Set-top box Survey 2012

The future of the set-top box has come under increasing scrutiny in recent months, with a senior cable company executive suggesting it will become extinct, and uncertainty surrounding the ownership of leading vendors. *Euromedia* finds out how the market and products have developed, and how sector players see the future panning out.

Euromedia: What markets do your STBs address?

Albis Technologies: IPTV-only STBs and Hybrid DVB-C/IP or Hybrid DVB-T/IP.

Amino: IPTV single stream and PVR set top boxes plus broadcast hybrid options using ST Micro and Intel-based platforms.

Arion: Cable, satellite and hybrid.

EchoStar: Complete range of connected devices from entry level 'zappers' through to fully functioning 'media gateways' that distribute multiple, independent streams of TV to different rooms and devices. EchoStar Technologies designs and distributes cable, satellite, DTT, IPTV and hybrid STBs and DVRs to digital TV operators and directly into retail markets under the EchoStar and Slingbox brands.

Entone: Pure-IPTV set-top boxes as well as hybrid devices supporting IP plus cable, DTT or satellite.

Humax: Cable; Cable + Hybrid; Satellite; Satellite + Hybrid; Terrestrial (T); Terrestrial (T/T2) + Hybrid; IPTV; OTT.

Motorola: All-Digital QAM Set-tops (DCX series, DCT series and DCH series); Analogue/Digital QAM Set-tops (DCT series and DCH series); Hybrid QAM-IP Set-tops (QIP series); IP Set-tops (including hybrid models) (VIP series).

Netgem: N5000 Series Internet TV adaptors – No PVR functionality and single tuner option, connects the television to the Internet for streaming IPTV and on demand content and other services. Can also connect to the local media server to access the user's own stored content; N7700 Series Hybrid STB & Media Centre. Includes PVR and blends broadcast (Cable, Terrestrial and satellite) with broadband (IPTV, OTT) services and content; N8000 Series Media Centre STBs Provides advanced networking functionality; this includes serving content from the PVR, internet or broadcast world to another room. It offers multiple tuners, a high capacity Hard Disk Drive and home network connectivity.

Pace: Complete range of cable, satellite, DTT, IPTV and hybrid STBs.

Technicolor: We offer Cable, Satellite, Hybrid DTT/IP Set Top Boxes, and are ranked #3 worldwide for STBs.

TechniSat: Cable, satellite, DTT, and hybrid.

Euromedia: What about PVRs and storage capacity?

Albis: PVR via an external HDD. Standard size of Disc 2.5" and Capacity 320 GB or 500 GB.

Amino: This functionality is provided by fitting HDD and the capacity increases as the default offering of the HDD supplier changes. Currently, our standard size is 320Gb but this can be customised according to customer requirements.

Arion: Yes, with 500GB.

EchoStar: Yes. We are finding that the industry de facto size is 500GB in both operator and retail markets – there are some products on the market with 1 TB drives.

Entone: Our standard DVR is 320GB with options for 1TB.

Humax: 160GB, 320GB, 500GB, 1TB, 2TB.

Motorola: Many of Motorola's set-tops offer DVR capabilities and storage capacity ranges from[160GB up to 1TB] in some STBs.

Netgem: The N8000 Series Media Centre PVRs ship with 160GB/320GB internal storage, this can be extended to 520GB and 1TB should the customer wish. The models in the N7700 and N5000 Series do not include an integrated PVR, but offer external PVR capability via USB.

Pace: Yes – 320GB, 500GB, 1TB.

Technicolor: We offer PVR, Storage depends on customer request. We can also support external storage to expand entry-level STBs.

TechniSat: Yes, 320 GB and 500 GB and 1 TB.

Euromedia: What about HD? Do you offer both MPEG-2 and MPEG-4? Does 3DTV
feature in your plans?

Albis: All STBs are HD and offer both MPEG-2 and MPEG-4. 3D Graphics and 3D TV are supported on our next generation STBs.

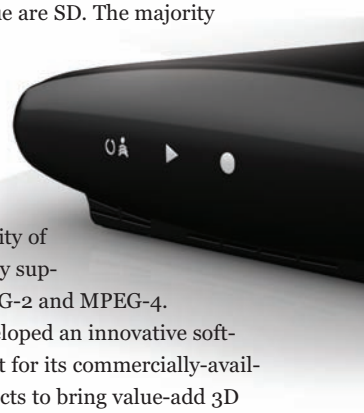
Amino: All devices are HD, MPEG 2 and MPEG 4 capable. We can provide 3DTV functionality – frame compatible formats are no issue to support and MVC is beginning to appear on the latest SoC solutions from semiconductor companies. However, in line with the general industry trend, we have seen very limited demand from our customers.

Arion: All HD-ready. No 3DTV planned yet.

EchoStar: Vast majority HD, some SD in South America. MPEG-2/MPEG-4 supported. 3DTV is somewhat 'pass through' for STB manufacturers, but indeed features in our plans.

Entone: All products support HDTV, 3DTV and are compatible with MPEG-2 and MPEG-4.

Humax: The majority of products are HD, about 20% by value are SD. The majority of products are MPEG-4 but MPEG-2 is still shipping. Demand for 3D is not significant.



Motorola: Majority of STBs are HD-ready supporting both MPEG-2 and MPEG-4. Motorola has developed an innovative software enhancement for its commercially-available set-top products to bring value-add 3D processing to the home. Americas: updated 3D processing has been incorporated into the DCX and QIP platforms and will include support for MPEG-4, MPEG-2 and 1080p24/30 output. EMEA/APAC: similar capabilities will be incorporated into the VIP product line depending on customer demand.

Netgem: All STBs support full HD and are both MPEG-2 and MPEG-4 compliant. We have not integrated 3D as yet, however it is on our roadmap and we would look to deploy this if there was sufficient demand from our customers.

Pace: North America and Latin America are our two strongest regions; North America predominantly HD Zapper, HD PVR and Media Server products; Latin America predominantly SD Zapper, HD Zapper and HD PVR products.

Technicolor: We offer MPEG2 and MPEG4, whereas the portion of SD boxes diminishes over time, it does represent an attractive entry-value for emerging countries.

TechniSat: No, not all – there is still demand for DVB-C SD boxes on the markets. But there are only 2-3 models in the range which are only SD. 3DTVfor STBs is not a priority one for us.

Euromedia: Which regions do you identify as the strongest regions in terms of sales and for which products? Who are the major customers?

Albis: Our main customers are in Europe, with a focus in Eastern Europe, predominantly with IPTV-only STBs.

Amino: Our Aminet A140 set-top box is a very strong performer in a range of markets – particularly in North America and Western Europe where a number of tier two operators

use our products. We're seeing increasing traction in Latin America where we've been active for some time and see very interesting developments there in terms of broadband rollout and regulatory change that is starting to drive IPTV deployments.

Arion: Our strongest region is India and LatAm. India was the major customer for SD products but forecasts this year India will be the major region for HD products. LatAm will be a major region for hybrid STBs for next few years. Our HD major region is Europe.

EchoStar: Europe: Cable – Unitymedia; Satellite -Freesat (UK/retail); Telefónica (South America); DTT – Freeview (UK/retail); IP – Slingbox (retail). Americas: Satellite - DISH Network (USA), Bell TV (Canada), DISH Mexico; IP – retail distribution of Slingbox (North America).

Entone: Entone has a strong track record and is ranked #2 in North America for IPTV STBs. We have over 100 deployments alone in North America, with a significant presence in Europe.

Humax: US 46%, EU 29%; DirecTV in the US.

Motorola: Americas: AT&T, Bell Canada, Telus, TBay Tel, Surewest, Hawaiian Telecom, SDN Communications, Hotwire, Farmer's Telephone Co; EMEA: Altibox, Deutsche Telekom Group, KPN, Telia Sonera, ComHem, Lyse, Maxisat, Portugal Telecom, Rostelecom, Vimpelcom, TTNET; Asia Pacific: ABN, KDDI, SingTel (this is not an exhaustive list).

Netgem: The company is currently growing its business outside of the core domestic market and aims to double its international revenues over the next three years. Netgem's strategy targets tier one operators looking to upgrade their service offering and tier two/tier three operators that can take advantage of Netgem's end-to-end solutions and short time to market. Netgem counts Telekom Slovenia, H1 Telekom and Netia as customers in Eastern Europe and Iusacell in the LATAM market. Netgem's operator customers for its high end N800 media centres STBs include incumbent Australian telco Telstra and Monaco Telecom. Other operator customers include Viaplay, Elisa, Melita, P&T Lux and Netplus. In the B2C space, customers include Toshiba, and Virgin Mobile France.

Technicolor: We sell everywhere in the world, with main US references including DirecTV, Comcast, Insight, MediaCom, main LATAM references including Net Servicos, Sky Brazil and Mexico, TV Globo, DirecTV, TeleCentro and Telefonica, main European references including Bouygues Telecom, TopupTV, Sky, R-Mundo, Euskatel, Sogecable, Viasat, RiksTV, ZON, Cabovis_o, UPC, CanalDigital, Hot Israel, Telenor, main APAC customers including Austar, Bharti, TataSky, Astro, StarHub, etc.

TechniSat: Germany, Austria, Switzerland, Eastern Europe (PO, HU, Baltic, Balkans), Spain and BENELUX.

Euromedia: What level of support do you give to CI+?

Albis: We currently do not support CI+.

Amino: We can support CI+ on certain products within our portfolio - typically the hybrid IPTV/broadcast devices.

Arion: CI+ v1.1

EchoStar: Supported.

Entone: Later this year, we will introduce the Amulet 560 Hybrid TV Media Hub that will support DVB-CI+.

Humax: Humax supports CI+ where appropriate to the product and the market.

Netgem: Not supported currently.

Technicolor: Supported.

Euromedia: Which middleware providers do you partner with?

Albis: Nokia Siemens Networks, Zappware, Beenuis, Dreampark (Motorola). On Project specific requirements, we have also partnered with Ericsson and Nordija.

Amino: Use partner board.

Arion: OpenTV and Cubiware.

EchoStar: Alticast (MHP), Open TV/Nagra, Latens, also offer own embedded software solution where middleware is not required.

Entone: Partners include Cubiware, Conklin, Ericsson, Espial, Hibox, Minerva, Nokia Siemens Networks, Nordija, SyncTV and Zappware.

Humax: NDS, ANT, Opera, Soft@Home, OpenTV, S&T (MHEG), Alticast (MHP), and many more.

Motorola: Middleware providers include Microsoft Mediaroom, and Motorola's open set-top software platform KreaTV supports a variety of open source middleware solutions, including Dreampark/Dream Gallery – Now part of Motorola Mobility; Alcatel Lucent/MiView TV; Orca interactive/RightTV; Nokia Siemens Networks /HES (Home Entertainment System); SeaChange; Latens/Eco; Espial /Evo; BeeSmart; Ericsson/ IAP/ NanguTV; Smartlabs.

Netgem: We have developed our own middleware, NetgemTV. This offers three key elements: Client/Server middleware; Embedded/online applications and Heavy client STBs. In 2011 the company also introduced nCloud, its own connected home solution. This allows consumers to experience a Cloud type environment within their home. nCloud uses a hybrid STB as a hub to aggregate broadcast content with OTT and the user's own stored content and blends it into a single EPG. Content can then be served to any connected devices as HTML5 pages.

Technicolor: We partner with most middleware vendors in the marketplace.

TechniSat: As we are doing customised solutions also there is no problem in implementing any middleware – for Retail we do also have our own middleware as well as S&T, OpenTV and Opera.

Euromedia: What role can the STB play in a cloud-based future?

Albis: STBs can still play a role for OTT based cloud services.

Amino: The nature of content changes constantly - whether it is locally stored or in the cloud. This requires a platform that can evolve to meet those demands and we believe that the set-top box will continue to play critical role in the future. Examples of this include Flash, HTML 5, MPEG 2 – MPEG 4 and HTTP streaming to HLS.

Arion: STBs can play a smart hub role in a cloud-based future.

EchoStar: A vital one! No one doubts that the long term future of entertainment delivery lays in the cloud, however, most industry commentators and analysts forecast that 'total' cloud delivery remains a way off. Presently we are in a phase of partial cloud-based or 'hybrid' entertainment delivery with purely cloud-based entertainment providers (including Netflix, LOVEFiLM etc) leveraging relationships with portal providers to deliver their paid-for content through third party Smart TVs and set-top boxes. There are real technical, business, economic and social barriers to services being migrated fully to the cloud – including broadband capacity and line speeds. Device providers and broadcasters are looking

towards the gateway set-top model where broadcast is used to deliver entertainment into the home and a 'local cloud' is used to serve entertainment to multiple rooms, and devices inside or outside the home. Gateway remains the next step to the fully cloud-based future, though even in a 100% cloud-based delivery world a connected device will still be required to watch content on the big screen be it a connected TV, STB or PC etc.

Entone: As more content and services become available in the cloud, STBs will continue to have a crucial role in the home because STBs are necessary to support advanced user interfaces and recommendation engines that enable consumers to navigate, discover and enjoy huge libraries of on-demand content. These devices will also enforce access control and security measures to give content owners the confidence to make high-value content available for cloud-based delivery.

farncombe: The cloud-based future is already here with Smart TVs offering features like Twitter, Facebook and YouTube. But even in a cloud-based environment, pay-TV operators will continue to provide managed devices – a 'STB' with a new name – to their subscribers to ensure security and to manage the user experience and quality of their service.

Humax: Legal and regulatory issues are the greatest threat to cloud-based products. However, the idea that the IDTV will replace the STB is probably erroneous. There is massive fragmentation in the TV market from a technology perspective and in addition to this TV manufacturers want to maintain their control over the user experience. The operator will likely still maintain set-top boxes in order to control the user experience but they will become greatly simplified products.

MoCA: The STB can be the hub or gateway for edge devices providing in-home capabilities closer to the CPE.

Motorola: The STB is getting smarter and more connected, its role is rapidly evolving. This evolution will see a transition from hybrid IP video gateway leading to an all IP Gateway. We see this type of gateway becoming the entertainment hub in the Living Room, the centre of IP connected home of future. It will feed content from a variety of sources to a multitude of devices, allowing consumers to view, record, or play video on any networked device – TV, tablet, smartphone, gaming console – in any room, seamlessly. Our service provide customers understand how a powerful combination of hardware and software maximizes infrastructure investment to deliver anytime, anyplace, on any screen content experience consumers crave.

Netgem: We recognise that rationale for the broadcast industry moving to a pure Cloud model makes a lot of sense. However, this becoming a mass-market reality in anywhere

but the most developed markets is a pipedream – at least for the time being. The huge demands Pure Cloud TV would place on bandwidth means that a Cloud infrastructure will be impractical anywhere for between five and twenty years, depending on the market. This means that STBs will be present in living rooms for some time. Even when Cloud delivery becomes more widespread, STBs will still have an important place at the centre of the connected home as media servers, the most cost-effective way for operators to aggregate and deliver content for multi-screen services.

S3 Group: In a cloud-based future, we expect the STB to become more powerful and capable of running full hardware-accelerated browser functionality. It will also serve as a gateway between home content and cloud content from the web. Content will flow both ways as the user requires.

Technicolor: STBs will keep playing a key role in the future, from final decoder up to whole-home video distribution server combining personal, pay-TV, and OTT content.

TechniSat: STB can be used as remote centre for the whole house to have access to the cloud and all the content – but we think that tablets and mobiles will become more important in this area if it is not in connection with VOD or OTT.

Euromedia: Can 'Internet STBs' find a place in the crowded world of connected Blu-rays, Smart TVs, and provider-based OTT packages? Is IPv6 implementation an issue for STBs?

Albis: Service providers' business models can still benefit from STBs in order to bundle, differentiate and brand their services. This is always not the case for consumer electronic devises. For Linux based STBs, IPv6 implementation is not an issue.

Amino: Certainly. Our customers see the STB as a critical element in securing and retaining customers. Consistent quality of experience will remain a key factor in service provider offerings – alongside the continued strong consumer demand for quality content. Despite the continued growth in smart TV sales, usage rates of 'connected' functionality remain low – particularly in the UK. Plus the replacement cycle for TVs remains stubbornly around the seven-year mark, while operators continue to innovate over shorter time frames in terms of improved set-top box performance and functionality. We see the set-top box evolving to provide more of a media/home gateway role, distributing content to multiple screens around the home. All Amino products will support IPv6 – it's a feature that has to be delivered on any connected device; and is no more of an issue for STBs than for anything else.

Arion: Internet STBs find a place in the crowded world of smart devices. Subscribers need various smart devices and Internet STBs will be one of their choices. IPv6 implementation technology grows quickly and it will be stable for integration. Also remote control changes to user-friendly design so subscribers will not feel any uncomfortable to use their Internet STBs.

EchoStar: Purely Internet STBs do have a role to play. The STB has been effectively migrated to be a hybrid IP or 'Internet' device combining broadcast with on demand content delivered over the IP channel. Major brands like Apple and Google have invested heavily in Internet TV offerings, In order to gain a higher level of market share, such Internet-only devices need to approach the hybrid world and deliver multichannel television in addition to Internet only on-demand services. That's certainly the way in which EchoStar is taking its Internet TV/Android development. What remains key is making the consumer experience a simple and seamless one with such Internet services available through an aggregated platform.

Entone: Internet STBs are optimised to support high speed, rich graphical user interface and navigation, and advanced content formats. Blu-ray players, game consoles and TVs have some similar capabilities but carry significant cost overhead attributed to their other functions. As such, it is more cost-effective to upgrade an Internet STB to support new content formats, super high-resolution displays, 3D, etc. Much like today's mobile phone, we see consumers upgrading Internet STBs on a regular basis and much more often than other more costly devices. All of Entone's Hybrid TV devices support IPv6.

farncombe: We believe the real change will be the decline of the retail STB market as the functions these devices offer become widely available through smart TVs, connected games consoles and Blu-ray players.

Humax: Internet STBs can find a place in the connected TV environment, although the issue of content fragmentation remains. Not everyone wants to own a Blu-ray and the majority of the population has already purchased a non-smart TV. IPv6 needs better support from ISPs in order to progress.

Motorola: See above.

Netgem: The current generation of connected CE devices do not offer the slickness or the ease of use that are provided by pay-TV services. Although there have been some developments, it is still incredibly inefficient for developers to have to create apps for each and every platform and making multi-screen services work still demands a high level of technical competence that is beyond all but the most committed AV geeks. By comparison, the plug and play STB technologies offered by pay-TV operators offer a far superior experience and access to a range of premium content that is not available through OTT services on other devices. Our hybrid STBs have been designed specifically to offer operators the best of both worlds, they offer a fully controllable, branded and curated environment that can be updated with additional online services to meet customer demands and thus reduce churn.

S3 Group: Internet STBs are cheap, simple and disposable items which can be upgraded regularly by the user and can support multiple rooms at a low cost. Smart TVs have a basic issue in that they attach a rapidly evolving component (Internet STB hardware and software) to a component with a much longer lifespan i.e. the TV display panel. Most Smart TV functionality will be obsolete long before the TV reaches end of life. We recommend that customers consider IPv6 for all new STB deployments. It depends on the geography but in the next few years IPv6 may well become a necessity and it is better to be prepared than to miss the boat.

Technicolor: The advent of 'OTT boxes (e.g. Vizio, Google, Apple) prove the need to better embrace the OTT offering (apps, content) to complement the current pay-TV packages. The ability to combine both in a consistent, integrated, and rich consumer experience would bring significant value to the consumers. IPv6 is a natural trend for the whole devices worldwide. Technicolor has been at the forefront on integrating IPv6 in its home gateways, paving the way for a good return of experience to apply to the STBs.

TechniSat: Connected Blu-Rays will not become very successful in regard to VoD services available with SmartTV or Internet STB. Pure Internet STBs are fine but only on FTA – in regard to Operator business I think they will be more work with limited access to get a higher ARPU with their own offers of VoD, OTT etc. – in this perspective the SmartTV is also more useful for non – operator dominated markets or the CAM does limit some func-

IHS: End of STB domination looms

The set-top box is not set to be on top for very much longer—at least for one segment of the pay-TV industry, according to analyst firm IHS Screen Digest.

In 2015, 49% - or nearly half of all devices obtaining television services from 43 of the largest global pay-TV operators that have commenced deployment of multiscreen services—will be PCs, smartphones, tablets and other so-called multiscreen devices, up from just 18% in 2011, according to the IHS Screen Digest TV Multiscreen Intelligence service at information and analytics provider IHS. Meanwhile, STBs will decline to just 51% of pay-TV operator devices in 2015, down from 82% in 2011, as presented in the figure on page 22 .

This means that in 2016, STBs will relinquish their customary position as the near-exclusive video consumption device among the 43 major cable, satellite and Internet protocol television (IPTV) providers that are proceeding with multiscreen deployments.

"A new era is dawning in the pay-TV industry, one in which subscribers can access television services on the device of their choosing, rather than being limited to using STBs," said Tom Morrod, senior principal analyst, TV Technology, for IHS. "Consumers desire greater flexibility, demanding access to entertainment on any platform, in any location and at any time. Because of this, cable, satellite and IPTV operators are shifting their focus away from the STB and toward multiscreen deployment. For the 43 major operators tracked by IHS Screen Digest that have deployed multiscreen services, this means that multiscreen devices will supplant STBs as the leading pay-TV access devices by 2016."

The global installed base of pay-TV STBs associated with multiscreen operators will amount to 321.7m units in 2015, up 17% from 274.5m in 2011. Meanwhile, multiscreen devices actively receiving pay-TV services will rise to 310.1m, up more than 400% from 60.1m in 2011.

The total installed base of STBs is actually much larger, when incorporating pay-TV providers that aren't engaging in the deployment of multiscreen services. The multiscreen operators accounted for only about one half of the global total of 538.8m installed STBs in 2011, and will represent only about one third of the 849m in 2015.

Multiscreen is defined as a service that allows the viewing of video on multiple platforms beyond the traditional mode of televisions connected to STBs. The multiscreen device category comprises a range of products, including smartphones, media tablets, portable media devices, video game consoles, personal computers and Internet-enabled televisions (IETVs).

PCs in 2011 were the most common devices associated with multiscreen pay-TV deployments. In second place were devices based on Apple Inc.'s iOS operating system, i.e., iPhones, iPads and the iPod touch. However, by 2015, the number of iOS devices accessing pay-TV services will rise by nearly 800%, while PCs will expand by only about half that rate.

Hot on the heels of iOS will be Android, whose base of devices connected to pay-TV will grow by more than 1,200%. In the Android market, the increasing availability of smartphones with larger screens and the rising shipments of tablets will propel the expanding use of pay-TV.

The leading pay-TV operators so far have focused on PCs and iOS in their first-phase multiscreen deployments, followed by Android in more recent distributions. Among the other platforms, Microsoft's Xbox has also been a focus for the pay-TV companies, along with Smart TVs from Samsung and LG.

By 2015, 11 pay-TV operators will be supporting content and subscribers on more multiscreen devices than on their own set-top boxes.

For example, Bell Canada, which has a very strong strategy for delivery of services to its mobile subscribers, will be supporting almost eight times as many phones and tablets in 2015 than STBs. Multiscreen devices will account for 89% of Bell Canada's total consumer endpoints, defined as the number of devices used by subscribers of the Canadian operator in order to access its pay-TV content.

Operators with larger STB installed bases, such as BSkyB in the U.K., also are expected to perform well, tipping the scale with approximately 1.5 devices per STB installed in 2015. The strength of BSkyB's Sky Go and Now TV strategies will make the company a majority IP-to-multiscreen device operator by that time.

In the US cable market, where STB deployments are most widespread, Comcast will be nudging toward having one Xfinity or Streampix device per set-top box.

tions as well – foremost cable operators are not very interested in a full internet access to their customers as they will not earn money on their additional offers. In regard to purely IPTV, we are not sure as some countries are not really prepared in regard to infrastructure an FTTX so that pure IPTV offers can become the dominant way of transmission on the market (think about 40m people watching football at the same time via Internet only!).

Euromedia: What steps have been taken to ensure energy efficiency and device sustainability?

Albis: Our STBs comply with two key directives: *Code of Conduct on Energy Efficiency V8 (IEC 62301:2011, mod. and EN 50564:2011)* and *Voluntary Industry Agreement to Improve the Energy Consumption of Complex Set-top Boxes within the European Community*.

Amino: We are a signatory to the Voluntary Agreement: our STB products conform to the latest specification requirements. This ensures that products are designed to be energy efficient.

Arion: All products are certified by the CE association. Our R&D has managed the independent department for improving device sustainability.

EchoStar: EchoStar follows applicable European legislation to reduce power consumption in connected devices. EchoStar's latest product launched in retail – the Ultra Slim Box – operates below 1 watt in low power mode.

Entone: Our DeepSleep technology greatly reduces power consumption by over 95% when a device is in standby mode. This amounts to significant savings in energy costs and further reduces carbon emissions.

Humax: Humax is a core member of the CSTB EC VA which strives to drive down power consumption of pay-TV products. Humax has already exceeded the targets for standby efficiency set by government and continues to maintain interest in beating targets.

MoCA: We have focused on the availability of power modes - including on/off, sleep, standby – as well as a general integration with other devices in use, all of which must address energy efficiency.

Motorola: We have designed our new generation of global television set-tops to meet our customers' needs for reduced energy consumption, less packaging and easier recycling. Our latest VIP Series IPTV set-tops use advanced power management technology, which saves almost a quarter of the power required by the previous models. We also reduced CO_2 emissions in distribution by shrinking the size and weight of the unit and providing online instructions instead of paper manuals. Overall, based on an independent lifecycle assessment, we achieved an estimated 12% to 20% carbon footprint reduction for the QIP range compared with the previous generation, factoring in all stages of the product lifecycle, from manufacturing through transportation and use.

Netgem: All STBs offer power consumption of 13W or lower and 1W or below in stand-by mode.

Pace: Pace is the leader in promoting energy efficient STBs, being one of the instigators in the European Voluntary Agreement on energy efficiency of STBs, the EU code of conduct on energy efficiency of STBs, the US Energy Star programme for STBs and the current initiative to set up a voluntary programme in the USA for energy efficient STBs, all of which drive down energy consumption. We have a Pace 'banned substances' list which exceeds the requirements of the RoHS and similar Directives and our supply chain complies with the Dodd-frank act on conflict minerals.

S3Group: Energy consumption is a system design issue for a networked STB and must be solved by making sound decisions about the total end-to-end network design rather than just one component such as the STB.

Technicolor: We have a dedicated team at the forefront of the energy efficiency, pushing recommendations for standardisation.

TechniSat: Our STB are already compliant to EU regulations – most of them are do not need <0,3W in Standby.

Euromedia: Any other observations and predictions for the STB market?

Albis: Managed operator environments benefit from the customisation and feature differentiation enabled by STBs, plus STBs still play a key role for QoS and QoE.

Arion: STB markets will be more diversified. It is meaningless to distinguish between STB and TV or blue rays because the convergence between them has already happened.

EchoStar: In general, the market remains in good shape with great anticipation surrounding the launch of media gateways.

Entone: Entone believes the future TV experience will combine the best of linear TV, DVR, premium content delivered via IP, personal media sharing and management, and content mobility. As such, STBs are evolving from being simple terminal devices to the hub of the networked home. The key is to enable a seamless user experience – making it simple for users to access a wide variety of professionally produced content and personal media via a consistent UI and a single remote control.

farncombe: The STB is evolving will one day bear little resemblance to the boxes we are familiar with today. Even the name is likely to change – and this is not just a marketing ploy but a true reflection that these boxes rarely sit on top of our TV sets even today. Most likely the STB will be re-branded as its role includes becoming a 'home gateway' or 'wireless gateway' and perhaps it will take on this moniker. But when an operator provides the device as part of its package, pay-TV will remain a core services offered through this device.

Humax: The home gateway server will probably become a 'headless' product instead of a big digital TV recorder.

MoCA: The STB does not go away in terms of functionality, though it may eventually cease to exist as a specific product category. It evolves into a gateway or some other hub or central receive and distribution point. It can't

APAC 50% of STB market

A jump in cable and satellite set-top box shipments in Asia-Pacific markets is being driven by cable digitisation in India and China, as well as China's rollout of digital satellite boxes to its rural households. "Digital transitions are bringing consumers access to hundreds of international channels and a few HD services for the first time. Asia-Pacific and Eastern Europe's growth in set-top box units will outstrip those of the rest of the world in the next five years," suggests Sam Rosen, practice director of TV and video at ABI Research.

Operators in these developing markets are for very low costs boxes. Set-top box manufacturers are looking to decrease BOM costs by using in-house CAS solutions and low cost SoCs optimised with lower-powered CPUs that support HD video, but only simpler graphical user interfaces. "China has a robust ecosystem of set-top box manufacturers, coupled with CAS vendors China Digital TV and Sumavision," according to Rosen. "Meanwhile, India is struggling to enable an ecosystem of local manufacturers, as well as to get adequate supply of boxes to meet an unrealistic digitisation timeframe."

go away entirely, even with a move to the cloud, as too much functionality and services are being demanded by subscribers from the service providers. There will always have to be some CPE in the home to access, process, capture, monitor and distribute services as needed and demanded.

Netgem: Advances such as adaptive bitrate streaming mean that Internet delivery of streaming content is now becoming a mass-market proposition for broadcast services. Recent deployments such as the Viaplay Box, that uses OTT to deliver premium linear channels, highlights that the broadcast and telecoms industries are starting to converge.

S3 Group: Web and browser technologies and open standards will begin to dominate at the expense of traditional middleware. Value will still be added to the STB through custom functionality and enhancements aimed at improving the quality of experience, as well as by the addition of comprehensive content protection features. Increasingly we will see operators benefiting from interoperability with other user devices rather than focusing purely on the traditional walled garden approach. It will become a must-have to enable access to content through other devices such as tablets, Smart TVs and PCs. This implies a strong gateway function for the STB in the future.

Technicolor: STB is and remains an attractive market, and is poised to evolve by taking into account the seamless inclusion of OTT content and applications, delivering technology-advanced, whole-home solutions to consumers who are very sensitive to the quality of the content and the experience.

TechniSat: Smart functionality becomes more and more important – but the average consumer only interested in Linear TV and maybe some kind of additional value such as HbbTV or MHEG5 should not be forgotten – the challenge for all industry partners is that the consumer does not take care where his content comes from, but that it is available – and that the UI can be navigated as easy as possible without differentiating if you are in the Internet or using content via DVB-C/S/T. Also, the Multiroom/Multiscreen topic will be more and more important as well as the usage of a STB as Mediaserver for the whole connected home.

Global shipments will flatten out

Following several years of healthy growth, demand STBs continues to climb this year, on track to reach 228m units shipped globally, according to research from Futuresource Consulting. However, as demand from maturing pay-TV markets like North America and Western Europe begins to slow, the market will start to see moderate decline over the next few years.

Despite this, STBs will remain a core component of the pay-TV industry's service proposition as operators utilise the box to exploit existing services and look beyond the delivery of video to improve subscriber retention and grow revenues.

Leading manufacturers are launching a new generation of STBs labelled as media gateways or smart boxes, notes Futuresource Consulting. This new generation of STBs offers features such as transcoding, wireless routing, multi-platform content management, media distribution and multi-room delivery.

"The roll out of these new boxes comes at a time when the saturation of subscriber bases in mature markets is resulting in the need to develop new non-video related services. The ability to incorporate these boxes within home networking infrastructures and their compatibility with portable devices provides the ability to roll out services that allow the control of in-home lighting, temperature and security. Such offerings are expected to become increasingly widespread due to the competitive nature of the market and slowing video related revenues forcing operators to embrace new growth opportunities," says Carl Hibbert, Head of Broadcast Research at Futuresource.

On the video front, facilitated by enhanced broadband performance, pay-TV operators are beginning to incorporate IP not only to enhance existing services to the big screen, but also to boost content delivery to multiple devices including tablets and smartphones.

Regionally, growth opportunities are still present. Asia Pacific, which is expected to represent 45% of global shipments in 2012, will see growth through to 2013, with smaller regions including Eastern Europe and Latin America growing from 16% to 18% and 4% to 6% respectively.

Asia Pacific has witnessed tremendous demand and growth, with India's satellite industry and growing digital cable base and China's cable sector driving much of the volume in the region. Asia Pacific however represents a short term opportunity for the STB industry as subscriber growth is beginning to slow in comparison to previous years, although with India's cable digitalisation initiative, demand will continue to be high.

Latin America represents a long-term growth opportunity for the STB sector with an abundance of new pay-TV services rolling out in the region, analogue to digital conversion of cable subscribers and the roll-out of new free to air digital services, but the region is unlikely to provide sufficient demand to sustain global growth.

In Western Europe, cable represents the largest proportion of pay-TV homes and close to half of all pay-STB demand, and the continuing migration to digital services will drive cable STB growth through to 2014. However, cable operators are losing a proportion of their analogue subscribers to alternative pay platforms and FTA services.

Overall cable subscribers will fall over the forecast period, in turn negatively affecting long-term demand for STBs.

In North America, the saturated pay-TV market continues to lose subscribers quarter on quarter, negatively affecting demand for STBs, resulting in a 4% fall over the forecast period. Revenue however will be sustained as operators move to more advanced set top boxes allowing for the roll-out of more sophisticated services that will attract new revenue streams from subscribers.

The brave new world of the next generation STB will undoubtedly be the key driver in this market moving forwards. Operators are compelled to offer higher value service propositions to consumers, and the advanced features delivered by these new STBs will be fundamental to future success.