



Looking after TV today, tomorrow
and into the future.



Our future direction and plan





Television is an essential part of our society in the UK, and globally. Every second of every day the UK consumes digital TV for entertainment, information and education.

The DTG is the UK's unique not-for-profit collaboration centre that makes digital TV work. We bring together key players from across industries to achieve tried and tested interoperability – and deliver a seamless viewer experience.

Our core principles continue to guide us, as we work with our members and industry to create a great television experience, now and into the future.

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Our philosophy And how we work

The DTG philosophy remains the same as it was in 1995 when we were formed:

- **Provide** a vehicle for industry collaboration across all digital platforms and devices
- **Remain** objective and neutral
- **Lead** on technical specifications for a seamless viewer experience
- **Make sure** we are technical experts in our field and keep learning
- **Listen** to our members and keep up with the ever-changing TV landscape
- **Solve** today's issues while always looking to the future of TV across all devices
- **Integrate** next generation technologies while minimising viewer disruption
- **Be the trusted voice** of the industry
- **Stay focused** on our purpose and always work according to our values

The DTG provides:

- **A collaboration centre** where all key players across digital TV can work together
- **A platform to discover** industry news and trends
- **Multiple channels** for our members to promote their products, services and news
- **A members' area** where users can download publications, check the DTG diary and access working group documents
- **Regular events** to offer our members a further chance to network and create stronger partnerships

Things we will **not** change

Current workstreams

These are at the core of what we do and integral to how we operate today.

Industry focus

Our strength lies in our ability to connect all industry players to collaborate and develop solutions that address the challenges facing the digital TV landscape.

Every viewer matters

We value every viewer, and work with our members to ensure a seamless viewer experience across devices in the UK.

Culture of innovation

Embracing new technologies is vital to everything we do.

Technical expertise

Our team of technical experts provides our members and testing clients peace of mind when it comes to the functionality and interoperability of their products.

Independence of thought

We are a self-standing centre of innovation in digital media technology. We pride ourselves on our neutrality and objectivity.

Bridge-building role

We always work to identify, grow and maintain effective partnerships and collaborations to further improve the viewer experience.

Striving for excellence

Since 1995, DTG has been central to the distribution of TV in the UK and we believe in constantly looking for better ways of delivering what we do.



Our disruption challenge

Why we need to work harder together

Throughout the more than six decades lifespan of the PSB system, consumers have enjoyed an ever-improving range of television services. Broadcast and consumer electronics technology has been constantly upgraded, thanks to enhancements at all stages of the supply chain.

Since it was founded in 1995, the DTG has played a significant and sometimes leading role in inter alia the move from analogue to digital transmission, the development of the terrestrial, satellite and cable platforms, the introduction of HDTV and more recently UHD, the launch of internet-delivered on-demand services, the widespread adoption of flat-screen televisions and countless other enhancements in picture and audio quality and viewer enjoyment. It has done this by providing an environment where all stakeholders can discuss and agree requirements, and by providing a testing and conformance regime developed and operated on behalf of all participants.

Audiences do not expect just a range of high-quality programmes from the PSBs and other broadcasters; they expect that wide choice of quality programming to be complemented by a high-quality viewing experience and a choice of television sets, platforms and services, including offerings from global platforms and studios (e.g. Facebook, Apple, Amazon, Netflix and Google). They also expect to have services available on demand, so they can watch them whenever, wherever and on whatever device they choose.

At some point, these and other disruptive innovators will change the market focus from the established core to more vertical, service-based solutions. This is where the opportunities and challenges of the future lie.

In order for the UK to maintain its position as a world leader in television, we need to work harder together, more than ever before. Educating ourselves in the emerging technologies of today and tomorrow. Collaborating to tackle the issues that threaten the market. This is how we can continue to deliver a seamless UK viewer experience and set global standards.

Whether at home or abroad, we are using research and partnerships to build a better picture of the digital TV industry as a whole. Maintaining a focus on our core activities while looking forward enables us to make the most of exciting, cutting-edge technologies and apply them to our industry.

To achieve this, we need organisations across the TV industry on board, in the room and eager to get involved. From start-ups to enterprises, the DTG is focusing on collaboration so we can deliver invaluable insights, to all players in the digital TV industry.

We are here to collaborate, educate and ultimately lead the industry, while also looking to embrace new innovators. We plan to do this in a number of ways.

Greater member engagement

Explore ways of better serving our current members, to continue delivering what the industry needs. Listen to the needs of our Members helping us to generate valuable insights.

Defining the future

From start-ups to established innovators, learn from the transformers of TV and forge partnerships across the digital TV landscape. Take steps to evolve the UK digital TV industry to grow alongside the disruptive innovators.

Increased global perspective

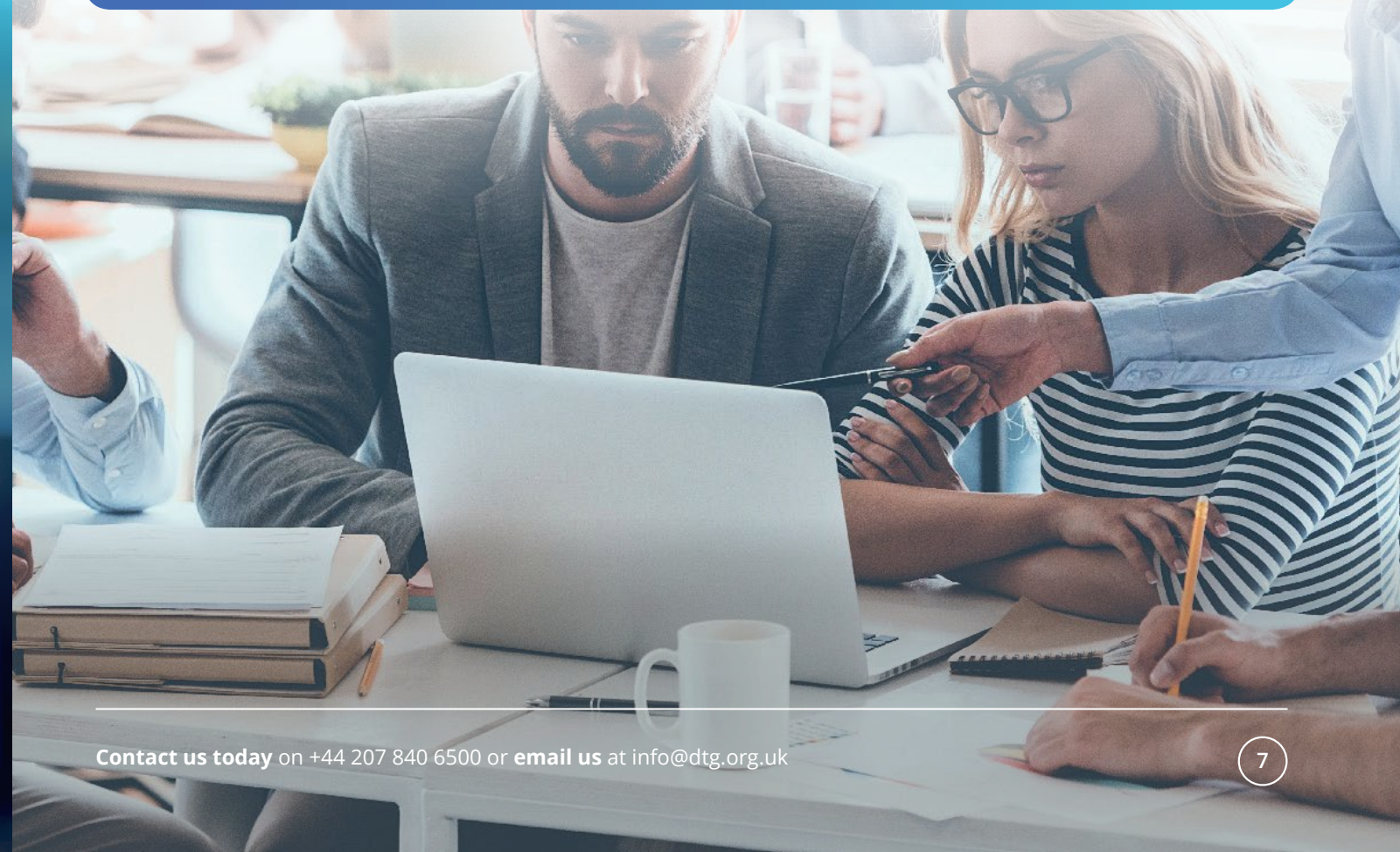
Work closely with more international organisations as well as those in the UK to ensure we remain ahead of the curve of what the future holds for viewing globally.

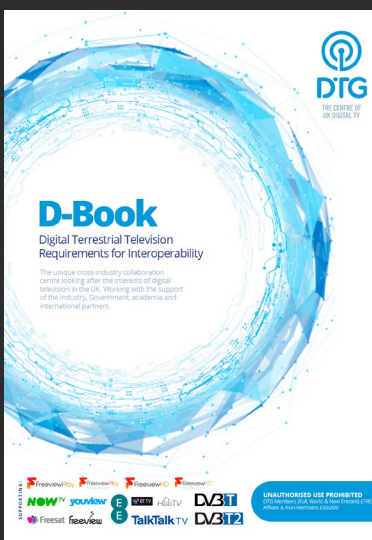
Research focus

Concentrate on the most relevant topics to ensure that we are always moving in the right direction. Research, listen and learn from the ever-evolving TV and technology industries to continue developing strong and well-informed opinions.

Securing funding

Grow membership and explore new revenue streams to continue delivering UK television specifications, providing vital industry support and assuring the best viewer experience.





Our impact

The difference we're already making

Making TV work

In 1995, the DTG was formed as a way to ensure the TV industry in the UK worked together to create a seamless experience for the viewer. This collaboration between broadcasters, manufacturers and service providers was the very first of its kind – and paved the way for a resilient infrastructure that still works today.

We continue to embrace the incremental changes that transform the way UK viewers watch today. Together with our members, our work underpins the entire UK digital TV landscape.

D-Book

The DTG has published the D-Book since 1996, updating the specification annually to keep pace with the development of UK DTT. The D-Book defines the DTT platforms in the UK and provides requirements for interoperability in clear, unambiguous language. It's produced by industry experts using a collaborative approach, based on international standards. The D-Book enables manufacturers and service providers to deliver products to market, including harmonisation with other international bodies.

DTG Testing

DTG Testing provides the product testing services used by manufacturers to demonstrate conformance in the evolving digital market in television, mobile and radio. The DAB testing facility contains the largest commercially available GTEM cell (TESEQ GTEM 2000). The 'Zoo' at DTG Testing houses the UK's largest collection of representative sample receivers. This unique facility is used throughout the lifespan of products and services, from development through to launch and in-market support, for terrestrial, satellite, cable, IP and HDMI-connected services.

Working groups

The DTG hosts a range of working and task groups that bring all the great minds around the same table to discuss, explore and plan the next steps for a whole series of subjects, such as; Radio Frequency (RF Group), Ultra High Definition (UHD), Next Generation Audio (NGA), Programme-making and Special Events (PMSE).

International collaboration

The DTG is active in a number of international forums and working groups in the international community like DVB, UHD Forum, UHD Alliance, ETSI, SMPTE, FAME and WAVE. We work closely with these organisations to ensure that our standards and specifications are aligned and harmonised with the rest of the world.

Academic community

We rely on ideas, people and support from the academic community to help us use and exploit new and emerging technologies. The DTG works in partnership with academic institutions such as Goldsmiths University and Ravensbourne College to empower the fresh minds who will one day be the leaders of our industry.

The DTG manifesto for...

Universal delivery of video over IP

Television is continuing its transformation into an era of universal IP delivery, with the resilience and quality of experience of broadcast TV. The DTG has identified seven key areas which need to be addressed. Not just to protect the viewer experience, but to allow industry and government to derive the maximum economic and social value from this unique opportunity.

- Create a better future TV experience
- Ensure a consistent and reliable viewer experience
- Preserve the value of the horizontal TV market
- Establish a framework to share IP traffic management intelligence
- Ensure true end-to-end quick service start and low latency
- Enable scalability
- Create a common device diagnostic application
- Viewer and QoE metrics
- Environmentally Sustainable

Timeline

- Create and agree outline manifesto
- Kick off and initial plan/schedule
- Key manifesto requirement definition
- Published requirements and proposals

Approach

- Define a common workshop framework and invite potential participants
- Align objectives and industry participants around core requirements for each manifesto item
- Identify and agree commercial and technical requirements
- Assign leaders for each manifesto item and agree workshop participants for commercial and technical streams
- Define and agree core requirements/specification for each item
- DTG to:
 - Co-ordinate and manage delivery of IP manifesto across all modules
 - Identify common requirements and align activity progresses
 - Publish and maintain manifesto standards and definitions

Our current workstreams

DTG TV Transformers Research



The TV Transformers research project serves to support and guide the TV industry to make best use of disruptive technologies. These technologies have the potential to affect key aspects of the TV landscape including its infrastructure, partnerships, economics and customer behaviours. We use research, discussions and strategic planning to support key stakeholders in how they negotiate this dynamic ecosystem. Here are some key findings on three areas.

High bandwidth connectivity

The first release of 5G is predicted to be during 2019. There is growing consumer anticipation and expectation for the emergence of this new technology and what it will enable in terms of media formats and consumption. What would we do with unlimited bandwidth?

Roundtable findings

- Skepticism towards 5G hype
- Little appetite for 5G TV use cases
- Investment in 5G will be in other Industries (e.g. high data rate IoT)
- Issues of scale
- B2B benefits (e.g. remote broadcasting)

Background research

- 5G hailed as the infrastructure that will support the data exchange
- Aggregation to deliver better and new TV experiences for consumers e.g. immersive, live, events

Personalisation

Personalised content recommendations and advertising are established in internet-delivered TV services. Advertising and content recommendations can now be tailored to the consumer's demographics and viewing habits. What does this mean for traditional TV advertising?

Roundtable findings

- Insufficient data to personalise linear broadcasting
- Basic targeting using demographic data unlikely to change in the near future
- Consumer perceptions
- Ethical concerns

Background research

- Changes in viewing habits and expectations
- Fewer, more relevant ads
- Accessing content is shifting to more personalised means



Discovery in a converged media world

PSB prominence on EPGs is protected through regulation and implemented universally through the DTG D-Book. But consumer behaviour and expectations are changing. To what extent is regulation possible or desirable in a world where consumers rely less on EPGs? And what are the appropriate means of maintaining prominence in this new environment?

Roundtable findings

- Need for frictionless consumer experiences
- Personalised navigation mechanisms (e.g. voice control) seen as viable options
- Who judges what is good content?
- PSB prioritisation

Background research

- Rise of online streaming, shift in viewer habits, content overload
- Optimise user experience vs. PSB content
- Algorithms, voice control, digital assistants



Our current workstreams

Working groups making a difference

Working Group	Group Aims and Objectives
Accessibility Group	The Accessibility Group provides a forum for parties interested in access to broadcast services, producing guidelines for such items as remote control and UI design, audio description requirements, text-to-speech and other technologies to make broadcast services available to all viewers and listeners.
Displays Group	The Displays Group was set up to provide up to date information on changing displays technology for the use of DTG members. It also works with industry to provide the best public information on HD and UHD display requirements. The output of the group comprises papers on current Displays technology as new technologies are introduced, including information on HDMI standards and facilities and AFD switching.
DTT Platform Steering Group	The DTT Platform Steering Group (PSG) is responsible for developing and maintaining the interoperability requirements for broadcast and hybrid receivers, published in the D-Book, based on the platform network requirements. A set of sub-groups provide technical expertise to maintain different parts of the overall specification. The PSG reports to the Technical Oversight Group.
DTT Platform Test Group	The Platform Test Group (PTG) defines conformance requirements for D-Book not covered by other specialist working groups. This mainly consists of SI/PSI and video, audio and subtitles. The group agrees the test specifications, with implementation and maintenance of test materials overseen by DTG Testing.
Interactive Services Working Group	Interactive Services covers HbbTV and MHEG technology as specified in D-Book. It maintains the profiles of these technologies and agrees the receiver conformance requirements, including test suites and the use of representative applications to give an early indication of features in the planned application rollouts by broadcasters.
Next Generation Audio Study Group	The study group's goals are to summarise current technologies, implementations and platform support for NGA both nationally and internationally, to provide an overview of the situation regarding standards and specification development and to understand current and possible future use cases.
PMSE Implementation Group	The PMSE (Programme Making and Special Effects) Implementation Group was formed to ensure the current production level of major television, theatre, and special events such as concerts is maintained following 700MHz clearance. The group is responsible for helping to minimise disruption to PMSE activities arising from 700MHz clearance, ensure that spectrum allocation for PMSE audio is viable. If not, investigate and propose new alternatives to Ofcom to ensure PMSE can flourish in the future. The group acts as an independent body to collaborate with the industry to make PMSE front-and-centre during decision making by government and regulators.

Our current workstreams

Working groups making a difference

Working Group	Group Aims and Objectives
Production Systems Group	A sub-group of the UHD Forum, the Production Systems Group focuses on the architecture and profile of production-side requirements for HD and UHD broadcast, including items such as system frame rates, timing and lip sync requirements.
Receiver Requirements Group	The Receiver Requirements Group defines the minimum requirements for a set of hybrid DTT and IP receiver profiles, based on the D-Book specification. These profiles form the basis of Freeview trademark requirements.
RF Group	Aim is to propose, discuss, and implement RF conformance testing in the D-Book chapters 9 and 10 to provide assurance to the DTT industry that receivers can operate successfully in today's and future spectrum environments.
SI Group	DTG SI Group defines the profiles of DVB service information used on the platform and fills in the gaps where necessary, such as LCNs.
Dynamic Spectrum Access Forum	Provides an open forum for participants to cooperate on the identification of opportunities to utilise spectrum more efficiently through new applications and spectrum sharing.
Technical Oversight Group	The role of the Technical Oversight Group is to coordinate and share the work of the various DTG workstreams, acting as a communications path between the various technical groups and Council.
UHD Forum	The UK UHD Forum acts as the oversight between the DTG and various international groups covering the development and deployment of UHD video and Next Generation audio services.
In-home Network Group	The group provides information on in-home distribution and consumption of IP-based entertainment services. This includes details of available technologies and considerations for installation. It maintains a profile of DLNA specifications for content distribution.
IP Delivery Group	A newly formed group, the IP Delivery Group will consider the requirements for reliable IP delivery to the home over wired and wireless technologies for the purposes of video entertainment.

DTG Testing

Where standards are set

DTG Testing is a vital resource for the TV and IP industries and a trusted partner to the regulators. The team works daily to maintain standards across digital TV platforms so innovators, retailers and broadcasters know they are working with certified manufacturers and devices they can trust.

DTG Testing was founded in 2000 and is not-for-profit, with all surplus reinvested to provide world-leading test and conformance services. As the needs of the industry have developed, the activities of DTG Testing have expanded to include:

- Conformance testing of digital terrestrial (Freeview), digital satellite (Freesat) receivers, DAB radios (DAB Tick Mark), Radio Equipment Directive (ETSI RED), and 4G filters (at800) for the UK and international markets
- Development of test suites for use by manufacturers
- Conformance testing of digital radios and LTE (4G) / DTT co-existence testing using a GTEM cell

The Test Centre plays a significant role in the development of the Freeview and Freesat platforms, providing testing services to broadcasters, platform operators and manufacturers and developing test tools with its industry partners. Their test and conformance tools underpin not only the Freeview HD, Freeview Play, Freesat+, Freesat HD and Freeview New Zealand services, but also other platforms and manufacturers to ensure viewers receive a high level of product performance and functionality.

Visit the Zoo

The Zoo at DTG Testing is the UK's only comprehensive testing and accreditation centre for digital TV devices and services. It houses the UK's largest collection of representative samples of Freeview receivers. The collection has been used to support the UK digital switchover by gathering data about the capability of receivers deployed in the UK and is used by developers of interactive application testers for pre-transmission testing, and hardware developers to investigate device interoperability.

The Demo room offers DTG Members access to all of the UK TV platforms in a relaxed living room environment.

The Zoo is open to members and non-members. Find out more at dtgtesting.com



Our Ways of working



Continuity

We are committed to protecting and enhancing the viewer experience. We will endeavour to make the best use of industry knowledge and connections and be as sustainable as possible in everything we do.



Organisational identity

We will protect and make best use of the DTG's reputation and identity to further our cause.



Financial prudence

We remain dedicated to ongoing efficiency and financial control.

Innovation

We will develop and reinforce our innovation culture by dedicating resources and consolidating talent to exploit innovative solutions to problems.

Continuous Improvement

We remain committed to improving our processes and ways of working within our Continuous Improvement framework.

Structure

We will ensure our organisational structure is aligned to delivering support in the most effective way to our members.

Systems

We will introduce and improve the necessary systems and processes to support our work.



Our long-term goals The difference we want to make



Keep listening, engaging and collaborating across industry



Understand and take inspiration from the international market



Help drive and support innovation across new technologies in the market



Become a resource centre for start-ups and SME's



Ensure we stay relevant and aware of disruptive entrants



Our future direction

Ensuring the future of UK television

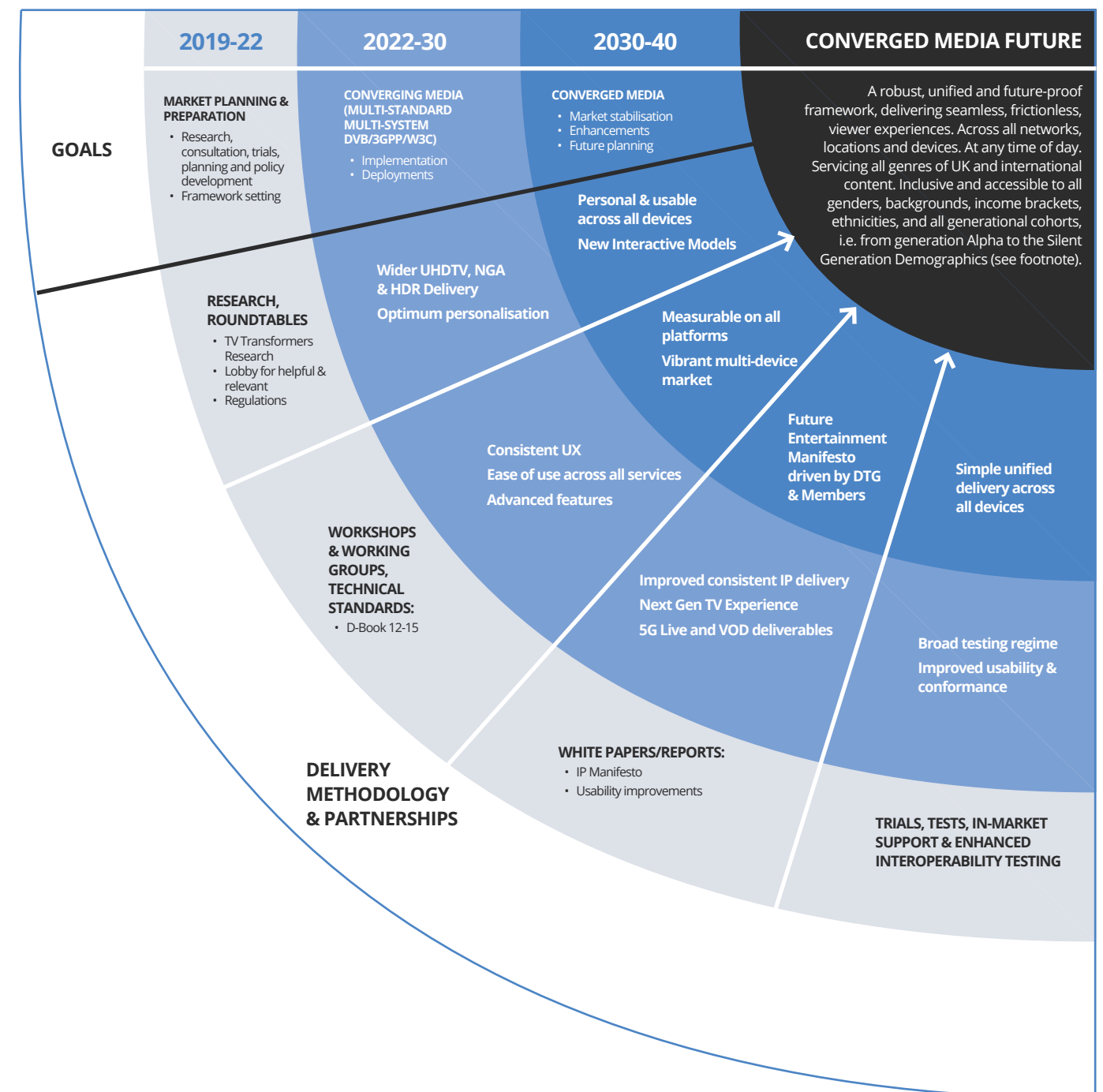
As the horizontal market evolves, we must focus our efforts on protecting the UK digital TV landscape, while evolving with it.

We need the collaboration of all sectors of the industry – from studios, broadcasters and online streaming services, to device manufacturers, telecommunications companies and the government. Working together will offer the UK and the rest of the globe the ability to utilise each new technology as it is – invented for the best viewer experience.

Creating a sustainable future for the media industry

A centre of UK digital TV, with a growing commitment to television in a converged media world. Using our expertise to work in partnership locally, nationally and internationally to create a high quality, reliable and resilient future television experience for all viewers.

Developing our viewer-centric, long-term goals



Interoperability and usability across all delivery methods & platforms, leading by collaboration & openness.

Demographics: Alpha: Below 6 | Z (iGen): 7 to 24 | Y (Millennials): 25-39 | X (Baby Boomers): 40-54 | Baby Boomer: 54-73 | Silent: 74-94 | Greatest: 95+

Our funding **A uniquely valuable resource**

The DTG is a not-for-profit entity funded primarily through membership fees which it invests in various critical member benefits and services. Any surplus is reinvested in activities to support all its members.

The value we provide to members

- **The D-Book publication** is the technical standard that ensures leading edge interoperability across the UK TV industry.
- **Our roundtables**, working groups and events provide members with opportunities to make connections, maintain working relationships and discuss issues that affect a diverse community of peers.
- **Regular newsletters**, publications, blogs and updates on industry issues and outcomes give members timely and relevant information from an expert and impartial source.



DTG Testing is a member-focused resource

The DTG also owns and operates its subsidiary, DTG Testing, which delivers technical expertise and conformance resources across all devices and platforms on a pay-as-you-use basis to all customers. It's the only centre of its kind in the UK.

DTG Testing reinvests and distributes any surpluses to the DTG, providing further value for its members and helping to safeguard its financial future. Members are encouraged to utilise DTG Testing facilities as much as possible as only ongoing use will enable DTG Testing to thrive and ensure that it remains competitive in the market.

Looking to the financial future

In order to meet our long-term aims, DTG continues to employ effective cost control and seek additional income. We ensure funds are applied appropriately and secure funding for additional projects that go beyond delivery of the D-book. We continue to make financial savings, mainly through continuous improvement techniques, to secure the future of the DTG.

Income

Membership income associated with traditional activities is expected to remain relatively flat, with the income growth being sought from a focused range of new activities. We are committed to exploring new activities to maintain member engagement and value to assure our financial sustainability.

Expenditure

All overhead expenditure is controlled and measured against pre-set budgets and KPIs to 2019. Capex is tightly controlled and has been relatively low in recent years. We invest in technology to improve our operational capability and information management, keeping members more informed.

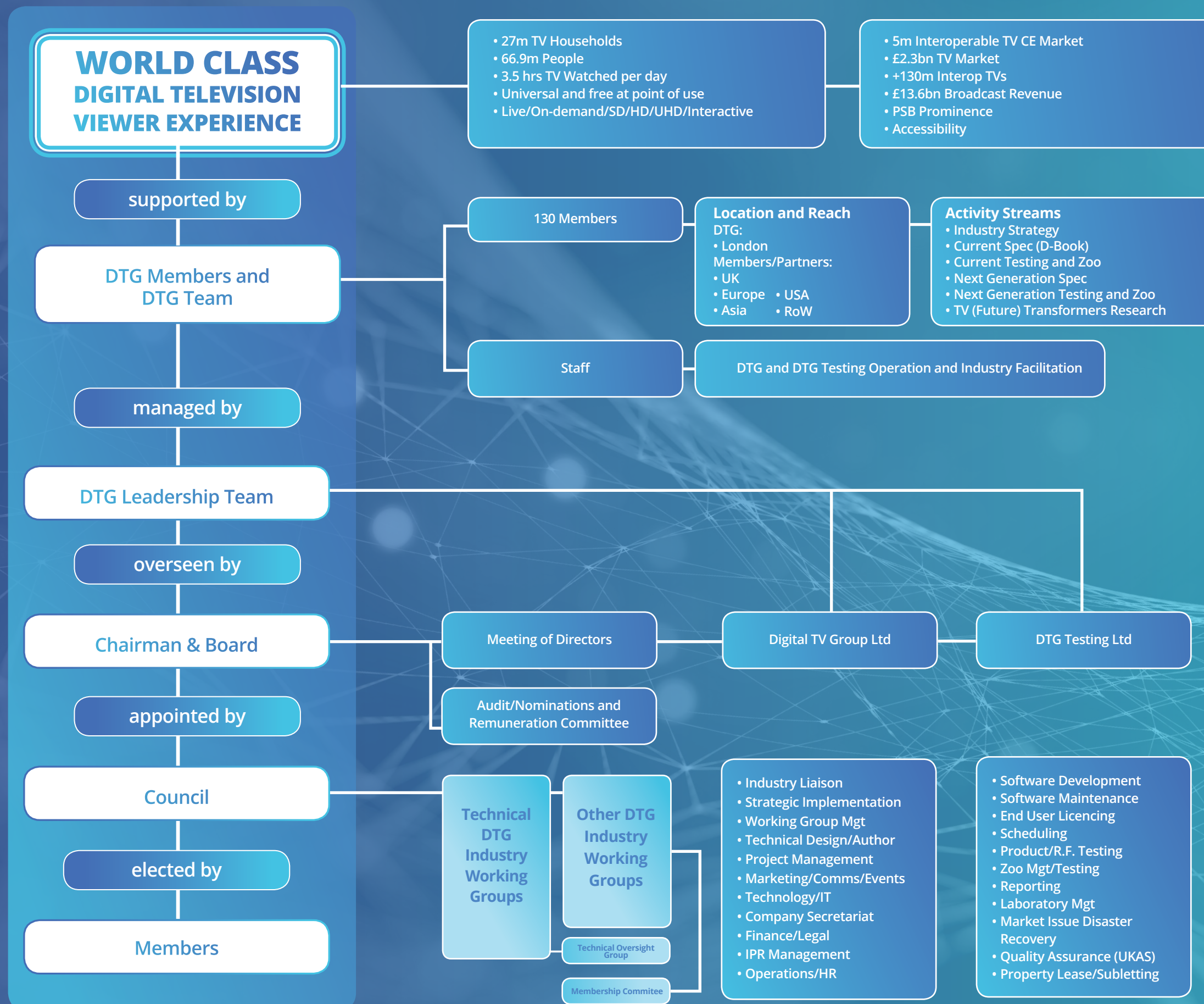
Assets

DTG reserves are substantially held in cash and some fixed assets. We will continue to adopt a cautious, prudent and well diversified strategy to balance member benefit with appropriate risk, always seeking to secure additional funding for bespoke projects rather than reduce reserves.



Governance and management structure

Our objective is to increase the value generated by the DTG by increasing the level of engagement from senior industry executives and thereby ensuring regular positive engagement from DTG members, taking the opportunity to, where appropriate, streamline and modernise governance in line with the best practice.





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