



MODIBEC (Contract No.: 044925)

D2.3.1 Action Plan

Contractual Date of Delivery to the CEC: 30 June 2008

Actual Date of Delivery to the CEC: 30 June 2008

Author(s): Yanyan Zhu (PTV AG)

Participant(s): Peng Gao (ABS), H. Wang (BUPT), Hongsheng Cai (CRTA), Xiao Liu, Ying Miao (China Satcom), Mariana Andrade, Javier Barrio (ERTICO), Jin Deng(GTM), Yihan Zhao (Jolon), Lucy Feng (Motorola), Yi LI (Nokia Siemens), Lijun. Zhang (OPG), Xiong (SJTU), Jian.Song & Xue (Tsinghua), Jean Luc Paquier. (Thomson), Kelly Griffiths (WorldDMB), etc.

Workpackage: 2

Est. person months: 2

Security: Pub.

Nature: Report

Version: final

Total number of pages: 15

Abstract:

Based on the findings of D2.2.1 and close consultation to project partners this report proposes the potential research and development activities of the future cooperation between EU and China in the field of the convergence area of digital broadcasting and mobile communications.

This document will be consolidated in version D2.3.2 on M24.

Keyword list:

Mobile Information Services, Digital Broadcasting, China, Europe, Priority areas, Convergence Areas, etc

Control sheet

Version history			
Version number	Date	Main author	Summary of changes
01	3 rd June 08	Yanyan Zhu	Deliverable structure based on the findings of D2.2.1
02	16 th June 08	Yanyan Zhu	Integration of the input from the partners
03	26 th June 08	Yanyan Zhu	Integration of the feedback from partners
04	30 th June 08	Yanyan Zhu	Final version of D2.3.1
Approval			
	Name		Date
Prepared	Yanyan Zhu		20th Jun 2008
Reviewed	Mariana Andrade, Javier Barrio, Kelly Griffiths, Jean Luc Paquier.		25th Jun 2008
Authorized	Yanyan Zhu		30th Jun 2008
Circulation			
	Recipient		Date of submission
	ERTICO		30 th Jun 2008
	European Commission		30 th Jun 2008

Contents

Executive summary.....	5
1 Introduction.....	6
2 Key priority areas for future EU-China Cooperation.....	7
3 Proposed Actions for Defined Priority Areas.....	8
3.1 Proposed activities in Business Models.....	8
3.1.1 Video Services and Data Services.....	8
3.1.2 Authentication and Security.....	9
3.2 Proposed Activities in Interactivity.....	10
3.3 Proposed Activities in Data Compression.....	12
3.4 Proposed Activities in Broadcasting Infrastructure.....	12
3.5 Proposed Activities in Integration of Hardware and Receivers in terms of multi-standard devices.....	13
4 Conclusion.....	15

Abbreviations

Abbreviation	Description
BIFS	Binary Format for Scenes
BJTU	Beijing Jiao Tong University
BUPT	Beijing University of Posts and Telecommunication
BOSS	Business operate support system
CAS	Conditional Access System
CMMB	China Mobile Multimedia Broadcasting
DAB	Digital Audio Broadcasting
DTMB	Digital Terrestrial Multimedia Broadcast
DMB	Digital Multimedia Broadcasting
DRM	Digital Rights Management
DVB-H	DVB-Handhelds
IPR	Intellectual Property Rights
MBBMs	Mobile Broadcasting Business Management System
MPEG	Standard for the data compression in the video and audio sector
SARFT	State Administration of Radio, Film & Television (China)
SFN	Single Frequency Network
TMC	Traffic Message Channel
VOD	Video on demand
WiMAX	Worldwide Interoperability for Microwave Access
3G	The third generation of mobile phone standards and technology

Executive summary

In document D2.2.1 we have defined the most important priority areas of digital convergence research and development between China and Europe. Further study of the trends and policies were conducted in both countries for D2.1 and also an initial survey by the means of questionnaire, workshops and discussion with participants of different backgrounds and perspectives. This action plan will contribute to the future cooperation activities with a set of proposals outlining the results of the MODIBEC project.

This initial version of the Action Plan report describes the recommendations for activities to be launched after the completion of the project. The plan is based on the findings from the project activities, concretely with the conclusions of D2.2.1 report and further consultation and discussion with project partners. It proposes future R&D and industry cooperation strategies.

On M24 this initial version of the project Action Plan will be reviewed and consolidated with the necessary adaptation and update of its content after having gathered the outcomes of MODIBEC China National Event in October and MODIBEC Final European Event in November this year.

1 Introduction

Based on the survey results in deliverable D2.2.1 (Priority Areas for EC China Cooperation) and close consultation with project partners and experts, we have developed the following action plan, which will call for a united effort between the EU and China. The survey conducted in the task 2.1 Priority Area definition was successful in attracting a number of experts from MODIBEC network of partners, who identified certain specific priority areas during the task D2.2. A follow-up study will be held in November 2008 that will refine the priority areas further with the outcomes from the MODIBEC China National Event in October 2008 in Peking and the MODIBEC Final European Event in November 2008 in Brussels.

This action plan is designed to significantly advance the EU-China research and development cooperation activities in the convergence areas between mobile communications and digital broadcasting in the near future to guide both regions to cooperate more closely in potential areas for cooperation. This cooperation will benefit parties in both Europe and China, such as standardisation bodies, service providers, hardware/ infrastructure providers, end users and software companies, etc.

The following main objectives of MODIBEC are to be achieved through cooperation among stakeholders in the EU and China and these will be proposed throughout this action plan:

- ▶ Create closer links between European and Chinese Digital Broadcasting and Mobile Communications experts from the industry, research and public sectors to encourage EU-China cooperation on research / application projects, etc.
- ▶ Describe relevant standardisation issues and policies in the EU and China to explain the European and Chinese industry position and help the Chinese authorities to learn from the European experience when defining Chinese standards related to the convergence of digital broadcasting and mobile communications
- ▶ Leverage previous and ongoing EU-China IST projects in the same areas by organising conferences, exchange and dissemination of good practice
- ▶ Strengthen international cooperation, especially on the convergence of digital broadcasting and mobile communications sector for future joint implementation of R&D projects between China and the EU in order to facilitate the launch of successful cooperation projects.

2 Key priority areas for future EU-China Cooperation

The following list of the priority areas is the result of the workshop and the questionnaire in the survey filled out by all the MODIBEC partners and other supporting organisations such as Tsinghua University as well as some other external participants such as Beijing Jiaotong University, Beijing University of Posts and Telecommunication, which highlights the most important research issues listed.

The participants' feedback represents different backgrounds, goals, impact, interest, etc. and can be divided into three main categories: research institutes, standardization organisations and service/ hardware providers.

The identified priority items have been discussed in detail in a consortium meeting in Beijing in May 2008.

Priority Areas	Priority Ranking
<ul style="list-style-type: none"> • Business Models • Standardisation • Level of interactivity 	1
<ul style="list-style-type: none"> • Broadcast and Communication Infrastructure • Frequency allocation and spectrum sharing 	2
<ul style="list-style-type: none"> • Data Compression • Content distribution platforms for multiple networks 	3
<ul style="list-style-type: none"> • Hardware Integration Receiver Side • User Needs and Types of Content 	4
<ul style="list-style-type: none"> • Influence of Regulative Bodies 	5
<ul style="list-style-type: none"> • Media format • HMI Design Receiver Side 	6

Table 1: Filtered list of research priorities and ranking

3 Proposed Actions for Defined Priority Areas

The Action Plan sets out a comprehensive set of priorities in areas within and also beyond the scope of the MODIBEC partners. Among these addressed priorities at the EU-China level, particular attention and opportunity should be given to the following recognized key areas and specific actions:

3.1 Proposed activities in Business Models

3.1.1 Video Services and Data Services

The content is always crucial to the end user and service provider, in order to improve the performance of video services and data services, which are primary value-added services for digital broadcasting or 3G, we propose to take the following actions:

- ▶ Research on new attractive types of video content for the Chinese and the European markets and interactivity for video on demand
- ▶ Research on new data services such as stocks, weather forecast, exchange rate, news, traffic information, especially combine with traffic navigation system
- ▶ Research on interactive services which combine the digital broadcasting and Wimax or 3G systems

Steps:

- ▶ Set up a video encoder and multiplex
- ▶ Set up a content aggregation and distribution platform
- ▶ Set up a digital broadcast transmission system and improve signal coverage to provide regional mobile TV and data service for local consumer
- ▶ Expand and educate the user market

Involved actors:

- ▶ Professional consultants to provide the true information of target end users
- ▶ Service providers & mobile TV operators (OPG, Jolon, GTM, CMMC etc.)
- ▶ Cooperation with receiver manufacturers or design studios
- ▶ Support from local government
- ▶ Support from the content delivery side (SMG)
- ▶ Cooperation with mobile-terminals vendors (Aigo, Longcheer, Lenovo, Nokia, Motorola, Samsung, LG etc.)

As an important part of the data service, Traffic Message Channel is a technology for delivering traffic and travel information to drivers. In order to make the delivery of high quality accurate, timely and relevant information possible a national database of TMC locations need to be created, the TMC receivers and the links to sources of real-time traffic information should be available. Whereas TMC Services are well established across Europe it has been firstly demonstrated in China and its development is still under consideration.

- ▶ Research on how to adjust the TMC standard to the Chinese market
- ▶ Cooperate with the European experts to set up the basic information such as location tables and event tables
- ▶ Research on distributing different data such as traffic information via Digital broadcasting
- ▶ Trial project with local broadcasting companies

Steps:

- ▶ Introduce and promote the TMC standard from Europe to China market
- ▶ Cooperate with local broadcasting companies to test TMC in main cities
- ▶ Cooperate with the European expert to set up the basic information like location table and event table
- ▶ Cooperate with European companies to do the test of TMC in some big cities to launch the overall commercial service

Involved actors:

- ▶ National standard group - make the Chinese traffic information service standard
- ▶ Ministry of Public Security - provide the traffic information source by loop and other channel
- ▶ Geologix - help to make the location table
- ▶ Broadcasting channel providers in the main cities such as OPG, etc

3.1.2 Authentication and Security

Since authentication and security systems can provide both the needs of the end user as well as assurance of revenue for the service provider in the area of authentication and security (Conditional Access or Digital Right Management), we recommend finding a new user authentication method by combining the digital communication system with help of the following activities:

- ▶ Research on efficient Authentication and security systems such as CAS, DRM, develop the correct authentication and security method
- ▶ Exchange experience between European and China Operators
- ▶ Exchange and research on interoperability between different rights management technologies

- ▶ Cooperation with CAS provider from Europe and Mobile Communication Operator who could provide uplink for VOD
- ▶ Cooperation with Media Delivery Platform European Provider and Chinese Mobile communication operator for Digital Radio Mondiale, DTMB and CMMB applications
- ▶ Cooperation on TV Mobile service scenarios aspect between European and China R&D department of End to End system manufacturer and operator for Digital Radio Mondiale, DTMB and CMMB applications
- ▶ Discussion on IPR and royalty fees

Steps:

- ▶ Set up CAS for operation including scrambles, system manager, Pisis and link with the multiplex of wireless digital TV
- ▶ Develop BOSS in terms of different video or data services, pay mode, order mode
- ▶ System maintenance and update to meet requirement for service improvement and increase the number of subscribers
- ▶ Specify and develop End To End Control and Management system for Digital Radio Mondiale, DTMB and CMMB applications
- ▶ Specify and develop relevant TV Mobile scenarios aspect for the Chinese market taken into account their key success in Europe

Involved actors:

- ▶ Experts from areas of CAS, DRM and digital communication, DVB, Digital Radio Mondiale, DTMB, CMMB
- ▶ Support of local government
- ▶ Support of Tsinghua University, University of Electronic Science and Technology of China (Chengdu)
- ▶ Support from Digital broadcasting operators (OPG, JOLON, GTM etc.)
- ▶ Support from Mobile communication operators (CMCC, China UNICOM, China Telecom, China Netcom)
- ▶ Cooperation with CAS provider from Europe (Irdeto, NDS, Coretrust, Dream I. Nagra)
- ▶ Service providers of Mobile TV and 3G from EU and China

3.2 Proposed Activities in Interactivity

In the broadcast era, consumers around the world have shown that interactivity is key to the success of any new media. In this field, we are convinced that an interactive process base on consumers needs need to be worked out. According to the European operator's experience to define which kind or how deep the interactivity will drive the best result. We are

keen to promote the development of interactivity in mobile telecoms and broadcast convergence.

Cooperation with mobile communication, traditional TV programmes will obtain the capacity of interactive. According to this, we are planning to do some works below:

- ▶ Draw the standards for interactive service (e.g.: Beijing Jolon will consult BIFS technology which based on MPEG-4 and interactive service which based on the CMCC MBBMS standard)
- ▶ Technique cooperation with mobile operator (e.g.: Beijing Jolon has started the test with Beijing Mobile Communication Corporation for the interactive video service)
- ▶ Research on the methods to realize the interactivities with personalization for users and Development of receivers
- ▶ Encourage the discussion between Chinese and European broadcasters/ telecoms industry regarding implementation of personalized and interactive broadcasting system
- ▶ Narrow the gap between broadcasters and the telecoms industry
- ▶ Discussion on IPR and royalty fees

Steps:

- ▶ Market research in EU and Chinese interactive television delivers market in terms of interactivity to understand the user needs to customise the interactive services
- ▶ Encourage viewers to consume telecom services (Downloading, Voting, Merchandising, etc)
- ▶ Research on the development of interactive mobile video services and integrate mobile operators to develop user-friendly interactive mobile services
- ▶ Encourage on-going dialogue between EU and China stakeholder

Involved actors:

- ▶ Cooperation with Media Delivery Platform and End to End solution provider (Thomson)
- ▶ Content providers
- ▶ Tsinghua University, Beijing University of Posts and Telecommunications
- ▶ China Academy of Telecommunications Technology
- ▶ Communication University of China
- ▶ Thomson, Nokia, Huawei, Zhongxing
- ▶ Operator of local mobile communication (CMCC, China Unicom, China Telecom, China NETcom).
- ▶ Operator of EU mobile communication (VODAPHONE, ORANGE 3)
- ▶ Media investor (PE, VC, Investment bank)
- ▶ Support from the EU and local content delivery side

- ▶ Solution project provider in EU and China

3.3 Proposed Activities in Data Compression

Data compression is concerned with reducing the amount of data required for its reproduction. It is a key component in facilitating the widespread use of digital services — in their various forms, has an essential role in the development of the digital Society and is recognized as an important contributor to freedom of information sharing. Most important issue in the field of Data Compression considered is e.g. the video/ audio codec:

- ▶ Find a proper platform for EU–China content providers to share their experience and contents
- ▶ Cooperation on the next generation data compression multi-standard of video compression and interoperable solution for the Chinese and European markets
- ▶ Develop the universal chipsets support the various standards
- ▶ Research on improvement of the performance of encoders (video decoder)

Steps:

- ▶ Set up a video and audio encoding system,
- ▶ Cooperation with encoder vendor and set up a front-end system for digital broadcasting and TV
- ▶ Develop the data module for stock, weather forecast, traffic, exchange rate and so on
- ▶ Develop the protocol, program, software for data encode/decode

Involved actors:

- ▶ Content providers, Data resource provider.
- ▶ Key equipment providers (e.g. Thomson), such as encoder/decoders, multiplex (Envivo, Pixtree, OTT, SVA, NSCC, Thomson)
- ▶ Support from the chipset vendors
- ▶ Digital broadcasting operators (OPG, JOLON, GTM etc.)
- ▶ Provide terminals solution for all applications (Aigo, Longcheer, Bird, Radioscape, MIO)

3.4 Proposed Activities in Broadcasting Infrastructure

Infrastructure is essential access in achieving the goal of digital inclusion, research on certain parts of Infrastructure, such as content distribution network, wireless signal coverage, etc. is also an important aspect. This is in order to reduce the cost of the overall network infrastructure and to solve the issues with in-door reception. Mobile Communication operators and Digital Broadcasting operators can share their experiences and issues with in-door reception to promote future collaboration.

- ▶ Develop the key equipment to improve signal coverage

- ▶ Develop and strengthen national, regional and international network infrastructure
- ▶ Exchange the experience on network optimization, system integration and performance improvement of SFN with European counterparts
- ▶ Research on interoperability of transmission infrastructure between digital broadcasting and 3G
- ▶ Research on the content production and distribution on the current digital broadcasting and digital communication networks
- ▶ Research on interoperability of transmission infrastructure between digital broadcasting and 3G

Steps:

- ▶ Build a signal transmission system, set up outdoor digital broadcast SFN
- ▶ Estimate the effect of signal coverage and discover the weakness area
- ▶ Set up digital broadcast indoor coverage system by combining with mobile communication system based on the convergence/ interactivity of the digital broadcasting and 3G
- ▶ Analysis interference influence on signals in different frequency band
- ▶ Trial of coverage system on different scene such as building, metro, tunnel

Involved actors:

- ▶ Current service providers, content providers and operators
- ▶ Digital broadcasting operators (OPG, JOLON, GTM, BBC, GCap Media, Radio France, Arqiva, etc.)
- ▶ Mobile communication operators (CMCC, China UNicom, China Telecom, China NETcom)
- ▶ Manufacturers of digital broadcasting transmitters (Thomson, Harris, Toshiba, NEC, Rohde-schwarz)
- ▶ Vendors of digital broadcasting Gapfillers (Thomson, Mier, Solid, Sunwave, UBS)

3.5 Proposed Activities in Integration of Hardware and Receivers in terms of multi-standard devices

As countries around the world continue to develop new broadcasting standards it is important to ensure that devices are interoperable. We would like to ensure that Chinese devices will work in Europe and vice versa:

- ▶ Undertake R&D efforts to make adequate and affordable equipment for end users
- ▶ Encourage the professionals in both regions to establish partnerships and networks

- ▶ Discussion on IPR and royalty fees

Steps:

- ▶ Research on the development of Chinese and European manufacturers
- ▶ Encourage cooperation via workshops and information, etc.
- ▶ Encourage dialogue on interoperable devices and chips
- ▶ Look for ways to encourage/ entice more manufacturers to include European standards in Chinese devices

Involved actors:

- ▶ Cooperation with European device and equipment manufacturers (Siemens, Blaupunkt, Radioscape, Factum, VDL)
- ▶ Cooperation with European broadcasters (BBC, Radio France, RTL, GCap Media)
- ▶ Beijing Jolon, ABS
- ▶ Support from trade bodies (EICTA, WorldDMB, Chinese manufacturers trade body)
- ▶ Cooperation with Chinese device manufacturers (Longcheer, Aigo, BBEF etc.)
- ▶ Motorola, Nokia, Sony-Ericsson
- ▶ Best seller in EU of USB dangle, MP4, GPS, DMB, etc.

4 Conclusion

This report represents concrete action lines and ideas concerning research and development priority areas regarding digital broadcasting and mobile communication convergence to develop future cooperation between EU and China.

The common vision and guiding principle of this Plan of Action is to concretise action lines to advance after the finalisation of the MODIBEC project. It takes the form of broad recommendations with specific steps and information of involved actors. It could be taken into account in future relevant Framework Programmes.

The information collected and analyzed for this Action Plan reaffirms the essential and interactive mobile services in EU and China. Our recommendations pertain to all parties involved in the standards groups, digital broadcasting operators, mobile service providers, hardware manufacturers etc.

Key actions to be taken in the EU-China cooperation are recommended for the following areas:

- ▶ Video Service and Data Service (TMC Service in China)
- ▶ Authentication and Security Systems
- ▶ Interactive Mobile Services
- ▶ Data Compression (Video/ audio codec)
- ▶ Broadcasting Infrastructure
- ▶ Integration of Hardware and Receivers in terms of multi-standard devices

Generally speaking, more communication between EU and China will be needed for the implementation of these recommendations. Additionally, it will require greater coordination among local government and key stakeholders as well as greater information-sharing.