

## STATUS REPORT

|               |                                   |                 |             |
|---------------|-----------------------------------|-----------------|-------------|
| Organisation: | Radio Television Hong Kong (RTHK) |                 |             |
| Period:       | Oct 2023 to Sep 2024              | Date of Report: | 27 Sep 2024 |

### PART A

#### Technical Developments during the past year:

- System upgrades/changes to practices for improved quality/efficiency

#### - Adoption of AI Technology

1. Launch of live video transcript generator (trial) using multilingual Automatic Speech Recognition (ASR) AI model and cloud technology
2. Launch of on-demand audio transcript generator (trial) using ASR with “ASK AI” to quick process the transcript
3. Launch of AI Laboratory for the development of AI tools for video and audio production, including motion capture system, LED, avatars and various AI tools
4. Adoption of AI-tailored content system during Olympic Games
5. Adoption of AI-powered sports content technology to create and distribute game highlights and sports content to different RTHK social media platforms during the Olympics automatically

#### - Studio Upgrades

6. Deployment of Video Jockey system and LED backdrop for events production
7. Upgrade of the existing radio news recording studio with video production capability
8. Deployment of XR 4KP studio production with a small LED wall at a commercial building

#### - Developments in TV/Radio/New media Production

9. Deployment of Network Detection and Response (NDR) system in critical broadcast network
10. Replacement of digital audio router for radio central control room
11. Adoption of full frame video camera in classical music video production
12. Deployment of Demodulators and IRD pools for Olympics and Paralympics Games
13. Launch of new DTT programme channel RTHK36 for Olympics and Paralympics Games
14. Adoption of media exchange platform on cloud basis for the exchange of media with external bodies and internal sections
15. Adoption of 4K IP video transmission links between campuses via Metro Ethernet
16. Adoption of global TV network and Content Delivery Network for live contents exchange between broadcasters in HK and production sites at Paris during Olympics Games
17. Trial of 5G transmission for Outside broadcast TV production
18. Deployment of a low latency streaming solution for RTHK TV 32's online services on the RTHK website and mobile platform, specifically for the Olympics and Paralympic events
19. Enhancement of RTHK website and mobile application to incorporate new DTT programme channel
20. Migration of radio content web services from on-premise infrastructure to a cloud platform

#### - Enhancements in Transmission

21. Completion of the migration of DTT transmission service from an old equipment room to the new DTT building at Lamma Island Transmitting Station
22. Expansion of the population coverage of the new FM channel (CNR “The Greater Bay”) to 75%
23. Replacement of aged FM transmitter systems at one FM transmitting station and backup power systems at three FM transmitting stations
24. Refurbishment of an aged equipment room at a FM transmitting station for improved operating environment

- New Services/new projects initiated

- **Adoption of AI Technology**

1. Development of AI auto-tagging system for media asset management by ASR and computer vision processing
2. Development of radio programme archive auto generator
3. Adoption of AI technology for subtitle production and automatic summarization
4. Adoption of Container-based software development workflow
5. Enablement of AI tools in video and audio post-production

- **Development of Cloud Technology**

6. Development of Cloud-based Outside Broadcast Production for TV programmes
7. Development of camera to the Cloud and Cloud Editing
8. Development of Disaster Recovery for TV presentation through Cloud service
9. Migration of archiving storage to be cloud based
10. Deployment of cloud rendering farm for animation and graphic production

- **Developments in TV/Radio/New media Production**

11. Upgrade Youth Radio Studio to support short video clips (Shorts/Reels/etc.) production
12. Replacement of Outside Broadcast microwave links to be 4K enabled
13. Replacement of Outside Broadcast vehicle for TV production to be 4K IP based systems
14. Deployment of super slow motion cameras and recording system for TV sports production
15. Deployment of a large scale curved LED wall and cinematic cameras for Extended Reality film production
16. Deployment of automatic workflow for 4K and closed subtitling on RTHK website and mobile applications
17. Enablement of the TV Studios and OBVAN to be 4K ready
18. Enhancement of 4K viewing through Smart TV

- **Enhancements in Transmission**

19. Migration of DTT transmission service from an old equipment room to the new DTT building at Cloudy Hill transmitting station
20. Improvement works for the Remote Monitoring System and Studio-to-Link (STL) System of DTT broadcast networks

- Research projects

1. Research on building up hybrid-cloud architecture
2. Live and on-demand video/audio transcript via Multilingual Automatic Speech Recognition models
3. AI features for quick process on the transcript (e.g. summarization)
4. Accuracy and cost optimization by hybrid cloud for video stream processing engine
5. Multimodal AI architecture
6. Researching on search engine, storage, and database engine such as vector database, unstructured database, Graph database

- Internet and Mobile Broadcasting Services

1. Development of AI chatbot for RTHK website
2. Adoption of AI technology for chatbot on website
3. Enabling 4K viewing through Smart TV
4. Improvement of the SEO performance of the RTHK websites

|                         |                           |       | Radio            | Television               |
|-------------------------|---------------------------|-------|------------------|--------------------------|
| Coverage %              |                           |       | 99% (AM/FM)      | 99% (DTT)                |
| Programme Channels      |                           |       | 4 (FM)<br>4 (AM) | 6 (DTT, High Definition) |
| Studios (Production)    | File-based Set-up         | R/N/D | R                |                          |
|                         | SDTV                      | R/N/D |                  | N/A                      |
|                         | HDTV                      | R/N/D |                  | R                        |
|                         | UHDTV                     |       |                  | N                        |
|                         | IP Based Set-up           | R/N/D |                  | N                        |
| Transmission & Delivery | HF                        | R/N/D | N/A              |                          |
|                         | MF                        | R/N/D | R                |                          |
|                         | FM                        | R/N/D | R and N          |                          |
|                         | TV                        | R/N/D | N/A              | R and N                  |
|                         | OTT/IBB/Internet Services | R/N/D | R                | R and N                  |
|                         | Mobile Services           | R/N/D | R                | R and N                  |

R = Replacement/upgrade

N = New

D = Discontinued

**PART B  
CURRENT ACTIVITIES**

|    | Activities                                         | Area                                           | Brief Details:<br>1. Objectives<br>2. Progress to date                                                                                                                                            | Challenges/Problems Faced:<br>1. Lack of resources<br>2. Lack of know-how<br>3. Others (e.g. up-skilling)                                                                                                                                                                                 | Solutions Implemented/Type of assistance requirement from ABU                                                                                                                                                                                                                          |
|----|----------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Development projects/Upgrading facilities/Training | Migrating archiving system to be Cloud based   | Improve the cost-effectiveness on archiving the contents                                                                                                                                          | <ul style="list-style-type: none"> <li>Insufficient manpower to manage, monitor and house-keeping for archive contents</li> </ul>                                                                                                                                                         | <ul style="list-style-type: none"> <li>Enable IT-based automation system for management of the systems</li> <li>Closely cooperated with suppliers and contractors in knowledge sharing</li> </ul>                                                                                      |
|    |                                                    | Enabling Cloud Outside Broadcast TV production | <ul style="list-style-type: none"> <li>Minimize the setup cost for production</li> <li>Enable agility on scale for TV production</li> </ul>                                                       | <ul style="list-style-type: none"> <li>Insufficient technical know-how</li> <li>Insufficient technical manpower resources for long-term support</li> </ul>                                                                                                                                | <ul style="list-style-type: none"> <li>Closely cooperated with suppliers and contractors in knowledge sharing</li> <li>Intensive training and skill transfer for internal staff</li> </ul>                                                                                             |
|    |                                                    | Enabling AI-subtitling                         | Improve the efficiency of subtitle production                                                                                                                                                     | <ul style="list-style-type: none"> <li>Insufficient technical know-how</li> <li>Insufficient technical manpower resources for long-term support</li> </ul>                                                                                                                                | <ul style="list-style-type: none"> <li>Closely cooperated with suppliers and contractors in knowledge sharing</li> <li>Intensive training and skill transfer for internal staff</li> </ul>                                                                                             |
|    |                                                    | Developing AI auto tagging                     | <ul style="list-style-type: none"> <li>Assist in analysis of video / audio / photo</li> <li>Develop a smart search engine using natural language on top of traditional keywords search</li> </ul> | <ul style="list-style-type: none"> <li>Insufficient expertise in providing computer vision processing</li> <li>Beginner in designing responsive GUI</li> <li>Beginner in database indexing and data pipeline such as unstructured database, Graph database and vector database</li> </ul> | <ul style="list-style-type: none"> <li>Arrange data scientists for cases sharing</li> <li>Arrange successful case sharing</li> <li>Closely cooperated with suppliers and contractors in knowledge sharing</li> <li>Intensive training and skill transfer for internal staff</li> </ul> |

|    | Activities                                                                                                                                            | Area                                                                                                                                 | Brief Details:<br>1. Objectives<br>2. Progress to date   | Challenges/Problems Faced:<br>1. Lack of resources<br>2. Lack of know-how<br>3. Others (e.g. up-skilling)                                                                    | Solutions Implemented/Type of assistance requirement from ABU |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
|    |                                                                                                                                                       |                                                                                                                                      |                                                          | <ul style="list-style-type: none"> <li>Beginner in building up retrieval augmented generation</li> <li>Insufficient experience in query analysis and data science</li> </ul> |                                                               |
| 2. | Participation in ABU Activities                                                                                                                       | Area                                                                                                                                 | Level of Participation                                   | Reasons for not participating (though interested)                                                                                                                            |                                                               |
|    |                                                                                                                                                       | ABU Digital Broadcasting Symposium 2024                                                                                              | Attendance and sharing                                   |                                                                                                                                                                              |                                                               |
|    |                                                                                                                                                       | ABU Technical Committee Meetings 2024                                                                                                | Nomination of Engineering Awards, attendance and sharing |                                                                                                                                                                              |                                                               |
|    |                                                                                                                                                       | ABU webinar series on different technology topics                                                                                    | Audience                                                 |                                                                                                                                                                              |                                                               |
| 3. | Suggestions for New ABU Activities e.g. study topic projects, webinars, workshops, symposiums etc, spectrum activities, information exchange platform | Provide cases study / sharing on utilizing computer vision processing and complex speech decomposition using AI & Cloud technologies |                                                          |                                                                                                                                                                              |                                                               |
|    |                                                                                                                                                       | Provide sharing sessions for live speech to texts of multiple languages and summarization using AI & Cloud technologies              |                                                          |                                                                                                                                                                              |                                                               |