A Multiview Tool with Adaptive Delivery to Enable Co-Creation of Opera Shows

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Traction
Opera co-creation for a social transformation

TRACTION Project

Goal: use opera co-creation to address the issue of social exclusion in European societies

3 communities in **3** European countries are involved:

- Immigrants and people with disabilities at the inner-city of Barcelona, Spain

- Young inmates, their families, and prison guards in Leiria, Portugal

- Irish speakers living in Inishmaan, Ireland

➡️ Ensure **sustainable** and **resilient** social transformation for these communities
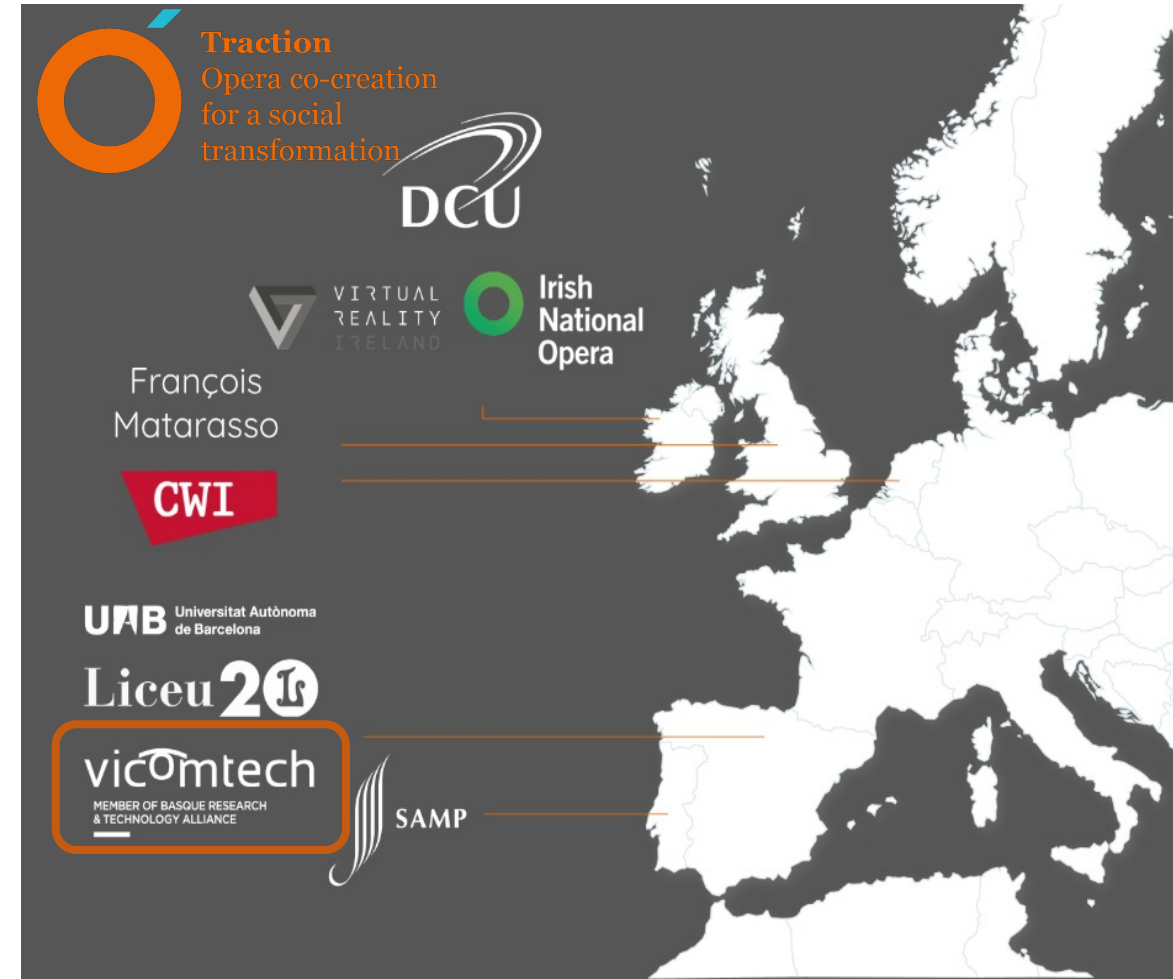
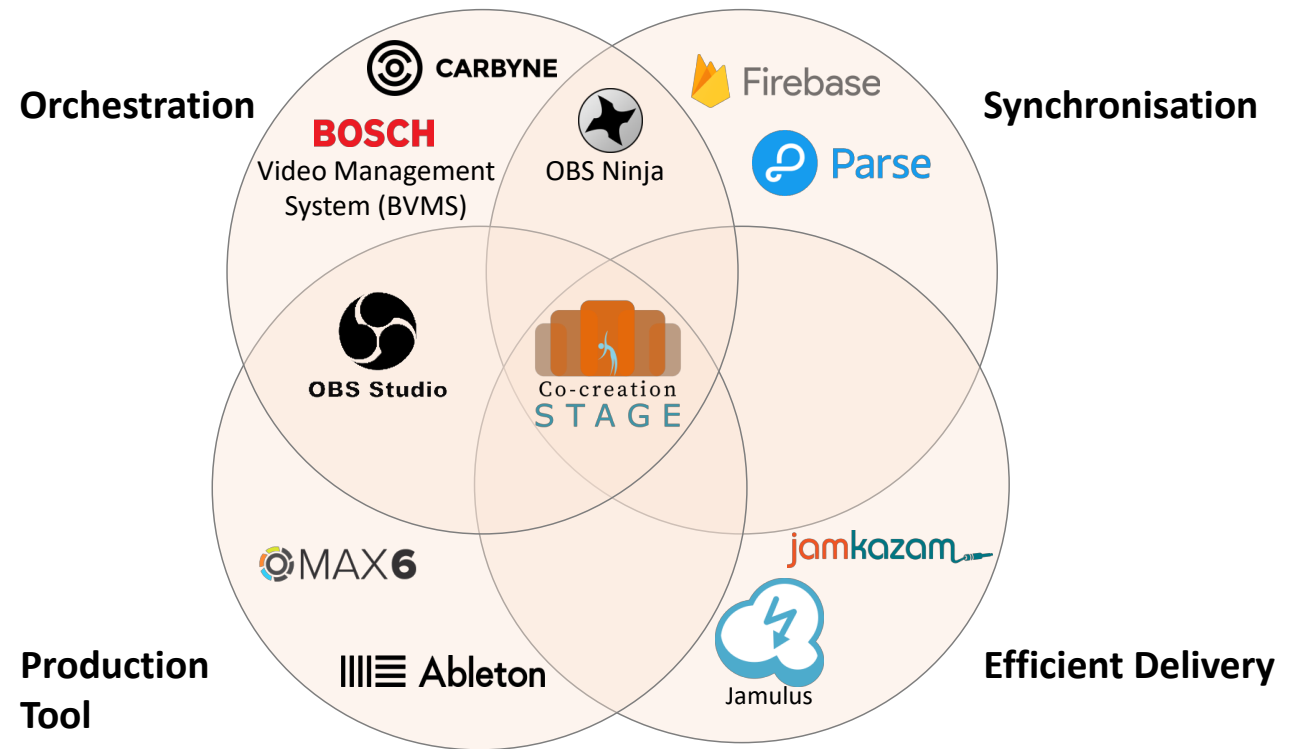https://www.traction-project.eu/   https://twitter.com/TRACTION_EU

https://www.youtube.com/channel/UCjVGLsEuf_Q60-4yqY85qmQ/featured

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Collaborative Artistic Web-based App

- Requirements
  - Orchestration
  - Synchronisation
  - Production functionalities
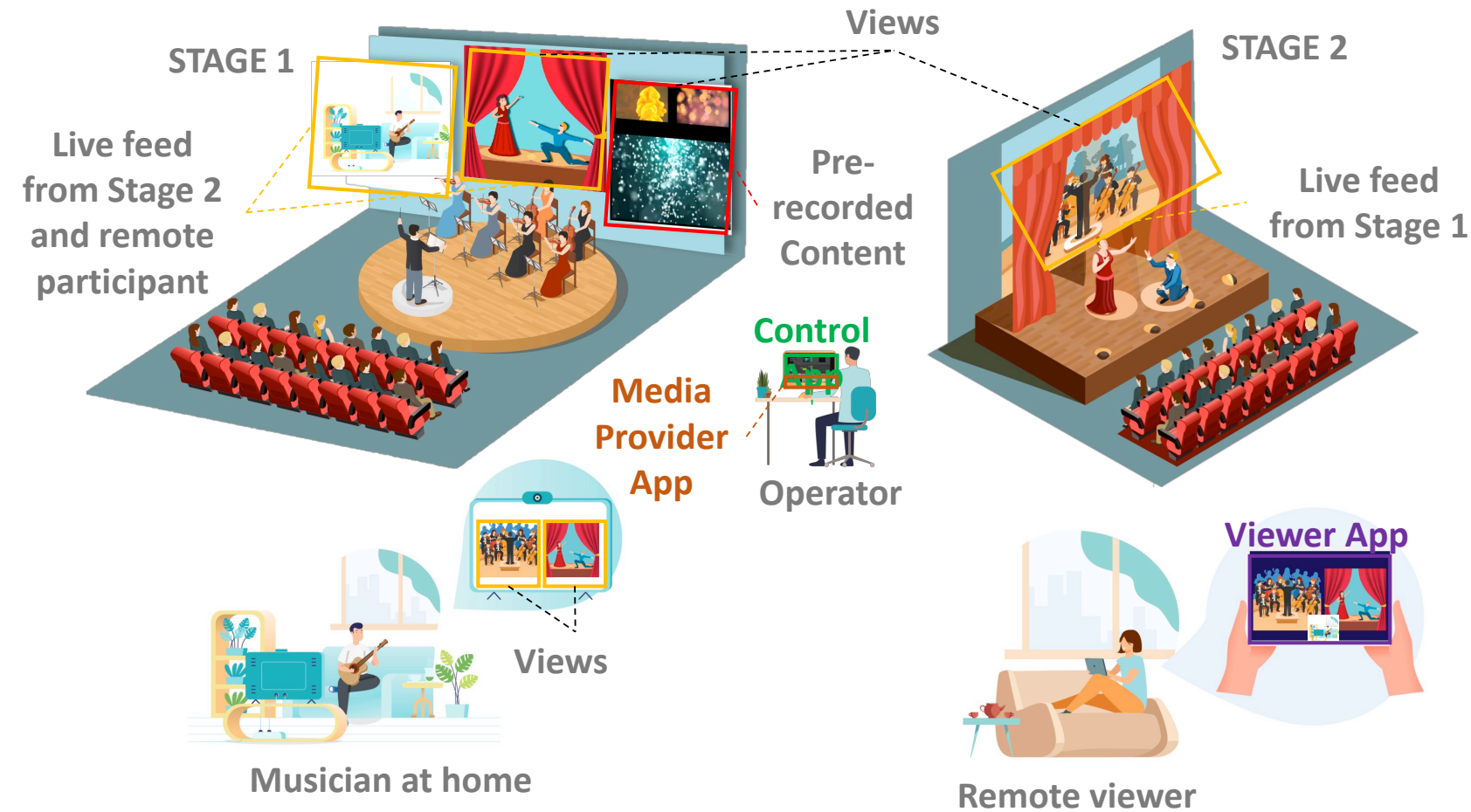 - **Efficient delivery**
  - Universality

Orchestration

CARBYNE

BOSCH
Video Management
System (BVMS)

OBS Ninja

Firebase

Synchronisation

Parse

OBS Studio

Co-creation
STAGE

MAX6

jamkazam

**Production
Tool**

Ableton

Jamulus

Efficient Delivery

TRACTION Co-Creation Stage (CCS)

STAGE 1

Views

STAGE 2

Live feed from Stage 2 and remote participant

Pre-recorded Content

Live feed from Stage 1

Control

Media Provider App

Operator

Musician at home

Views

Viewer App

Remote viewer

Control: provides the GUI for the creation of shows

Media Provider: offers the functionalities to integrate audio and video streams

Viewer: used to visualise the content on different devices

MPEG-DASH

720p HD · 1080p FULLHD · 2K QUADHD · 4K ULTRAHD · 5K ULTRAHD · 8K ULTRAHD

Video · Segments · DASH server · Internet · 4K FULLHD · 1080P FULLHD · 720p
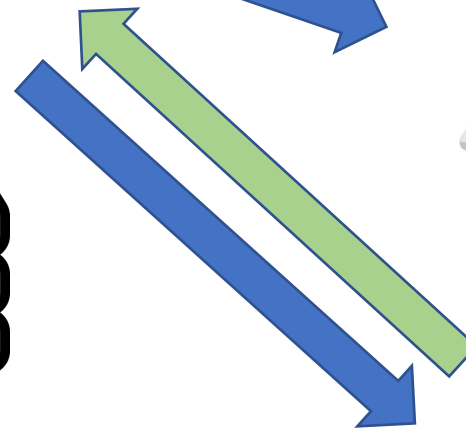
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Efficient delivery in CCS - PADA
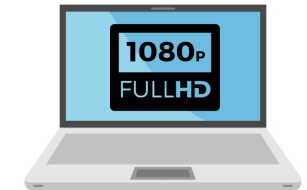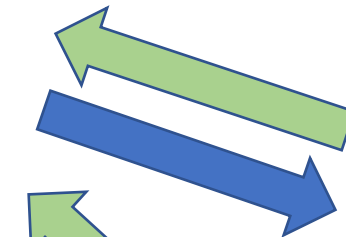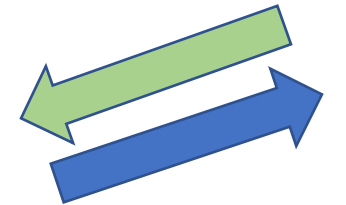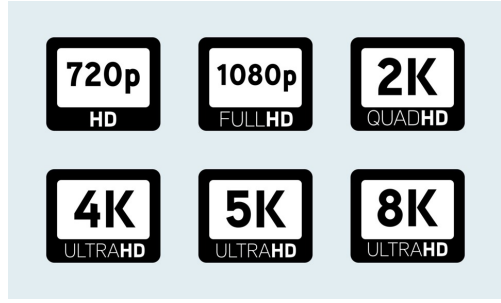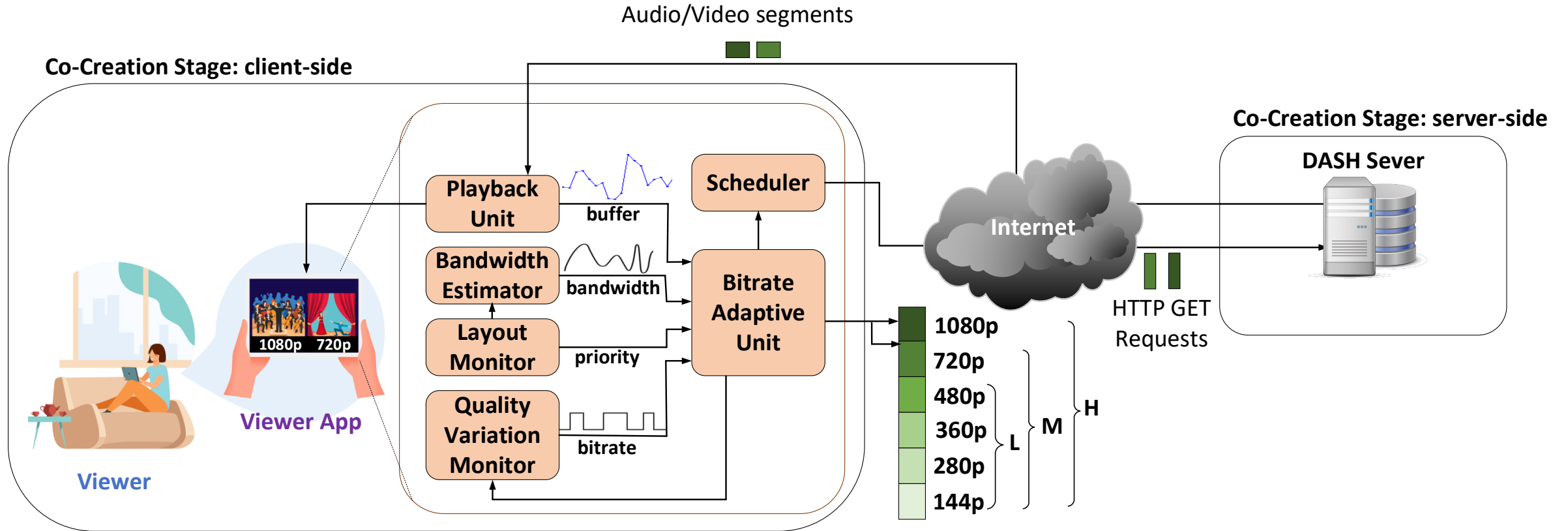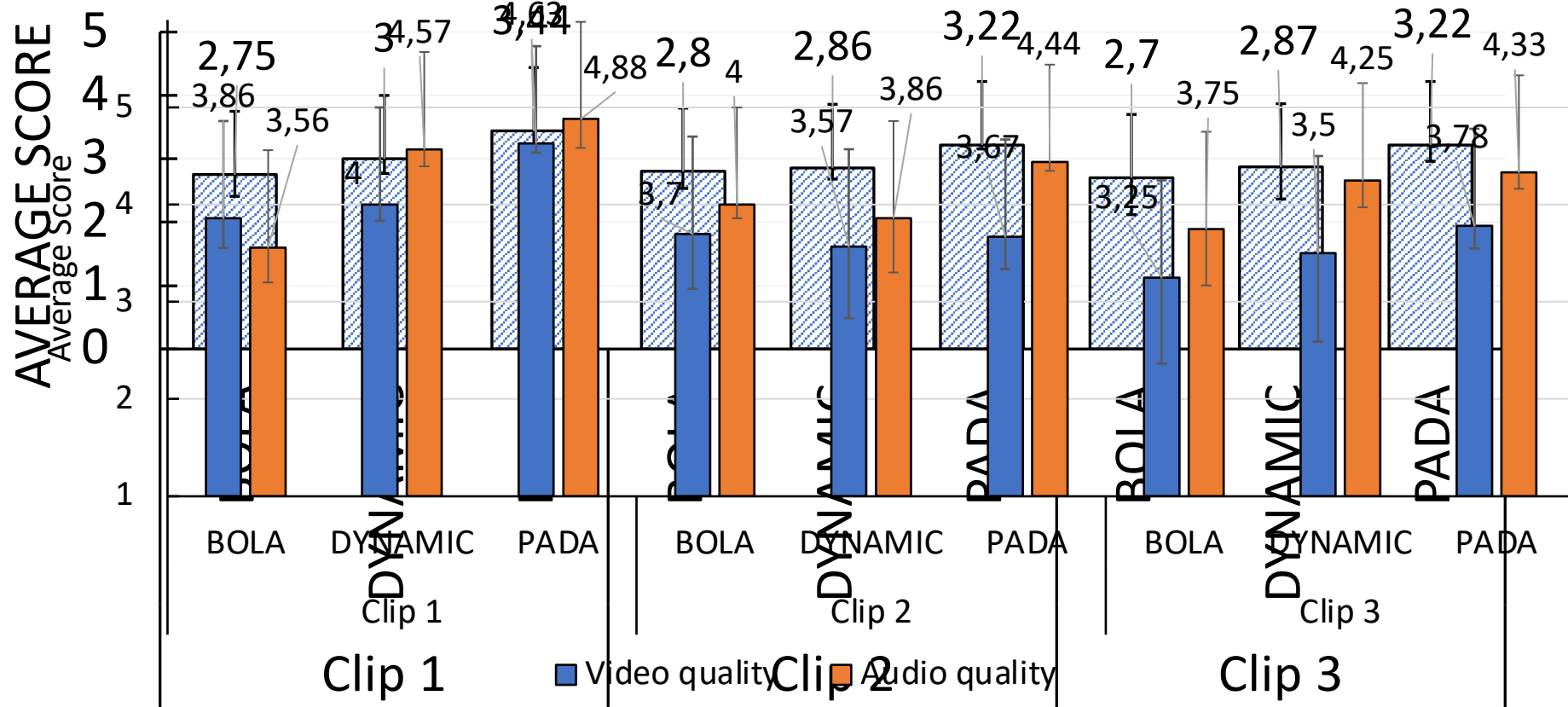
Experimental Testing

- 33 participants, aged 20 to 70, from 11 countries

- They streamed 3 opera clips encoded in 5 video and 3 audio qualities

- Viewers assessed video and audio qualities and level of enjoyment

18:55

tractionadapt.ngrok.io/t

Pre-recorded Video Adaptation Pilot

-Video 3-

Go to QoE Questionnaire

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Experimental Testing

Conclusion & Future Work

- **PADA** ensures a smooth streaming experience by:

  - Prioritising streams based on their importance to the opera play

  - Giving precedence to audio over video

  - Reducing bitrate fluctuations

- Assessing PADA's performance in presence of live streams

TRACTION DCU Team

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Thank You!

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