



Project number:	European Commission - 033685	
Project acronym:	CHORIST	
Project title:	Integrating <u>C</u> ommunications for <u>e</u> nhan <u>ce</u> d <u>e</u> nviron <u>me</u> ntal <u>r</u> isk management and citizens safety	
Instrument:	Integrated Project	
Thematic priority:	Information Society Technology	
Call identifier:	FP6-2005-IST-5	
Start date of project:	01/06/06	Duration: 38 months

Deliverable reference number:	SP0.D30		
Deliverable title:	Report on standardisation activities (year 3)		
Version:	1.1		
State within Consortium:	DRAFT:	- FOR APPROVAL:	- APPROVED: X
Due date of deliverable:	MONTH 36 (05/09)		
Actual submission date:	12/10/09		
Lead contractor of this deliverable:	EADS Secure Networks (France)		
Other contributing contractors:	<ul style="list-style-type: none"> - EADS Secure Networks (Finland) - AVANTI communications - one2many B.V. - TRADIA Telecom SA - Teknillinen Korkeakoulu (Helsinki University of Technology) 		

Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)		
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PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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1 INTRODUCTION

1.1 PROJECT SCOPE

The CHORIST project will propose solutions to increase rapidity and effectiveness of interventions following natural hazards and industrial accidents, in order to enhance citizens' safety and communications between rescue actors.

1.2 PURPOSE OF THE DOCUMENT

This document provides the results of the standardisation activities in the frame of the CHORIST project. It will be updated all along the project.

The release at the end of year 1 is the SP0.D7.

The release at the end of year 2 is the SP0.D20.

The release at the end of year 3 is the SP0.D30.

1.3 DOCUMENT VERSIONS SHEET

Version	Date	Description, modifications, authors
1.0	03/07/09	SP0.D30 release based on SP0.D20 (year 2 report) with: <ul style="list-style-type: none"> - Addition of the activities on CEN task force - Publications of TKK added - Update by one2many - Corrections by AVAN
1.1	12/10/09	Reworked to highlight the main two activities which took place

Table 1 : Document versions sheet

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2 REFERENCE DOCUMENTS, DEFINITIONS AND ABBREVIATIONS

2.1 REFERENCE DOCUMENTS

PUBLIC deliverable provided by the CHORIST project are available on its web site at: <http://www.chorist.eu/>

- [1] CHORIST – SP1.D4 - Report on user requirements and initial supporting cases (PUBLIC)
- [2] CHORIST - SP2.D1 - ERAW & ERAW System definition and design (PUBLIC)
- [3] CHORIST - SP3.D3 (Communication channel technical specification and open interface specification & Communication network architecture definition and requirements – Content Casting Network) (PUBLIC)
- [4] CHORIST – SP4.D1 - Report on user needs and interoperability requirements (PUBLIC)
- [5] CHORIST - SP4.D6 deliverable - Report on Autonomous architecture and protocols (PUBLIC)
- [6] CHORIST - SP4.D7 - Report on PMR broadband / narrowband gateway (PUBLIC)

2.2 DEFINITIONS

None

2.3 ABBREVIATIONS

APCO	Association for Public-Safety Communications Officials - http://www.apcointl.org/
ATIS	Alliance for Telecommunications Industry Solutions – http://www.atis.org/
CAP	Common Alerting Protocol - see http://www.oasis-open.org/
CEN	European Committee for Standardisation
CENELEC	European Committee for Electrotechnical Standardisation
CHORIST	Integrating Communications for enHanced envirOnmental RISK management and citizens safety – http://www.chorist.eu/
CMAS	Commercial Mobile Alert Systems
DAB	Digital Audio Broadcasting
DVB	Digital Video Broadcasting
EADS	European Aeronautics Defence and Space
EC	European Commission
EMTEL	Emergency Telecommunications – http://www.emtel.etsi.org/
ERAS	Environmental Risk Assessment
ERAW	Environmental Risk Awareness
ETSI	European Telecommunications Standards Institute – http://www.etsi.org/
ETWS	Earthquake and Tsunami Warning Service
FCC	Federal Communications Commission - http://www.fcc.gov/
GSM	Global System for Mobile communications

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IETF	Internet Engineering Task Force
IP	Internet Protocol
ISSI	Inter-Sub-System-Interface for P25 - http://www.tiaonline.org/
ITU	International Telecommunication Union
IWS	Integrated Warning System
LTE	Long Term Evolution
MBMS	Multimedia Broadcast / Multicast Service
MPLS	Multiprotocol Label Switching
NPRM	Notice of Proposed Rulemaking
OASIS	Open Advanced System for dlsaSter and emergency management
P25	Project 25 of the TIA - http://www.tiaonline.org/
PMR	Professional (Private) Mobile Radio communication
PSC-E	Public Safety Communication Europe
PWS	Public Warning System
RFSS	Radio Frequency Sub Systems
RTP	Real Time Protocol – http://www.ietf.org/
SIP	Session Initiation Protocol – http://www.ietf.org/
SP	Subproject
STB	Set Top Box
TEDS	TETRA Enhanced Data Service – http://www.emtel.etsi.org/
TETRA	TErrestrial Trunked RAdio – http://www.emtel.etsi.org/
TF	Task Force
TIA	Telecommunications Industry Association
TSO	Tactical Situation Object – see http://www.oasis-fp6.org/
UMTS	Universal Mobile Telecommunications System
WiMAX	Worldwide Interoperability for Microwave Access
WP	Workpackage

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3 OVERVIEW OF STANDARDS USAGE IN CHORIST

3.1 WHAT IS CHORIST?

CHORIST is a project that proposes technical solutions to address the emergency telecommunications between different actors in case of major natural disaster or industrial incident. Communication has been split between the following actors:

1. from citizens to authorities,
2. from authorities to citizens, and
3. between authorities.

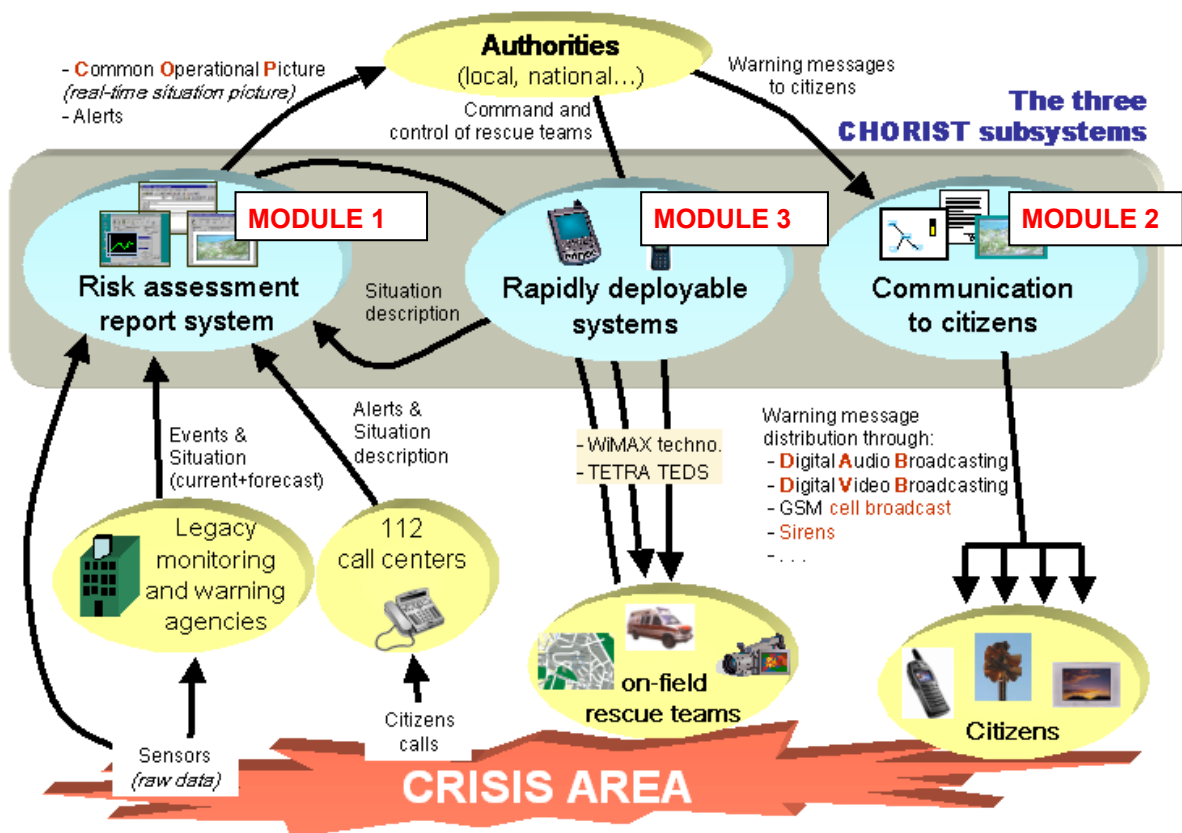


Figure 1 : Overview of the CHORIST architecture

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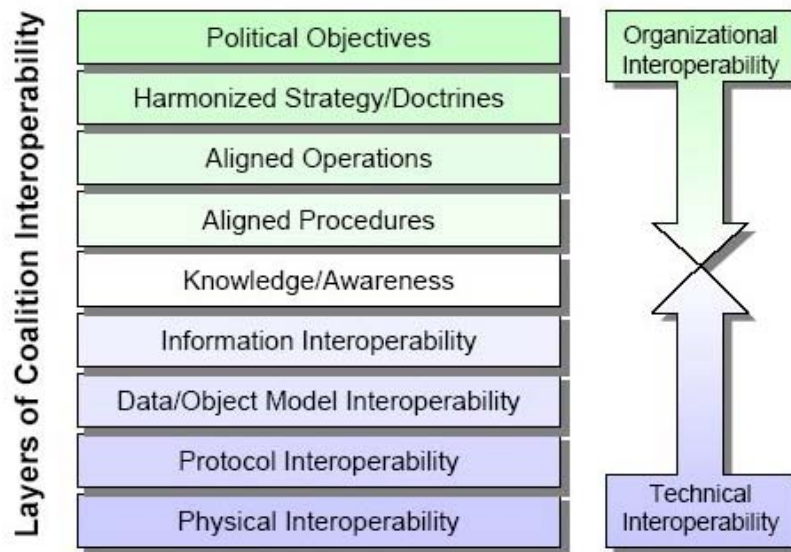
3.2 STANDARDS IN CHORIST

The technical solutions proposed within the project have widely used existing technologies which have been adapted to the context of the project. By standards, we consider both real standards proposed by standardisation organisations (e.g. ITU, ETSI) and de-facto standards (e.g. IETF, OASIS consortium). Standards were either used as is by CHORIST, or some modifications or enhancements had to be made.

This report is about the "standardisation". To be clear, by standardisation, in this document, we consider all the following aspects:

- The use of existing standards,
- The contribution to standards:
 - participation to the enhancement of standards
 - proposal of new standards

Standards are used so that different equipments / systems / people / organisations can communicate with each other. So, the interoperability is wider than just the technical level between machines; interoperability may exist between humans / organisations so that they cooperatively work with each other. An interesting proposal for these different levels of interoperability is shown on the following figure, extracted from <http://www.sei.cmu.edu/isis/guide/introduction/lci.htm>.



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Figure 2 : Interoperability levels (from technology to organisations)

In CHORIST, to simplify the approach, we'll consider the following elements:

- the standardisation at technical level, and
- the standardisation at organisational level.

As CHORIST is mainly a technical project, most of the activities related to standardisation occur in the 4 lower layers, i.e. from the Physical Interoperability to the Information Interoperability. However, part of the CHORIST activities leading to deliverables focus onto the other layers.

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3.3 SYNTHESIS TABLE

The following table shows to which extent the standardisation process has been led to in CHORIST. For each Subproject is presented the list of the standards which were addressed, and for each of them is given its degree of use.

SPs	Standards	Use of the standard	Contribution to the standard	
			Actual contribution to the standard	Potential contribution to the standard
MODULE 1	EMTEL	X		
	CAP	X		
	TSO	X		
MODULE 2	EMTEL	X	X	see section 4.1
	CAP	X		
	Cell broadcast	X	X	see section 4.2
	DAB	X		
	DVB	X		see section 4.3
	Satellite		X	see section 4.4
MODULE 3	EMTEL	X		
	TETRAPOL	X		
	TETRA (TEDS)	X	X	see section 4.5
	P25	X		
	WiFi	X		
	WiMAX & mobile ad-hoc networks	X		

Table 2 : Synthesis of standardisation activities

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4 PROPOSAL OF STANDARDISATION

4.1 STANDARDISATION AT EMTEL FOR MODULE 2

► Use of the standard within CHORIST:

EMTEL published ETSI TS 102 182, "Requirements for communications from authorities/organizations to individuals, groups or the general public during emergencies" in December 2006. This technical specification describes the requirements on warning and informing the public as seen by the Emergency Services Community and looks at the technologies and methods available to do this. Technologies, as used in the CHORIST project, are all included in this specification.

► Contribution to the standard by CHORIST:

■ Actual standardisation activities:

Tests have been conducted in the Netherlands by the Dutch Ministry of Economic Affairs with cell broadcast as a public warning service technology. Furthermore, the Ministry has set up an EU project on "European cooperation on Cell Broadcast" (<https://service.projectplace.com/pub/english.cgi/0/283748154>) where a number of EU members states share knowledge on Cell Broadcast. A result of this project is a Positioning Paper, which can be downloaded from the project's website.

O2M has participated in the project's workshop in December 2008 to discuss options to use the requirements from the Positioning Paper in standardization work.

■ Potential standardisation activities:

This Positioning Paper contains requirements which need to be included in the EMTEL specification. Examples of these requirements are:

- A warning message shall pop-up without the need for user interaction
- An EU specific alert tone shall be associated with warning messages

This activity is planned for the EMTEL meeting in October 2009, after the completion of the CHORIST project.

4.2 CELL BROADCAST FOR MODULE 2

► Use of the standard within CHORIST:

The activities of the WP32 (communication channels) include, amongst others, the use of cell broadcast for public warning. Cell Broadcast is standardized in the technical specification 3GPP TS 23.041.

Tests have been conducted in the Netherlands by the Dutch Ministry of Economic Affairs with cell broadcast as a public warning service technology. Furthermore, the Federal Communications Commission has published a Notice of Proposed Rulemaking (NPRM), to initiate a comprehensive rulemaking to establish a Commercial Mobile Alert System (CMAS), under which Commercial Mobile Service providers may elect to transmit emergency warnings to the public in the US. Both the Dutch test results as well as the NPRM state requirements for public warning that are not covered by any standards.

► Contribution to the standard by CHORIST:

■ Actual standardisation activities:

In 3GPP SA1 studies have been conducted on "Requirements for a Public Warning System" (PWS) and on "Requirements for an Earthquake and Tsunami Warning System" (ETWS). Both activities have

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resulted in further specifications. O2M has actively contributed to these specifications in various 3GPP meetings.

The Federal Communications Commission (FCC) has mandated ATIS to develop specifications for the Commercial Mobile Alert Service (CMAS). Operators will provide CMAS via Cell Broadcast in the US. O2M is participating in developing the CMAS specifications in on-line meetings throughout 2008 and 2009. Although CMAS is developed for use in the US, it is being specified in such a way that it may be useful for public warning services in the EU as well.

The 3GPP TS 23.041 already contains a solution for the following requirements, although this solution is limited to ETWS:

- A warning message shall pop-up without the need for user interaction
- An specific alert tone shall be associated with warning messages

A change request is being prepared for 3GPP to extend this solution to CMAS and PWS in general.

■ **Potential standardisation activities:**

A new requirement for public warning is that the audible signal of an alert message shall be distinguishable from a regular message. To prevent misuse of this signal, it might be needed to do a modification on the transmitting side, which would be a modification of the 3GPP TS 23.041 specification.

Cell Broadcast in a Public Warning Service is specified for GSM and for UMTS in 3GPP TS 23.041. This broadcasting capability shall also be specified in LTE.

4.3 DVB FOR MODULE 2

► **Use of the standard within CHORIST:**

The activities of the WP32 (communication channels) include, amongst others, the use of DVB for public warning.

► **Contribution to the standard by CHORIST:**

■ **Actual standardisation activities:**

No standardisation activity was done.

■ **Potential standardisation activities:**

For DVB it would be very important to find a way to oblige people to configure their postal code in their set top boxes (STB). One way to do it would be that the manufacturers configure their STBs in a way that they don't work until a postal code is configured. Although some people could configure a wrong postal code or others could change their location after installing the STB, it would always be better than expecting everyone to configure the postal codes on their own discretion, because nobody would do it. Then, STBs with this configuration could get something like a "CHORIST Compliant" seal or similar.

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4.4 SATELLITE FOR MODULE 2

► Use of the standard within CHORIST:

The activities of the WP32 (communication channels) could have included the use of satellites for public warning. But this has not been the case for the consortium did not involve a partner dealing with this topic.

► Contribution to the standard by CHORIST:

■ Actual standardisation activities:

On 25/06/07, the EC has established the mandate M415 to the CEN (European Committee for Standardisation), the CENELEC (European Committee for Electrotechnical Standardisation) and the ETSI (European Telecommunications Standards Institute) so that space industry standards be established.

The CEN/BT/WG202 "space" proposed to answer the M415 mandate. It identified 9 dossiers, and accordingly built 9 Task Forces. The goal is that each TF provides a final document concerning its domain in May 2009.

CHORIST participated to the Task Force 9 (Standardisation for Disaster Monitoring, Prevention and Relief Management) principally on the potential use of satellites to warn populations. The group involved people working in industries and universities on satellites as well as in the civil protection. Several meetings took place from Oct. 08 to May 09. Several documents were written, consisting of proposals to the European Commission in this domain.

Note that similar proposals (but addressing more generally the MODULE 2) were also provided to the PSC-E forum, in the D2.5 deliverable.

■ Potential standardisation activities:

The results on matters related to MODULE 2 are provided in the deliverable "Integrated Warning System (IWS) in Disaster Management". Four gaps were identified, each leading to a proposal of potential contributor for a future standard:

- Network interfaces
- Security aspects
- Ergonomy, familiar interface
- Feedback and preparedness training

4.5 TEDS FOR MODULE 3

► Use of the standard within CHORIST:

The activities of the WP42 (Rapidly deployable systems) take the TETRA TEDS standard into consideration. The elements implemented follow the air interface specifications provided by the ETSI.

► Contribution to the standard by CHORIST:

■ Actual standardisation activities:

No standardisation activity was done.

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■ **Potential standardisation activities:**

ESNFI has been one of the companies in ETSI to develop TEDS (Motorola, Sepura, EADS/(Nokia), Selex). TEDS standard was approved in 2006. TEDS is integrated into the TETRA standard, it is not a separate document. There are some enhancement items to the standard, developed in TETRA WG4. ESNFI's objective is to advance/contribute to those items.