

Feature Sponsorship as an Alternative Development Model

Funding common tools: the MediaInfo experience

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Context

MXF workflows also rely on a few common open-source tools

- Writing: bmx, FFmpeg...
- Inspection: MediaInfo
- Embedded in many products, open-source and proprietary

MediaInfo: since 2002, BSD 2-Clause permissive license

Millions of users, few funders

Free to use does not mean free to make

Problem statement

New needs every year

New profiles (e.g. ARD-ZDF XDF), ADM and S-ADM, HDR metadata, C2PA...

Each one needs specifications, sample files, development, then maintenance

How to get a specific feature in a tool everybody already uses?



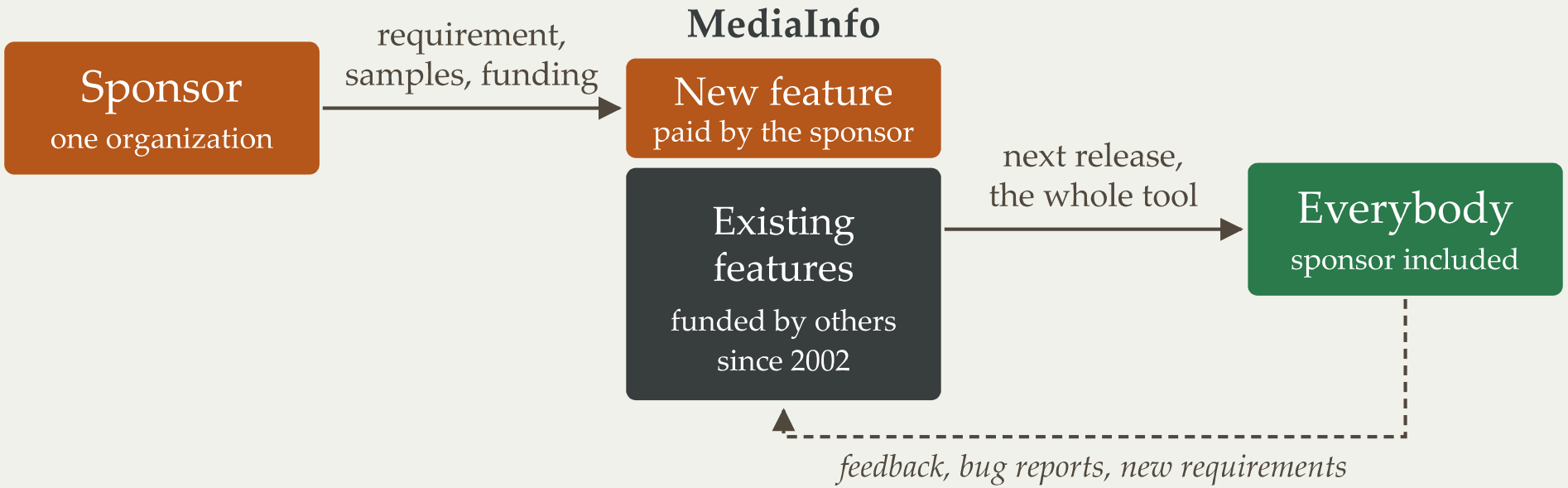
Options for a new need

	Cost	Timing	Available to	Maintenance
In-house development	Full development	Internal planning	You only	You
Proprietary product	License	Vendor roadmap	Customers	Vendor
Wait for the community	None	Unknown	Everybody	Uncertain
Feature sponsorship	**The new feature only**	**Agreed date**	**Everybody**	**Project mainline**

Not exclusive: most organizations use all of them

Feature sponsorship

An organization funds a specific analysis, validation or interoperability feature in an open-source tool



The sponsor pays for one feature, and gets the whole tool

How it works

A typical sponsored feature



Developer: the maintainers or anybody else. Open code: forks are possible

Then: maintained with the rest of the code, tested with every release

Lesson learned: sample files matter as much as specifications

Benefits

For the sponsor

- Pays for one feature, gets the whole tool
- No fork to maintain: the feature stays in the mainline
- Partners and suppliers use the same tool and see the same information

For everybody

- The feature, at no cost
- Priorities follow concrete industry needs
- More users, more files, more bug reports: better quality, for the sponsor too

Use cases

Examples of sponsored features

2010-2020	MXF related updates, several updates on other formats, lots of QC	Digimetrics
2011	MXF: fix for some files not analyzed	maxnine.com
2014-2017	Matroska and FFV1 conformance checkers, MediaConch	PREFORMA project (EU funding)
2015	**EBUCore 1.6 output, AS-11 UK DPP HD to EBUCore mapping**	**EBU**
2018	PBCore 2.1 export	WGBH (NEH-funded project)
2018-2025	E-AC-3 fixes, Dolby Atmos, AC-4, S-ADM, ADM profile checks	Dolby
2020	MPEG-H 3D Audio support	
2021	**First ADM development, ADM graphs, ADM conformance checks**	**EBU**
2022	FFV1 in MXF, with participation in SMPTE RDD 48 Amd 1 drafting	Library of Congress
2023	USAC (xHE-AAC) conformance checker	
2024-2026	Interlaced JPEG 2000 in MXF, basic C2PA (JPEG, PNG, WAV, MP4)	Library of Congress
2026	More integrity/coherency checks: MP3, AVI, MPEG-PS/TS, MOV/MP4	Austrian Mediathek

Same model for other tools, e.g. RAWcooked: initial development sponsored by Reto.ch, improvements by a pool of 50+ archives, thanks to a license key on the executables (source code still open source)

What everybody gets

MediaInfo 26.10, MXF file with S-ADM in MGA (excerpt)

```
General
Format                                   : MXF
Format profile                           : OP-1a

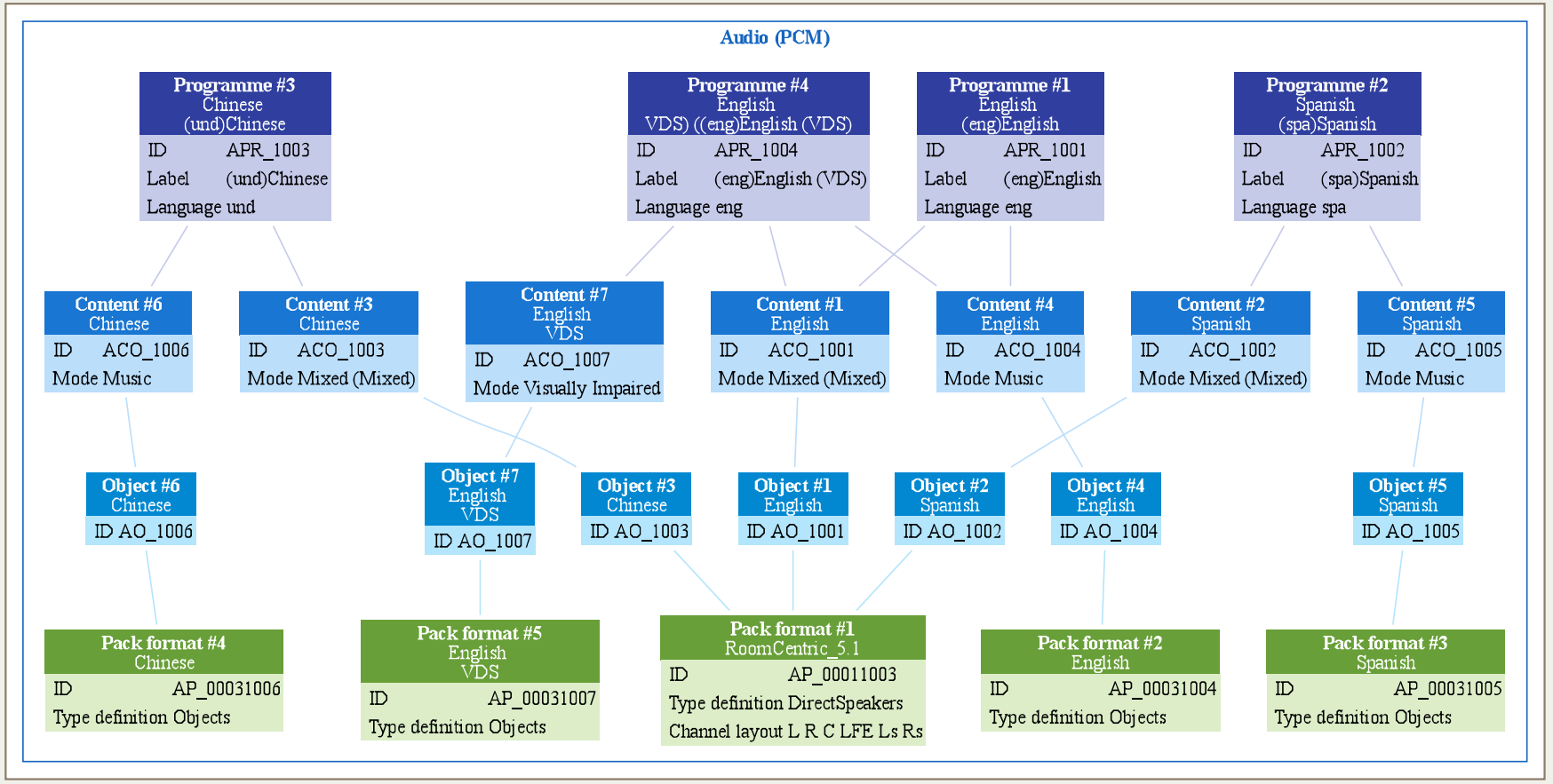
Audio #4
Format                                   : MGA
Channel(s)                               : 10 channels
Metadata format                          : S-ADM, Version 1 / ADM, Version 3
Metadata muxing mode                     : SMPTE ST 2127-1 / SMPTE ST 2109 / SMPTE ST 2127-10
ADM profile                              : AdvSS Emission, Version 1.0.0, Level 1
Number of programmes                     : 1
Number of track UIDs                     : 10
Programme #1                             : VF-5.1.4 ((fre)VF-5.1.4)
 Integrated loudness                     : -23
```

ADM profile detected, then checked: no ADM conformance error in this file

Basic MXF inspection and conformance information, at no cost, for millions of users

ADM graphs

Sponsored by the EBU: the ADM structure at a glance, for everybody



ADM in MXF, step by step

From display to conformance checking

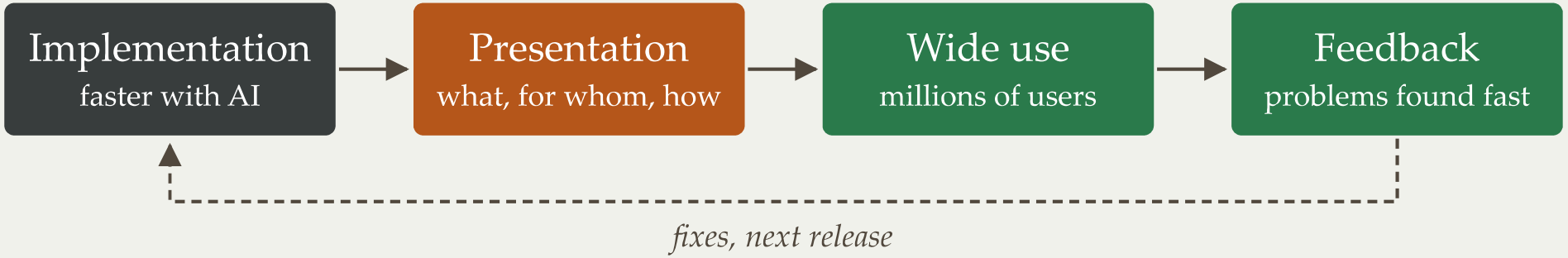
		Sponsor
2021	First ADM development, WAV and MXF: programmes, contents, objects... and core conformance checks	EBU
2021	**ADM graphs**	**EBU**
2021-2023	S-ADM in AES3, in MGA in MXF (SMPTE ST 2127-1, ST 2109, ST 2127-10)	Dolby
2024-2025	**ADM conformance checker: Dolby E, Atmos and AdvSS Emission, cross-check**	**Dolby**

```
Conformance errors                    : 36
 audioProgramme #1                    : 3
  loudnessMetadata #1                 : 3
   loudnessMethod                     : loudnessMethod attribute is present
                                        (additional constraint from AdvSS Emission v1)
   loudnessRange                      : loudnessRange element is present
                                        (additional constraint from AdvSS Emission v1)
   maxTruePeak                        : maxTruePeak element is present
                                        (additional constraint from AdvSS Emission v1)
 audioProgramme #2                    : 3
[...]
```

What AI changes

Implementation: faster and cheaper

Example: XDF-02 draft (v0.5, October 2026), check implemented in a couple of hours (human time spent on coherency verification and double checks)



What matters more now: presentation, and the number of users

Open source and wide use help: more files tested, problems reported faster



XDF-02 check

MediaInfo development version, ARD-ZDF XDF-02 draft: "Compliant with" field

```
General
Format                                   : MXF
Format version                           : 1.3
Format profile                           : OP-1a
Format settings                          : Closed / Complete
Compliant with                           : ARD_ZDF_XDF-02
```

Not compliant? The reason: `mediainfo --MxfProfile=ARD_ZDF`

```
General
Format                                   : MXF
Format version                           : 1.3
Format profile                           : OP-1a
Format settings                          : Closed (header: Open) / Complete (header: Incomplete)
Conformance errors                       : 1
 MXF                                     : Yes
  MxfProfile                             : ARD_ZDF_XDF-02: Header Partition status is wrong
                                           (actual Open Incomplete, expected Closed Complete)
```

What AI does not do

AI helps a lot, but takes no responsibility for the future of a product

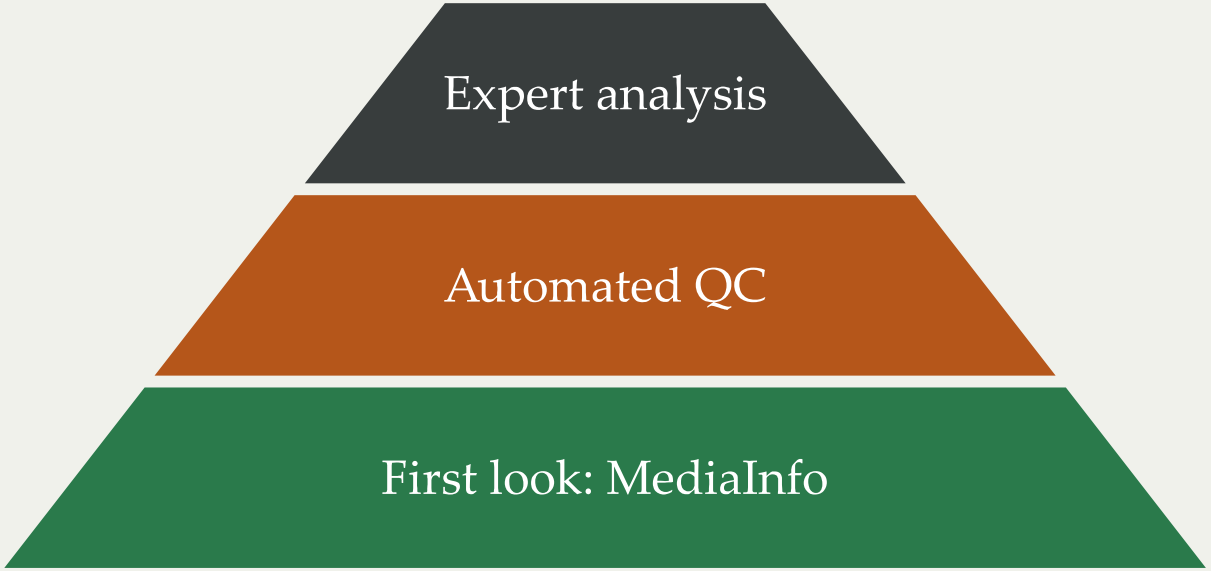
- Not a product manager: no roadmap, no decision on what to refuse upstream for long-term maintenance
- Does not choose between incompatible pull requests
- Does not settle an ambiguous specification: this is what a Plugfest is for
- Does not sign a contract, does not answer for a wrong result
- Does not commit to years of maintenance and compatibility

Costs are reduced, not removed

Somebody still has to decide, maintain and answer

In-house? No invoice, but staff time has a cost too. Really cheaper?

Complement, not compete



Specialized tools
expert users, full depth

QC products
baseband and more complex QC
and analysis, reports, support

At no cost, everywhere
millions of users

A shared baseline helps everybody: users learn when a full QC is needed

Vendors sponsor too: Digimetrics (QC) for MXF, Dolby for ADM profile checks



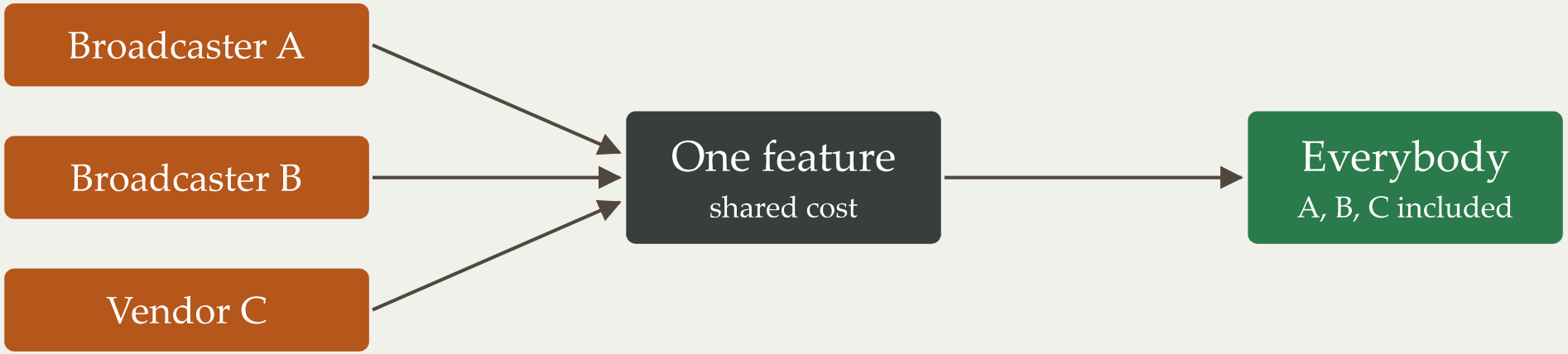
Developer dependency?

Open code and license: anybody can contribute, fork or take over

- Source code in a public repository, under the BSD 2-Clause permissive license
- Sponsored features are in the same public code, under the same license
- Another company or an in-house team can implement the next feature

Pooled sponsorship

Same need, several organizations, shared cost



Shared needs for MXF?

Candidates, from this Plugfest's topics

- Delivery profiles: ARD-ZDF HDF, SDF and XDF checked, which others?
- ADM and S-ADM, and others, in MXF: more checks and crosschecks
- Growing files: status and consistency
- C2PA in MXF: detection and display (already in JPEG, PNG, WAV, MP4)
- EBU QC cards: wider participation in writing and reviewing them

Which ones matter for you?



Questions for discussion

- Which other MXF checks should everybody have?
- Is baseband analysis needed in open-source tools? By integrating other libraries, open-source or proprietary?
- How can vendors and open-source projects work together?
- Would you co-fund a shared need? Through which group?
- What does your procurement need to fund such work?

Today's features come from sponsors and contributors. The next one could be yours.

Who is interested?



Stay in touch

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