

INTERNATIONAL ORGANISATION FOR STANDARDISATION
ORGANISATION INTERNATIONALE DE NORMALISATION
ISO/IEC JTC 1/SC 29/WG 11
CODING OF MOVING PICTURES AND AUDIO

ISO/IEC JTC 1/SC 29/WG 11 **N18653**

Geneva, CH – October 2019

Source:	Requirements
Title:	Presentation of MPEG Standardisation Roadmap
Status:	Approved, Public



MPEG Standardisation Roadmap

October 2019

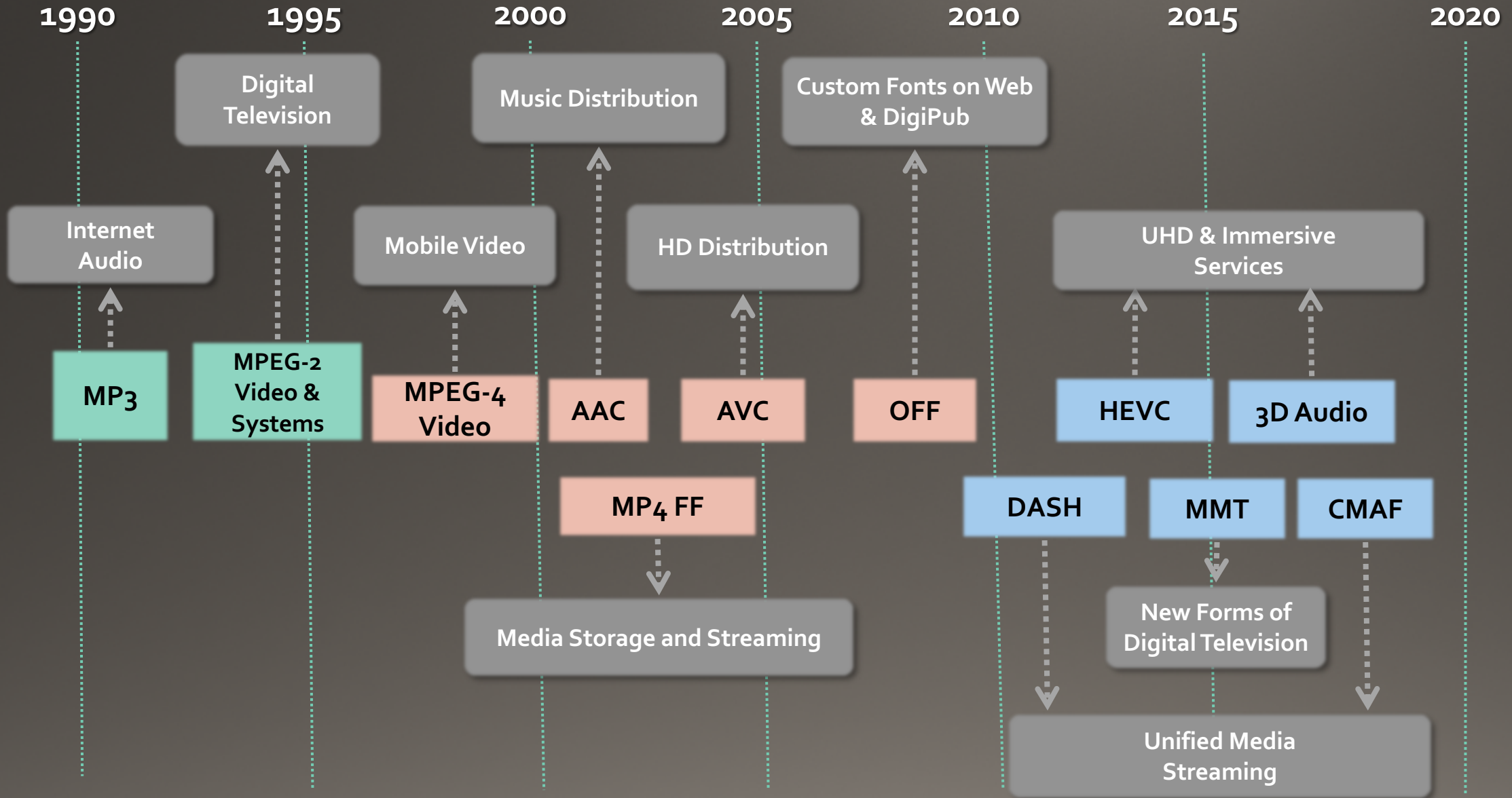
Why a Standardisation Roadmap?

- MPEG has created, and is still producing, media standards that enable **huge markets to flourish**
- MPEG works on **requirements from industry**
- Many industries represented in MPEG, but not all of **MPEG's customers** can or need to participate in the process
- MPEG wants to inform its customers about its **long-term plans** (~ 5 years out)
- ... and **collect feedback and requirements** from these customers
- **Comments** on the roadmap are always welcome

What is in the Roadmap

- Our roadmap is a short document.
- It briefly outlines MPEG's most important standards

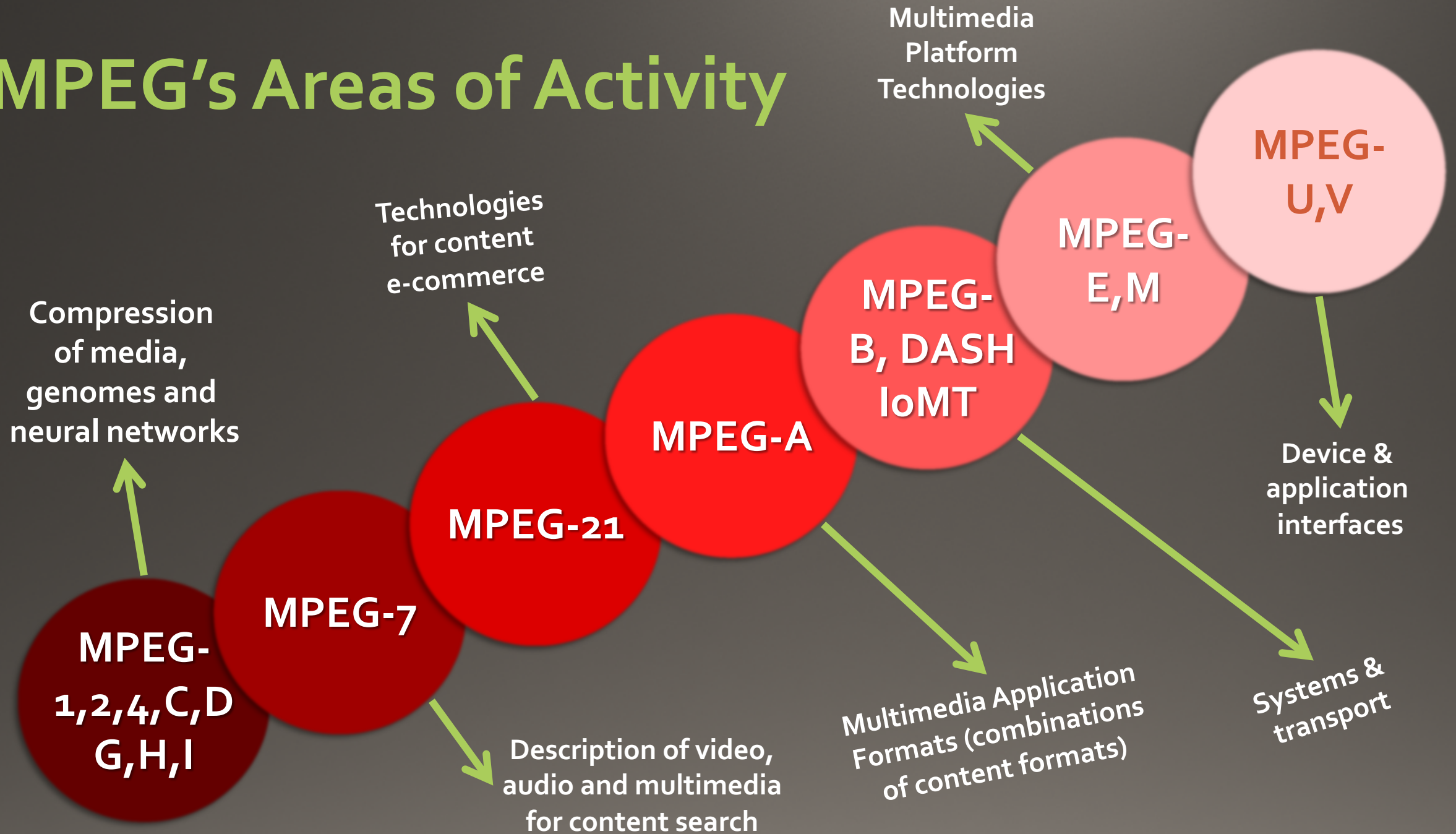
Major MPEG Standards



What is in the Roadmap

- Our roadmap is a short document.
- It briefly outlines MPEG's most important standards
- ... it then gives an overview of MPEG's activities

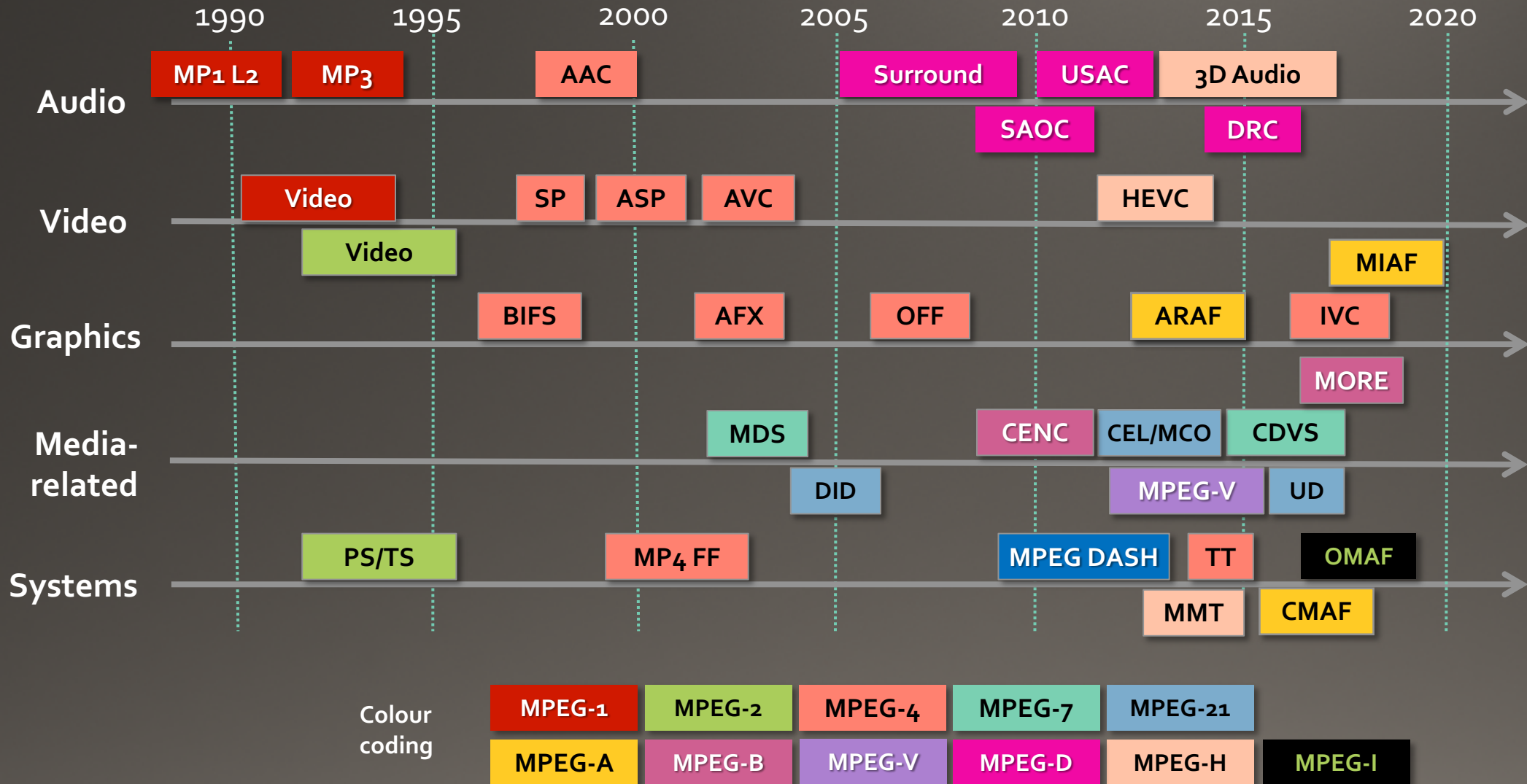
MPEG's Areas of Activity



What is in the Roadmap

- Our roadmap is a short document.
- It briefly outlines MPEG's most important standards
- ... it then gives an overview of MPEG's activities
- ... and then an overview of all MPEG's standards

More Detailed Overview of MPEG Standards



All acronyms are explained in the companion document to this presentation

Significant Developments Shape MPEG's Roadmap

- The relentless increase of IP-distributed and Mobile media
- Higher quality media
- More immersion (UHD, VR, AR)
- The Internet of Media Things & Wearables
- Cloud-based media processing, storage and delivery
- New, high-speed networks including fibre and 5G mobile

5-Year Planning

Jan 2019

2020

2021

2022

2023

Jan 2024

Media Coding

Beyond Media

Systems and Tools

Genome Compression

Genome Annotation Compression

Neural Network Compression for Multimedia

Colour Support in Open Font Format

Essential Video Coding (MPEG-5)

Low Complexity Enhancement Video

Versatile Video Coding

3DoF+ Video (MPEG Immersive Video)

6 DoF Video Extensions

Video Point Cloud Compression (V-PCC)

Dynamic Mesh Compression

Geometry Point Cloud Compression (G-PCC)

G-PCC v.2

6 DoF Audio

Scene Description Interface

Scene Description v.2

PCC Systems Support

Video Decoding Interface

OMAF v.2

OMAF v.3

Network-Based Media Processing

CMAF v.2

Partial File Format v.2

Web Resource Tracks

Internet of Media Things

MPEG-I (ISO/IEC 23090)

Coded Representation of Immersive Media

Parts:

1. Architectures for Immersive Media (Technical Report)
2. Omnidirectional Media Format (OMAF)
3. Versatile Video Coding
4. Immersive Audio
5. Video-based Point Cloud Compression (V-PCC)
6. Metrics for Immersive Services and Applications
7. Metadata for Immersive Services and Applications
8. Network-Based Media Processing
9. Geometry-based Point Cloud Compression (G-PCC)
10. Carriage of Video Point Cloud Data
11. Implementation Guidelines for Network-based Media Processing
12. MPEG Immersive Video (*working title*)
13. Video Decoding Interface for Immersive Media
14. MPEG-I Scene Descriptions

Versatile Video Codec – Timeline (MPEG-I part 3)

Collection of test material	Jan 2017
Final Call for Evidence	Apr 2017
Assessment of CfE responses	Jul 2017
Final Call for Proposals	Oct 2017
Subjective tests	Apr 2018
Working Draft	Apr 2018
Committee Draft	Jul 2019
Delivery of standard (Final Draft International Standard)	Jul 2020

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Media Coding

Versatile Video Coding

3DoF+ Video (MPEG Immersive Video)

Video Point Cloud Compression (V-PCC)

Geometry Point Cloud Compression (G-PCC)

Scene Description Interface

PCC Systems Support

Video Decoding Interface

OMAF v.2

OMAF v.3

Network-Based Media Processing

MPEG-I Phase 2a MPEG Media for 6DoF

Systems and Tools

MPEG & 5G

- Viewport-Adaptive Streaming
 - Benefits greatly from fast edge response times
 - OMAF v.2
- Immersive Media Access and Delivery
 - Finer granularity access for huge media data volumes
 - Partial retrieval of partially visible and audible scenes
 - Fast network responses for immersive and interactive media
- Partial (“split”) or Complete Edge Rendering
 - Do heavy lifting in network, save on processing in mobile devices
 - Allowing very sophisticated media to be consumed with reasonable device power use
 - Mixing immersive feeds for real-time communication
- Network-Based Media Processing
 - Using the network and the edge to support media processing
 - Network-based, last-second media personalization
- IOT
 - Internet of Media Things

Jan 2019

2020

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2023

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Media Coding

Media Coding & Systems for 5G

Versatile Video Coding

3DoF+ Video (MPEG Immersive Video)

Video Point Cloud Compression (V-PCC)

Geometry Point Cloud Compression (G-PCC)

Dynamic Mesh Compression

6 DoF Video Extensions

G-PCC v.2

6 DoF Audio

Scene Description Interface

Scene Description v.2

PCC Systems Support

Video Decoding Interface

OMAF v.2

OMAF v.3

Network-Based Media Processing

Internet of Media Things

Systems and Tools