The broadcast industry can be divided into the pre- and post-YouTube era. Till 2005, linear television ruled our minds, but post 2005, online video distribution accelerated and consumption patterns forced everyone to look at this lateral and apparently unviable channel seriously.

High speed broadband is ubiquitous today and while there continues to be disparity in the speed, with efficient video compression technology, the lowest speeds are good enough for multi-screen video consumption. In the ecosystem presently, monetizing TV-everywhere and analytics is on everyone's mind. Technologies today are fairly mature to help stakeholders take it forward, but the awareness is low and there is lack of clarity among many end users.

A deeper look at the broadcast equipment market globally and in India reveals that the gap in purchasing trends of the two is slowly shrinking. For over a decade, the largest and premium equipment business was contributed by the US, Western Europe, and Japan. While they continue to contribute a dominant portion of total revenue, for the next five years the growth potential is high in regions such as China, Malaysia, Latin America, the Middle East, and India. India today lies to the south of the digital divide, but over the next three years, it is expected ramp up its infrastructure throughout the ecosystem to support both digital and IP delivered video.

Traditionally, solutions can be bucketed into acquisition and ingest (e.g., cameras, storage), production (e.g. editing, graphics, encoding, transcoding, switchers, servers), management (e.g. asset management, analytics) and distribution (e.g. playout, file transfer, CDN, etc.). According to Frost & Sullivan's India Broadcast Equipment Industry Outlook, the total market for broadcast
equipment in India will equal nearly US $100 million (or INR 597 Crore) in 2013, which is a mere 1.5 percent of the global market. This includes all products, storage, networking, and system integration for a typical broadcast studio. This market is expected to grow at a CAGR of 9 percent till 2017 to over US $168 million.

While this translates into an average of US $118,000 INR 70 lakh per broadcaster by formula, India is highly fragmented by content type, region, and size of broadcasters. Frost & Sullivan finds that about 25 percent have a broadcast equipment budget of over US $160,000 (INR 1 Crore), while nearly 40 percent plan to spend less than US $41,000 (INR 25 lakh) this year. It is true that sometimes equipment purchase outlays are cyclical and typically significant purchasing cycles get repeated every three to four years. Yet, Frost & Sullivan believes there will be little change in this trend in the short term.

Globally, capital expenditure trends for broadcast equipment are gradually undergoing changes. There is an intentional shift to solutions that are more software-based, support open architectures (implying the ability to work with multiple standards, as well as other vendor products), high on speed and IP-connected, so that upgrades require little hardware replacement, ensuring a longer shelf life. There is also a demand for solutions that can be paid for according to usage, rather than a full blown installation requiring upfront costs. To an extent, the industry does rely on rental agencies to provide equipment such as cameras and production switchers for various production needs, but the "pay-per-use" model mirrors what we see in enterprise cloud computing solutions. While this has not yet picked up significantly in the media sector, asset management, digital archiving, and content sharing are some of the applications where this trend is prevalent.

Eventually we believe that there will be a gradual shift of costs for several solutions from CAPEX to OPEX. A parallel market is growing, albeit silently to offer a number of media processing services on the cloud. While we see this trend globally, many Indian broadcasters rely on online video platforms and content delivery networks to process and distribute their multimedia content. They continue to have total ownership of the content production through their own studios or production houses for almost all processes related to content acquisition, production, management, and distribution. But slowly COOs are evaluating long-term costs of technical upgrades to be competitive as well as to adapt to the changing customer type for TV-everywhere. Hence, executive leaderships in several broadcasting organizations are working consciously to eliminate redundant processes and pass them on to service providers, while holding complete control over their assets through a cloud-based workflow. Frost & Sullivan believes that this trend, while in its infancy today, will witness a rapid uptake from 2015 to 2020 in India.

**Key Trends in the Industry**

Below is a list of vital drivers and restraints for growth of the broadcast equipment market globally and in India.
Frost & Sullivan found in its study that nearly 80 percent of the content is already being produced digitally and not on tape. The digital disconnect is largely reflected in the last mile between the pay TV provider and the subscriber. While there is pressure of a mandate directly influencing the broadcast sector, broadcasters will rapidly upgrade their existing infrastructure and convert their legacy tape content into digital repositories.

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<th>TREND</th>
<th>IMPACT (GLOBAL)</th>
<th>IMPACT (INDIA)</th>
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<tbody>
<tr>
<td>Digitization of broadcast workflows</td>
<td>Low-Medium</td>
<td>High-Medium</td>
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<tr>
<td>High-definition (HD) Production and</td>
<td>Low-Medium</td>
<td>High</td>
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<td>Transmission</td>
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<tr>
<td>Transition to file-based and connected</td>
<td>Low-Medium</td>
<td>High-Medium</td>
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<td>workflows</td>
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<tr>
<td>Need to deliver content on multi-screen</td>
<td>High</td>
<td>Medium</td>
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**Drivers**

**Restraints**

<table>
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<th>TREND</th>
<th>IMPACT (GLOBAL)</th>
<th>IMPACT (INDIA)</th>
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<tbody>
<tr>
<td>Global slowdown and restraint in advertising</td>
<td>Medium</td>
<td>High</td>
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<tr>
<td>Rapid change in technologies, standards</td>
<td>Medium</td>
<td>Medium</td>
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<td>and formats</td>
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<td>Lack of awareness</td>
<td>Medium</td>
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<td>Price sensitivity</td>
<td>Low-Medium</td>
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High-definition is on top of the list for the industry and this will drive significant uptake of cameras and video servers. Frost & Sullivan finds that there is a large gap between technical requirements and mass-based deployment. Globally, there are just a few million Ultra HD televisions in use. Technologies, workflows, and end-user devices would take a decade at least to be streamlined to support Ultra HD television. For India, which has only 40 HD channels currently, the next roadmap is to ramp up the number of HD channels for consumers.

The transition to file-based and connected workflows has been slower in India compared to rest of the world. But Frost & Sullivan finds that the solutions offered by storage companies and
telcos today are highly mature and sophisticated than before, driving a rapid upgrade through the ecosystem. Storage vendors are not just offering petabytes of storage, but also bundling them with storage management and asset management solutions thereby enabling significant ease-of-use. In some cases they offer consulting and professional services, which drive vendor engagement throughout and after the implementation. Broadband and high speed connectivity are currently witnessing competitive pricing and hence connected IT workflows for disjointed organizations will be an eventual step up through the value chain. Indian broadcasters have been rapidly migrating to file-based workflows to cut down on use of linear tapes, as well as to streamline the processes around digital technologies.

Multiscreen video or TV-everywhere or OTT (over-the-top) television is definitely on top of the mind for the Indian broadcast industry as much as it is anywhere else. However, in terms of solution uptake to drive the same, the market still lacks clarity and is fragmented regarding the choice of services and products. In many cases content creators just collaborate with a third-party online video platform or content aggregators to distribute their content online or on to mobile handsets or tablets. Currently, the market is figuring out possible business models around the value proposition including pay-per-view and advertising. A handful of large companies have a concrete strategy regarding the total value proposition. For the rest, it is a mode of exploration. Social media is another dimension that has come into prominence over the last couple of years and the value proposition, model, and objective of video dissemination through this platform is not something that many broadcasters have looked at objectively.

There are other market drivers such as falling prices, advanced technologies, increase in number of channels, and increase in FDI allocation to the broadcast sector in India that would drive the growth of the market. Among market restraints, high price sensitivity typically reflected in the Indian market and rapid technology changes seen over the last decade, top the list. Standards and formats for digitization, mobile and internet video, a universe of very diverse connected devices, video compression among others, have changed quite a bit and hence, many broadcasters have been cautious before committing to large expenses. However, Frost & Sullivan finds that the market appears to have matured in its choice of formats and standards for digitization, HD, multi-screen delivery, among other applications, and hence, confidence level among purchasers is on the higher side today.

However, India is not insulated from the global economic slowdown. In fact, with a higher degree of consolidation among Indian and multinational media companies, either due to direct mergers or indirect partnerships, there will be a greater impact on the local markets than ever before. The Indian media, just as many of its global counterparts, is significantly dependent on advertising revenue. Across industry verticals, advertising and marketing budgets are being shrunk and/or diverted to alternative media channels. Advertising agencies themselves are undergoing turmoil and there have been several instances of employee layoffs among agencies and broadcasters alike over the last 24 months. A very limited number of new channels have been able to take off. In addition, with new mandates from the TRAI such as the 12 minutes advertising cap for every hour of television programming, several small and mid-sized broadcasters will struggle for the next two to three years. All these will restrain on the market.
Apart from this, Frost & Sullivan finds that the awareness level among end users is fragmented. While many of them are aware of the benefits of adopting advanced technologies in principle, they are not fully aware of the actual impact on their workflow integration and tangible return on investment. Other restraints will include high carriage fees and slow regulatory policies and process.

**Analysis of the Demand Side**

Frost & Sullivan's Broadcast Equipment Industry Outlook Analysis has a detailed analysis of the demand as well as supply side in India. Along with conversations with over 25 vendors, system integrators, and resellers in India, the team spoke with over 50 regional and national broadcasters to find their purchasing budgets and preferences across product categories for the next three years.

Despite the weak environment for the industry, a significant percent of broadcasters in India are preparing to upgrade their inventory with higher budgets. While significant expenditure is planned for traditional equipment such as cameras, there is an increase in budget for advanced applications such as transcoding and media asset management.
With HD firmly set on top of the list for upgrades, most broadcasters look forward to upgrade their inventory for cameras and video servers. While price is often believed to be a dominant factor while making purchasing decisions, the industry disputes this contention. According to the industry, resolution and portability are the most important factors considered for deciding camera choices. Today the vendors are by and large moving towards non-proprietary storage formats, thereby signalling a wider range of options. There is a growing overlap of camera functions unlike three years ago. While in the past, a studio camera was used for just that versus an electronic newsgathering (ENG) camera that was used for studio production as well as field production, versus an electronic field production (EFP) camera, today's products are turning out to be versatile.

We found that over 40 percent of the broadcasters distribute episodic content. In India, there is a significant dependence on external production and post-production houses for content. Today, these work independently of each other in production, but Frost & Sullivan believes that eventually they will all be networked together thereby facilitating easy transfer and distribution of content. In audio formats, AAC (part of the MPEG-4 systems standard), with its exceptional performance and quality, is now the choice of several broadcasters, followed by WAV or BWF, which are standardized by European Broadcasting Union.
Broadcast Equipment Market Growth

Frost & Sullivan analysed the total revenue for broadcast equipment and services in India and took a deep dive into six major product categories: cameras, switchers, encoders, media asset management, video servers, and nonlinear editing software.
In contrast to other developed regions where the camera segment is likely to experience a decline in growth over the forecast period, in India the camera segment is expected to grow at a CAGR of 5.2 percent. The developed markets have saturated in demand as regions such as the US, Western Europe and Japan have completed digitization and most broadcasters have purchased HD cameras over the last five years. These trends along with the fact that prices of these products have collapsed by over 50 percent in some cases, has restrained market growth for all vendors. However in India, there is still high growth potential for HD cameras for studios and portable production. In our end-user survey, a significant percent of end users have indicated high spending on this product category, but we do not anticipate that growth to correspondingly translate into revenue growth because of competitive pricing in the market. The ENG category cameras are priced between US $3,000 and US $10,000, while studio cameras are priced between US $20,000 and US $40,000, today. For field production, the broadcasters largely rely on rented products from camera vendors or agencies.

In the video servers segment, Frost & Sullivan expects high growth in revenue as we expect incremental volumes of units for play-out and studio. With HD gradually becoming the norm, wider regional distribution, and multimedia deployment will become a reality and broadcasters will need to scale up their servers to support the incremental volume of content and applications.
While comparing the growth rates of broadcast equipment market in India and globally, India is expected to grow at a marginally higher growth rate than the world. In fact the growth trends for various products are different as the replacement cycles and adoption of advanced solutions are varied across regions. India is a growth centre for certain products and solutions. In certain product categories such as cameras and encoders, the country is likely to exhibit a higher growth than what is expected globally. However, for new age solutions such as MAM, India is still in the early adopter phase and on account of low awareness, the CAGR expected is half of what will be witnessed worldwide.
Competitive Landscape

We find that over 100 vendors cater to the broadcast industry in India, though there are very few names that are highly dominant across all categories; in certain product lines, there are only one or two major names. According to Frost & Sullivan analysis, the leading vendors are Sony, Harris, Ericsson, Avid, Apple, Harmonic, Grass Valley and Panasonic (listed in random order) among others across various product categories. We find that system integrators play an important role in India even today, and to gain a foothold, partnership with these is critical for international vendors.

We expect vendors to increase deeper customer engagement over the forecast period. As the market adjusts to new consumer demand for video content, more solutions and applications will be added to the ecosystem, especially in the domain of analytics and monitoring. Automated analytics is what customers are seeking globally to understand their viewer habits over multiple devices. This space while exciting, is still exploratory and we expect technology advancement over the forecast period.

The Last Word

The 90s and early 2000 signified great promise for the Indian broadcast industry. Moving away from the stronghold of the public broadcaster, television boomed, content became precious, pay TV became the norm, and advertising prospered and became sophisticated.

Those were the heady days as media anchors established media houses and went on to establish a diverse regional presence as well as businesses. The market was highly confident and witnessed double digit growth rates. Proprietary, ownership, and royalties became highly vital, and every second of content had a price tag. But today, the business of video has become difficult for the media and entertainment industry, not just in India, but globally. Today, we have 800 channels, nearly 40 HD channels, 6000 multisystem operators (MSOs) and 7 Direct to Home (DTH) providers. But the market is highly fluid today. The Internet has commoditized content and tons of valuable content is available for free.
In such an environment, the industry looks for a sweet spot. Advanced technology can enable content owners, aggregators, and distributors to reinvent their business models to support profitable growth over the next decade. While the media and entertainment industry is rooting for a 15-18 percent growth over the next five years, growth is incidental to various “ifs” and expected transformation of several verticals. We find ourselves in a space where even though the number of consumers is expanding; there is immense struggle to veer through competition and legislation to make business profitable.

To discuss these issues and explore few technology trends and solutions, Frost & Sullivan is hosting the Digital Media India Summit on October 18, 2013 at the Hyatt Regency, Mumbai. For more details, please visit – (www.frost.com/dmindiasummit2013).