

# Timesheets.js: Tools for Web Multimedia

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## Overview

- ▶ A **JavaScript library** for multimedia web documents taking advantage of HTML5 and CSS3
- ▶ Using the relevant features of **SMIL** to bring **timing, synchronization** and **interaction** to **HTML** documents

## Example

### HTML document:

```
<script type="text/javascript" src="timesheets.js"/>
<link href="banner.smil" rel="timesheet"
      type="application/smil+xml"/>
<div id="banner">
  
  
  
</div>
```

### Timesheet (banner.smil):

```
<timesheet xmlns="http://www.w3.org/ns/SMIL">
  <seq repeatCount="indefinite">
    <item select="#banner img" dur="3s"/>
  </seq>
</timesheet>
```

## Features

- Timesheets.js provides:
- ▶ synchronization of HTML content with audio/video objects
  - ▶ content-based navigation
  - ▶ user interaction
  - ▶ custom extensions

## Typical Application

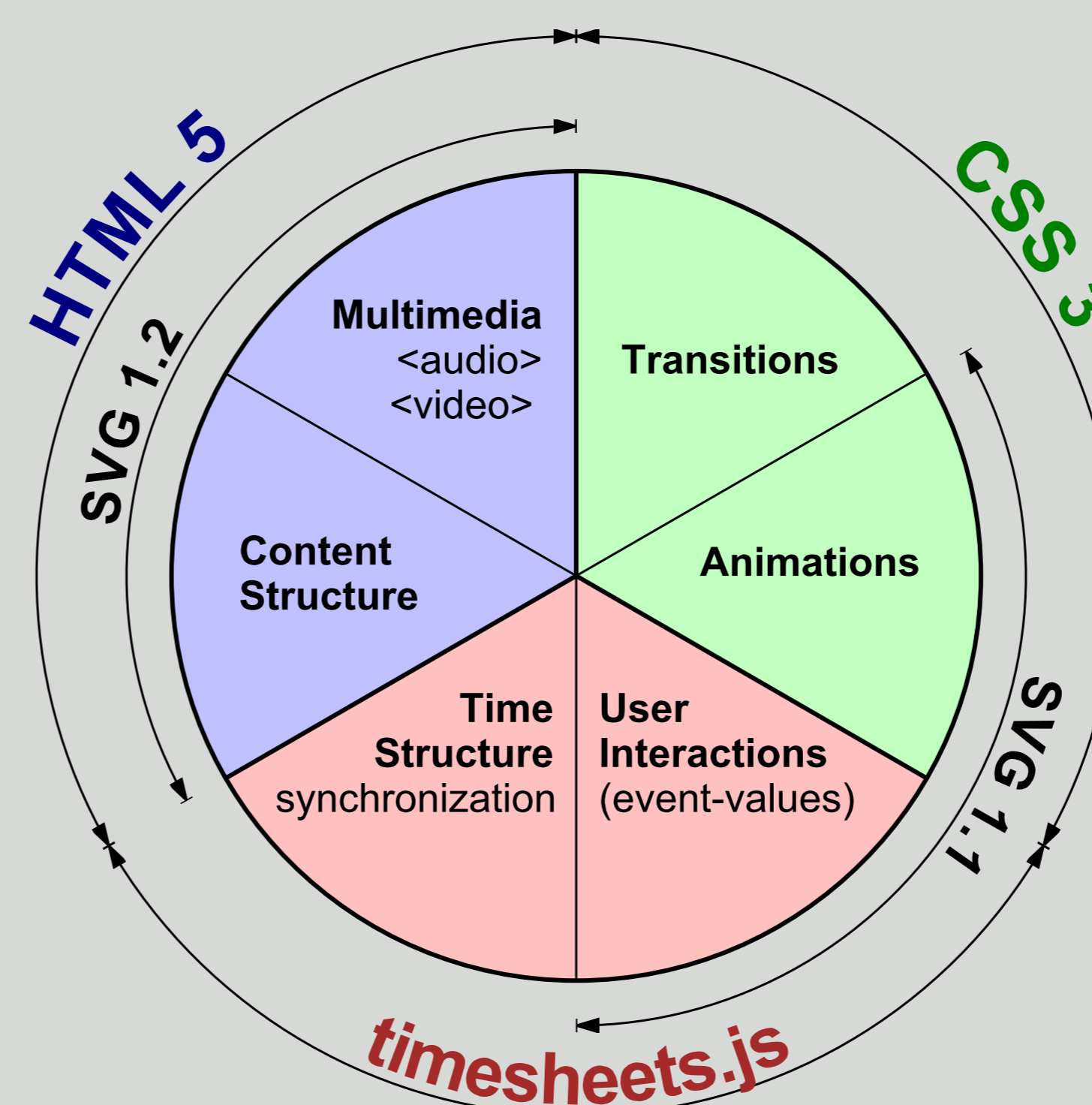
A videotaped conference with slides and table of contents

The screenshot shows a video player interface. On the left, there's a slide titled "Stimulation de la photosynthèse par augmentation du CO<sub>2</sub>". The slide content includes a graph showing "Emissions, concentrations, and temperature changes corresponding to different stabilization targets for CO<sub>2</sub> concentrations" and a table of contents for a presentation on "Impacts sur la production végétale CO<sub>2</sub> et photosynthèse". On the right, a video of a man speaking is visible. The video player controls at the bottom show a progress bar at 0:16:33.

## More Applications

- ▶ Captioned video
- ▶ Slideshow
- ▶ Annotated audio
- ▶ Web documentary
- ▶ On-line radio archive
- ▶ Animated / interactive graphics
- ▶ and more...

## Timesheets.js and Web Languages



### HTML5:

structure, text,  
<video>, <audio>

### SVG:

2D graphics, animations

### CSS3:

transitions, animations

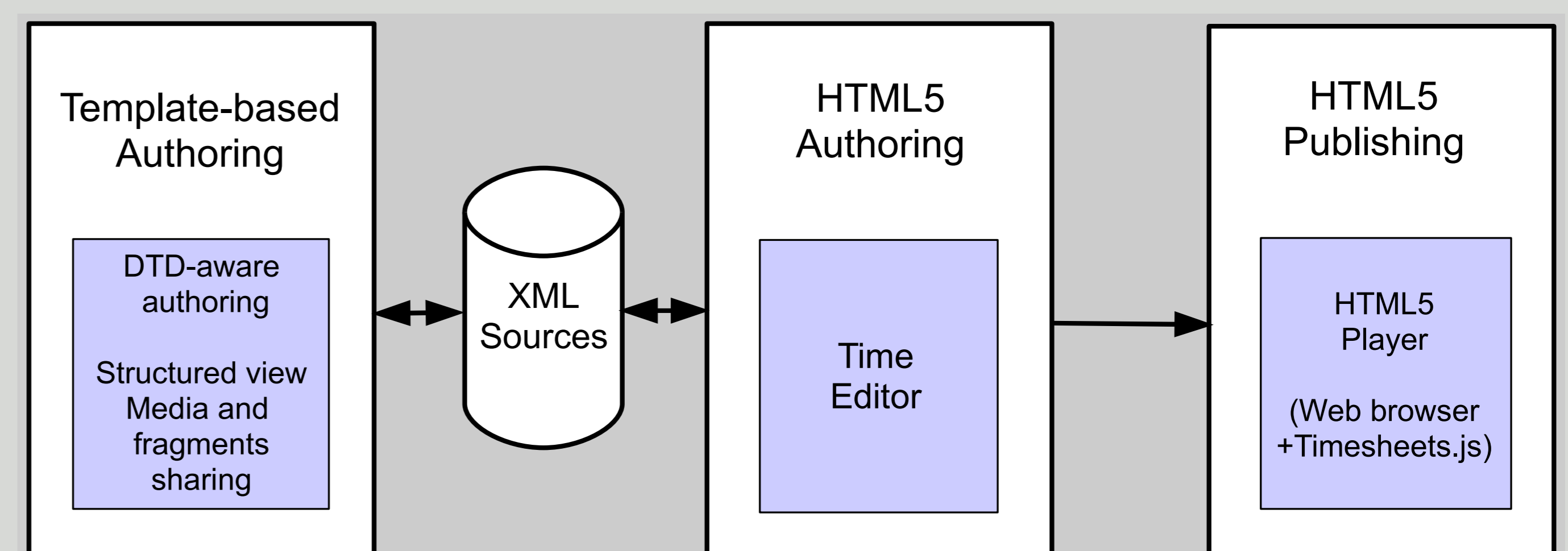
### Timesheets.js:

timing, synchronization,  
interaction

## Main Contributions

- ▶ A new approach
  - ▷ Document editing as opposed to application development
- ▶ Extensions to the W3C SMIL Recommendation
  - ▷ synchronization with HTML5 <audio> and <video> elements
  - ▷ 3-state activation (idle, active, done)
- ▶ Timesheet engine
  - ▷ timing model compatible with continuous media
  - ▷ event-friendly implementation
- ▶ Extensible framework
  - ▷ generic components for multimedia documents
  - ▷ API and events to build applications on top of the timing engine

## Possible Workflow



## Key Benefits

- ▶ Separating content (HTML) / presentation (CSS) / timing (SMIL)
- ▶ Native rendering in all browsers, including mobile devices
- ▶ Stable syntax: W3C Recommendation
- ▶ Declarative user interactions (no JavaScript code to write)
- ▶ No dependency: usable with any development framework
- ▶ Usable by non-developers
- ▶ Extensible by web developers

## Acknowledgements

- ▶ Research funded by the French National Research Agency (ANR), C2M project