

## 37c – New and Emerging Multimedia Formats

### Action Item Template Response

#### General Action Item Information

Lead Division/Office: Digital Library Program

Action Item Number: 37c

Action Item Short Name: New and Emerging Multimedia Formats

Dependencies with other EP Action Items: 4e, 4f, 70d

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**I.**  
**II.** OVERVIEW.  
**III.**

Through the efforts of the Digital Library Program, the Archives of Traditional Music, and the EVIADA project, IU has well-established technologies and best practices for digitizing, archiving, and accessing collections of texts, images, and audio recordings, and is among the group of institutions at the forefront of establishing tools and practices for video and film. However, there is a growing body of new media formats that are unique to the digital age – be they born digital or acquired through new spatial digitization technologies – that require similar practices. These formats include 2D and 3D CAD and creative geometric models, 3D scans of physical objects and people, 4D motion capture and animation files, and accurate descriptions of materials, light sources, and behaviors. These formats also include advanced forms of video such as stereoscopic, ultra-high definition, and spherical projections, multi-channel audio, and multi-stream telemetry data for experiments and performances. By building on our strengths and expertise in more traditional media forms, IU has the opportunity to be at the forefront of establishing and/or supporting best practices and technologies for these new and emerging media formats.

**IV.** DESCRIBE YOUR PLANS FOR IMPLEMENTING THIS ACTION.

For some of these new media formats, there are established best practices and file format standards that have been developed by the broader national or international user community. In other cases, the technologies are new enough that standards have not yet been established or are just now beginning to emerge. Looking within IU, there are some cases where community standards are actively embraced by service or academic units providing significant benefits and efficiencies. In other cases, there are groups that could be benefitting from established standards that may be unaware of these standards or having difficulty establishing practices or support. In still other cases, standards do not exist, but IU researchers are among the world's thought leaders in the area with the opportunity to contribute to the definition of new standards.

Given this analysis, there are three general classes of user needs at IU, and thus, three general classes of implementation actions:

1. For people who have already embraced standard and good practices, we should seek ways to provide them with additional support or help them better integrate with existing

- infrastructure and support services. In other cases, they may benefit from migrating workflows from closed, commercial standards to open standards to provide better long-term stability and freedom from single-source.
2. For those communities that could benefit from existing standards, we should first seek to educate them on the benefits of adopting standards and common practices. We should then help establish new services or facilitate integration with existing services, and eventually require certain practices as a prerequisite for support.
  3. For those areas without standards and with significant promise, we should assist in the development of those standards.

Examples of IU groups in each of the above classes:

1. Telecomm and Radio/TV - video production and HD standards; Construction Technology (IUPUI), UAO - leaders in technology adoption for CAD, GIS, now BIM
2. Fine Arts, New Media, and Game Design groups - would benefit from standards for models and animation: Collada, FBX, mocap, etc.
3. Psychology, Marketing - becoming experts at multiple stream analysis where no good standards exist yet.

To meet these needs and opportunities, we propose to phase in three new positions over the next three years:

- 3D asset specialist - this individual would support CAD, 3D model (Collada), 3D scans, and motion-capture file formats as well as common formats for materials (MGF), geometry, and lighting (IES) file formats.
- Advanced media specialist - this individual will support the acquisition, editing, and playback of advanced media formats, including digital cinema (4K), stereoscopic, and spherical video. This specialist will also specialize in the capture, analysis, and playback of telemetry streams that result from interactive, improvisational performances and interactive VR and mixed-media installations.
- Interface developer/specialist - this individual will build custom interfaces to permit more intuitive browsing and previewing of media assets using both advanced display environments as well as online repositories supported by DLP and others; will also assist with the development of interactive and mixed-media displays and experiences.

## **II. WHAT ARE THE POLICY AND PRACTICE IMPLICATIONS OF YOUR PLANS?**

1. For users using standards and workflows, we should determine if they can be better integrated with existing UITS and/or DLP infrastructure. For staff running UITS/DLP infrastructure, this could mean expanding capabilities or service levels to meet the unique needs of these communities.
2. For users who should be using standards but are not, appropriate technology groups at IU (UITS or departmental IT) should create workflows and support services around these standards. Eventually, researchers and artists may need to be "persuaded" to adopt these standards by matter of policy or by making them prerequisites for support.
3. For areas without standards, IU technical staff and researchers/artists may need to join national/international working groups to work on the definition of standards. There may be institutional membership costs, and there is certainly the investment of significant personnel time.

## **III. IDENTIFY STAKEHOLDERS.**

The stakeholders among the University user community may be grouped according to similar needs and benefits:

- Architects, interior designers, and lighting designers
- Artists practicing fine and digital arts

- Performance Arts
- Telecommunications, IU Radio/Television
- Engineering, Industrial Design, Marketing
- Interface Designers
- Virtual Worlds and Game Design