD disc.

Schwab As in other entertainment segments it is a question of target groups and generations. Besides

early adopters and technology enthusiasts these features will win recognition step by step.

Gutowski Because of BD-Live there is a huge potential to change consumer preference from DVD to BD. The manifold opportunities of this format are not yet exploited, but we have seen a lot of interesting work and I think that this field will grow further in the next months. Especially for fan-based BD-Live material, we see a huge potential that could boost Blu-ray adoption and the perception of Blu-ray quality.

Roue Consumers are interested in engaging, high quality content. If the production budget for a title is limited, a client is far better investing in the best possible presentation of the film rather than the development time and cost in maintaining a 'gimmicky' online presence.

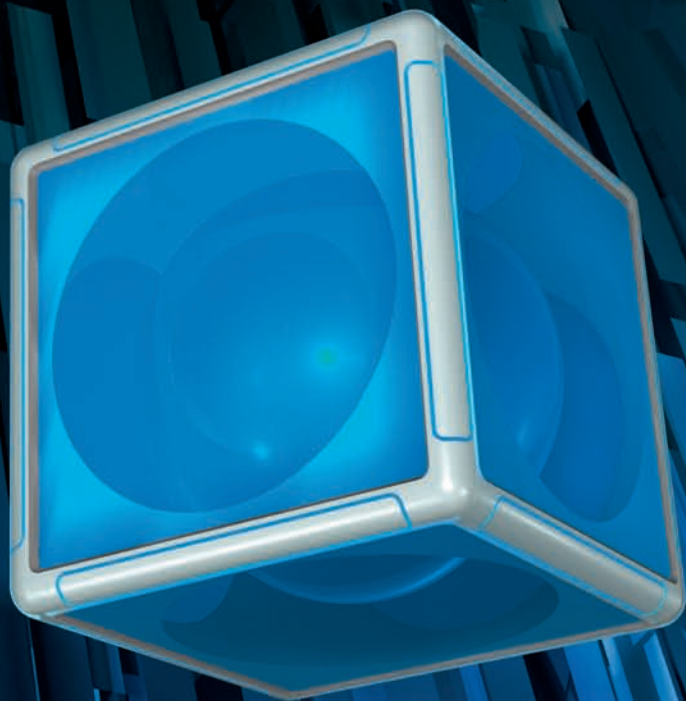
The form your content takes will dictate how it should be presented on your Blu-ray project. If you have a series of titles, and you want to build on the content/brand recognition then you should definitely be looking at an online delivery portal and BD-Live of some sort. But, if your title is very much a standalone product, then it makes more sense to consolidate the content onto the disc. One also has to bear in mind the ongoing hosting costs of a BD-Live title and weigh it up against the increase in revenue needed to support the BD-Live creation. It only adds up for fantastic content with mass appeal.

Gilliat-Smith The market appetite is very fragmented for these sorts of things and I think it rather depends on the type of consumer. Although I love movies, I am probably a bad consumer – I am only interested in watching the main movie and I hardly ever watch it twice. Time is always a premium and I rarely find spare time to explore other features on the disc. Studios should experiment with BD-Live and I guess if it pays they will carry on investing. I have to admit I have seen some impressive BD-Live content.

Mullins The future of BD Live has yet to become clear, I remain committed and a believer. Giving consumers added value will always be a good idea in my book.

Blu-ray 3D

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The unexpectedly rapid fall in price of Blu-ray discs, early in the commercialisation of the format, makes the economics of BD replication and authoring very difficult, especially in view of the heavy investment required. What needs to happen to make it a viable, long-term business for independents?

Fitzgerald In fact the market introduction phase of the BD was handicapped by the format war. Although BD replication is subject to free market forces, the BD replication market is also currently dominated by heavyweights. With the early market growth of the BD a very premature price decline occurred. Traditionally, higher prices at launch phase are necessary in order to cover the high cost of investments made on equipment with relatively unimpressive production parameters.

I hope that BD growth will accelerate and that the mass replication technology will promptly improve and become more affordable so that a sustainable market and sustainable earnings in BD replication for independents becomes a reality in the mid- to long-term.

Leye This is probably more a question for replicators. Prices for recordable media is still quite high though we see increased production capacity allowing lower prices in the market.

Thran I think that with rising disc sales and falling prices for hardware and software, this will no longer be an issue.

Dello Iajo Realistically, too many things need to happen: The major studios need to diversify the manufacturing of their disc, namely, doing away in their policy of centralising production to only one large manufacturer. Otherwise the number of independents will remain too low. Roughly 70% of the discs made for the Italian market are pressed elsewhere, and I don't think the situation in the rest of Europe is different.

My message to all of the independents is this one: our future is fundamentally tied to our ability to create 'centres of excellence' with half the manufacturing capacity we currently have. We will thus be in a better position to compete effectively with the giants. It's only in the Bible that David is winning against Goliath!

The cost of BD equipment is still high compared with their low efficiency. They should cost less and

produce more. Lastly, publishers should really believe in the format and deliver more titles.

Schwengler The only way to make sure that independent replicators and authoring facilities are able to survive is to make sure that the current price war ends as soon as possible. Many C&A houses are not using their creative potential to win new customers, rather being fixated on a price war that has seen many independents suffer or avoid Blu-ray altogether. However, when independents concentrate on quality output with unique interactive ideas, it is no longer a matter of survival, but the way to create opportunities for business now and on the long term.

Schwab Apart from the pricing/licensing situation there is a rising demand for high definition media and this demand has to be fulfilled. Prerequisite to successful BD manufacturing is to raise efficiency and economy of the production, to reduce costs and to increase yield. Therefore, it

becomes inevitable for every manufacturer to have reliable and efficient tools to monitor, control and optimise BD production.

Gutowski First of all, the price war in the industry has to stop, because as soon as one starts dropping prices everyone has to follow. Secondly, the value of the Blu-ray has to be transmitted to the customer. This can be achieved by BD-Live applications. The advantages of this format compared to DVD have to be clearly pointed out in order to support the format.

Gilliat-Smith This area has been fascinating to watch over the last several months. If you talked to small or medium sized post-production houses in the US last year, they were typically saying that they could see very little financial justification for investing in Blu-ray. If you talk to them now their view has changed dramatically and I think those companies that invested in BD first will stand to reap the most rewards. In the UK we seem to still be where the US was last year, but I believe it will change gradually.

Mullins It already is as far as I am concerned. Authoring and replication will continue to drop, it is already pretty reasonable.

One hears alarmist opinions about the rapid demise of packaged media in the face of online delivery. What is your view as to how long discs will be around? And how do you plan this transition?

Thran We where among the first to supply HD and SD movie content to Apple iTunes as we clearly see this transition happening. We can all learn from the music industry. I wouldn't trust the alarmists too much and I wouldn't underestimate the impact – we see online delivery as 'a different format' and are trying to add value to the content over this channel as we have always done.

Fitzgerald The optical disc is still alive! And we believe that CDs, DVDs and BDs have a future for some years yet. However, like everyone else we do see a decrease in packaged media volume and a substitution via online distribution. CD, DVD and BD are emotional products and with interesting and exclusive packages there is no comparison with a download file or stream.

Leye Due to the large installed base and ease of use, optical media will continue to be around for the near and medium future. Though volumes will decline significantly, the products will continue to be around. Still many people

prefer having their data in-house as 'cloud storage' is still regarded with a question mark regarding data integrity and safety.

Dello Iajo It would be unwise not to take stock of the contraction of the package media market, but decrease in volume does not mean format disappearance. I strongly believe that in a country like Italy entrepreneurs have to reduce drastically their manufacturing capacity to respond to market trends. Discs will be around for the next 10 years, and can be profitable if the industry is serious about cost management.

Schwab Ongoing developments of (ultra-)high-definition and 3D video and gaming formats show that the ever-growing amount of data is overburdening the capacity of global networks for several years. Being aware of the fact that the market for CD and DVD has exceeded its zenith, this is definitely not true for Blu-ray discs. BD-R formats are just at the starting blocks, quad-layer and future HVD media are not even at a final stage of development. Therefore

we see room for growth over the next years.

Gutowski We think that discs will be around for many years, because it is the established format to consume home entertainment. Furthermore, there are a lot of consumers that value having the physical product. Additionally, the legal download market is developing slowly due to the fact that the data transfer rate is still too slow in many households.

But of course, the download market is growing and everyone shall decide on how to participate in it. Therefore, if we should be approached by our customer base, we will venture into the online market and try to stay prominent in every way the industry develops.

Roue DVD and Blu-ray will be around for at least a decade. The quantities produced will decline, but the gifting market is huge. We don't have any plans to leave this market, it's still going strong.

Gilliat-Smith I believe packaged media will remain the principal source of movie revenue from consumers for the next few years. Lots of stats report that DVD sales have declined over the last year, but more because of increased movie rentals rather than movie download or streaming purchases.

One of the reasons could be that 'Granny' is never going to make an online purchase for a movie download and her generation is significant and is living longer. Also for the next few years broadband capacity is unlikely to be able to support HD transmission especially in some outlying regions. 3D will cement the BD format because of consumer interest, and the marketing of 3D is compelling.

Mullins I am already heavily invested in digital distribution, it is a reality of now and the future. That being said I think there will be a viable business in packaged goods for at least another 5 years. It is all about content.

Schwengler As people are not changing their habits as fast as the industry invents new gadgets, discs are not going anywhere for the next two generations. This might be a bold statement in light of the digital natives who have stopped collecting discs and books, but I just don't see bookshelves, film collections nor CD racks entirely disappearing this century. As different types of media converge, we are well placed already with our software platform and technical expertise to meet the demands of application developers who are creating for the rapidly changing landscape of CE devices.

3D has taken the market by storm, at least in terms of announcements. Given that Blu-ray has yet to establish a strong position in the market – with consumers having purchased a BD player and an HDTV screen fairly recently – is it your view that the industry is moving too quickly? Some see this fast push for 3D as indication that it is the only redeeming value of the Blu-ray format, and forget BD-Live and interactivity.

Thran We see BD-Live, interactivity and especially 3D Blu-ray as the killer applications for the Blu-ray format. Just look at people enjoying their first 3D movie experience and you can see what was missing before. The HD discussion has so far mostly focused the number of pixels, very academic; now you have this “WOW!” factor with 3D. I believe consumers will invest in 3D equipment.

I don't think we should forget the other features. It is a feature-rich Blu-ray disc that makes it superior product to the DVD and Internet. See what happened to the music industry when you only rely just on the main content, which can be easily copied.

I fear we are pushing the consumer away from an entertainment experience to “just the movie”, an activity everyone can get for free on the internet. If consumers are asked to pay good money for a movie experience, the industry must deliver the most complete, richest and most highly interactive experience other delivery methods cannot match.

Leye 3D comes too early, some more technical development needs to be undertaken. Preferably only one standard needs to be implemented as consumers dislike a choice of standards.

Schwengler As long as 3D content is limited to a mere handful of films in only a couple of specific genres, it won't be the killer application for Blu-ray. The early adopters will embrace 3D very fast, but to make it a mass market product there are still a few steps to take. Gaming in 3D will also be focused on, and we will see PCs and gaming consoles opening up to this arena. In the meantime though, interactivity and BD-Live in particular are still the key points in pushing a premium physical format and the most reliable way for content owners to show-off the format with value-added features and services.

Schwab 3D means a new approach for Blu-ray Disc which is open for high capacity by multilayer technology. Triple-, quad- or even octo-layered discs are in development. Blu-ray is the chosen format to transport 3D content to the consumers. 3D content will boost the production of new multilayered and recordable Blu-ray Discs.

Gutowski We don't expect 3D to have a significant impact on the development and acceptance of the BD format as prices for the hardware are too high for mass market adoption right now. Consumers who have embraced the BD format already own a Blu-ray player and most likely won't be ready to replace it with a new 3D-enabled BD player in the near future. Also, they have to invest in an expensive TV that supports the 3D format.

Those who have not yet bought BD hardware probably aren't as interested in the technology itself and will not immediately buy a new TV set and player as long as they are satisfied with their old equipment. Therefore, the development of 3D will most likely be slow, and we have to wait and see if the consumers even like 3D at home or if it is only a cinema phenomenon.

However, our sister company Infomedia will be ready to offer 3D BD authoring for this year's season including 3D subtitles and 3D menus. Furthermore, they will be able to offer as well 2D-to-3D conversion.

Roue At the moment the studios are releasing 3D content into theatres, and reaping the benefits in terms of revenue. Ultimately, they want to maintain that momentum going into the home entertainment sector. 3D will remain a complementary product to traditional 2D content for a long time, but it is great that there is a format agreed and in place for studios to release 3D content onto when they feel the need.

Consumers have the option to go 3D now, or wait for prices to drop and the available content to expand. The 3D systems coming to market are also fantastic 2D-compatible systems, and 3D Blu-rays will be backwardly compatible with existing 2D players, so the consumer has been left more flexibility than ever before at any point in the history of a home entertainment format.

It is easy to see the push for 3D Blu-ray as a faster development than it really is. Blu-ray took time to become settled as a format because of factors such as the format war, the economic downturn, the advent of digital media.

Blu-ray is 4 years old this month, and 3D is an evolutionary part of the format.

If you compare it to film, which has always been a high-definition format, the time it has taken for HD

to reach the home is long in comparison to 3D, which has only come into its own since 2003, and only really started to make some sort of an impact in 2007/2008.

No two projects are the same and you ultimately want a format that can support the ambitions you have for the content you wish to release. For example, *The Neil Young Archives* do not need 3D, but have made great use of BD-Live.

Gilliat-Smith Many in the industry are thanking their lucky stars that 3D has had such a successful and fast start, and, indeed, 3D could well cement the BD format. Putting technological change into perspective, over the last 15 years there have been so many major changes that you would never have predicted consumers to have become used to it and won't be phased by even faster change. Vendors should con-

Some say that unless the entire home entertainment chain 'goes green' (reducing carbon footprint) – from film production, delivery, replication, printing, packaging, retailing – there is little point in going it alone. 'Going green' only becomes a public relations exercise. Do you agree?

Thran I totally disagree. It may be just a label for some, but at Ima-gion we have seen how we could dramatically reduce costs by thinking in a “green” way. “Going green” for us means to investigate everyday where we can save energy and costs by just acting or thinking differently. We have been re-inventing and integrate many working processes over all the formats we handle.

Leye Though it might make little difference in actual sales, going green is an important feature for the future. Verbatim looks for alternatives within all its product range, today often focusing on the packaging and power consumption (e.g. external harddisks).

Mullins It is a personal choice, and ethics are never about following the crowd. I am very interested in digital delivery technologies for this very reason. No physical production, no shipping, no stores.

Dello Iajo There is indeed a risk of using a “green” policy as a PR exercise. It boils down to costing and pricing. Most of our important customers would like to go green, but the production solutions available at the moment are more expensive than the traditional ones.

Gutowski Of course, it is of utmost importance to save the environment. The problem is that at the moment only the prices rule the market. Producing “green” is good for the reputation of a company,

but as long as consumers only want to have cheap discs, the “green” investment costs are unlikely to generate returns, if at all. Only if there are significant savings produced by cutting down raw materials like polycarbonate, the investment will pay off.

Mullins I don't agree, I think 3D is a big advantage for BD. Bring it on! There are a huge number of consumers that need a new TV every year regardless of new formats, the choice on the showroom floor in 2010 will be 3D. It is as simple as that.

Fitzgerald At first it is important that 3D is based on the BD technology. 3D movies for instance are currently very successful in cinemas. We will see several solutions for the home entertainment market in the next few months. A solution without glasses could be an interesting breakthrough.

Dello Iajo Unfortunately I agree!

but as long as consumers only want to have cheap discs, the “green” investment costs are unlikely to generate returns, if at all. Only if there are significant savings produced by cutting down raw materials like polycarbonate, the investment will pay off.

Schwab The “going green” label is surely misused for PR reasons in many cases. Anyhow it is an objective we have to achieve. Among other things this can be reached by efficient process control like we offer with our solutions. Economic production with a low rejection rate is also an ecological production.

Fitzgerald EDC attaches great importance to its environmental management system, which is certified according to DIN EN ISO 14001. The environmental management system aggregates in a compact and standardised manner, i.e. easing environmental stress through careful use of resources, recycling as an integral element of the company, advanced waste and hazardous substance management, conformity with statutory regulations. EDC is the only replicator which produces good polycarbonate with a high optical quality from polycarbonate residue arising from the production process and from rejected discs. We recycle 350 tons of polycarbonate a year. In the same way around 500 tons of polystyrene are recycled each year and used for in-house production of jewel boxes.

Films on Flash memory sticks, Holographic discs, 4,000-line Super high-definition are advanced technologies at varying stages of development. Do you see any of them entering the consumer market?

Thran I really prefer to concentrate on 3D and the interactivity features at this point in time – let's put our effort to get the best in quality and most creative discs out to consumers. As for the resolution, I much prefer waiting for the 8,000-line Mega-Giga-Super high-definition :o)

Roue Films on Flash memory are here, with notable releases such as *Star Trek* and *Transformers 2*, but they are very much a collectible, niche product and not a replacement format for Blu-ray or DVD. It has been widely speculated that Blu-ray will be the last great packaged media format, and we feel that Blu-ray is 'enough', as it delivers everything a consumer would need in terms of quality. 4k and Super Hi Vision TV will probably be made available by CE manufacturers, but we do not predict a huge uptake.

The big things on the horizon are connected TV and portability, and we can already see this trend with young consumers favouring accessibility over quality, especially with on-the-go mobile devices.

Leye We don't see these yet due to high pricing. For the near future they are likely to remain marketing tools, mainly.

Gutowski We don't think that any of these formats will enter the consumer markets in the near future as consumers would only be confused. They will stick to what they are used to, namely, DVD and Blu-ray. Besides, there are enormous costs to manufacture these formats and therefore none of these can compete with the existing ones in the mass market.

Fitzgerald It is still too early to see a new standard format for the

future. With the new functionalities of the BD, the consumer will decide if he/she needs more and more content on a disc or if the access to a movie will be the essential factor of success. For the audio business I'm sure that the CD will be the only physical format in the near future.

Dello Iajo Consumers need something that really gives an added value. Maybe some of those will do, but not quickly.

Schwengler Consumers are already confused about the numbers of options they have now, so I do not think there is a place for more innovations and new technologies within the next five to ten years. Consumers want to be sure to invest in something that will work for a few years, so new developments will not find an easy entry to the market. Many recent examples

show that new gadgets converging old technologies into one device with one remote control have the best chances. Furthermore, we will see a number of new ideas for user interfaces within the next few years using motion or touch screens to control home entertainment.

Mullins I am already working with Panasonic on 4K demonstration material. Many of my titles start at 5.6k and higher in the production stream so I look forward to the emergence of those higher resolution technologies. I don't expect this to be much of a consumer market for at least another five years. It may however have some applications in the micro theatrical market in the near term.

Schwab We have been in contact with developers of next-generation storage technology for a long time. However, we see currently stagnation in the development of new solutions. As long as current technologies like BD have not saturated the market there is no push for a next generation.

Diversification is claimed to be the best way of staying afloat in the face of market uncertainty. How do you see your company's range of services evolving over the next 2 to 5 years?

Roue Our organisation was quick to invest in VoD and IPTV, and this is a fast growing part of our business. Essentially, we follow the myriad of content delivery and exploitation mechanisms, who knows where that might take us!

Thran We always had a very diversified service portfolio – from design to replication and digital distribution. This has always given us the ability to be independent from weaker phases in some areas. We will keep strengthening and investing in our digital distribution services.

Leye Verbatim has developed its product range over the last couple of years, keeping focus on optical, but adding strong product lines in USB/Flash as well as external HDD.

Dello Iajo As regards IMS Manufacturing, we have yet to decide on a diversification strategy. For IMS Logistics, we saw it essential

to start distribution of product outside the entertainment market.

Schwengler In a world of converging media, we will try to include as many platforms and technical specifications to our software as possible. By serving as many different technologies as possible we are reducing the complexity of application development. Our aim is to see our software as an integral part of the interactive layer used on all devices in the digital living room, be it Blu-ray players, Set-top-boxes, connected TVs and even handheld devices.

Schwab Given our focus on BD technology we have a leading presence in this market and we see solid growth in the next 2 to 5 years. As the chosen partner for the Blu-ray Disc manufacturers we will continue to enhance our optical disc solutions, thus remaining a reliable and stable partner for this industry. With our mature solutions for BD and many years of

experience with metrology and process control we are well prepared for other applications.

Gutowski We already made significant steps in the recent past to offer a one-stop solution to our customers. In order to be able to offer all studio services we founded Infomedia Multi Media Services and for all content owners we provide the service of publishing DVD and Blu-ray products with our latest founded member, Infopictures.

Furthermore we have developed an easy solution for the transfer of digital files to mobile devices called COPY TO GO. We are constantly seeking for new opportunities and critically observe the market developments in order to identify new trends.

Gilliat-Smith We have perhaps been guilty of too much diversification over the years and for a small sized company it can be a hard balance to get right. On the one hand, if we hadn't developed a

wider product set in 2008, the downturn in the economy would have hit us badly. On the other hand, it is important not to spread your resources too thinly – however the balance feels about right at present. In addition to outsourced development we see BD and file-based protection as key areas of growth over the next few years.

We invest resources in incubating new technology concepts, outside of our core sector. We are involved in high-resolution, low-cost touch-screen IP. Once we have successfully lodged the patent applications then we look to sell the IP or seek investment from trade partners to take products to market.

Mullins I have branched out into direct distribution on my own. Through this I am working on new international markets for my catalogue.

Fitzgerald We will see an increase in logistics requirements for the entertainment industry, software and consumer goods industries. EDC will expand its customer base into new sectors by using our technological experience and our know-how in logistics.

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