



NAVAL GROUP – TRAINING ORGANIZATION
Activity recorded under reference 1175 47047 75 by prefect

Training Certificate CMS OJT Phase 2

NAVAL GROUP Company, located 40-42 Docteur Finlay Street – F75732 Paris Cedex 15, **Vouch for:**

Mr/Mrs Lt (NE) CAPELETTO NETO FERNANDO JOSE

Has followed the training: *CMS Software Development Team OJT – Phase 2 – in France*

From *09/2013* until *03/2015*

In accordance with Program established *CMS OJT Plan for Phase 2 ref. DOC-2013-904604 v.1*

The list of activities attendance is described in document DOC-2015-904025 Issue C for OJT CMS phase 2 report

Certificate established: *06/03/2018*

By *(name and forename, signatory title)*: **GIANGRECO Christian**

Company stamp, signature:


Christian GIANGRECO
SBR SC PROJECT MANAGER

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1.2 **Scope**

In accordance with the Part 1A Contract signed between the Brazilian Navy (BN) and DCNS, Combat System “Transfer of Technology (ToT) & Transfer of Knowledge (ToK)” is performed progressively with “the objective to reach a large autonomy of Brazil from the SNBR n°2 Combat System”.

In this frame, DCNS is providing Brazilian Navy’s officers with an On-the-Job Training (OJT) for the CMS subsystem since September 2010.

At the beginning of 2013, an extension of the CMS OJT was decided, for training to be performed in France until February 2015. It was also decided to call Phase 1 the training period from September 2010 to August 2013 and to call Phase 2 the training period from September 2013 to February 2015.

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2 CMS OJT Phase 2 description

2.1 September-December 2013: End of CMS OJT plan issue E

BN participants: BN#2 (Lt Cdr Cristiani) and BN#3 (Lt Jg Capeleto)

This period will continue activities from the CMS OJT plan issue E until December 2013 instead of June 2014 as initially planned. The activities that will be performed are described below including a supplementary activity to perform a very simple practical case. Since the period is shortened compared to the initial one to leave room for more activities in 2014 some activities listed in the CMS OJT plan issue E will not be planned. The description is provided below

a. Activities initially planned and that will be performed :

1	Follow CMS project
1.5	Follow up the LYB provider
1.5.3	participate to DCNS reception for LYB simulator
1.5.4	Install and Integrate LYB Simulator on TDL platform
3	Follow up Hw manufacturing phase
3.1	ASRU
3.1.3	ASRU IHM presentation
5	Follow up sw production phase
5.3	Follow Functional CMS Overview Training
5.3.1	CMS Functional Overview
5.6	Understand TACTICAL SITUATION Domain component
5.6.1	TBEP
5.6.2	LOCTM
5.7	Understand COMMON Domain component
5.7.1	OPMNT
5.9	Understand the use of Bricks within CSCI
5.9.9	CONTROL COMMAND
5.9.11	REPLAY
5.9.12	DOMAIN LOGBOOK
5.9.13	DLRL
6	Build a "lab" platform for practical case
6.2	Install a development platforme for Maintenance Activities
6.2.2	Participate to the installation of the Software of Development Platforme
6.4	Implement software correction on TACTICAL SITUATION Domain
6.4.1	TBEP
6.4.2	LOCTM
6.6	Implement software correction on COMMON Domain
6.6.2	OPMNT

2.3 **January 2014 – February 2015: Evolutionary Maintenance Practical Case**

2.3.1 **Principles**

The objective is that BN representatives perform a CMS software evolution as an exercise with the associated updates on documents, model, software and tests.

Inputs will include IRS, a corresponding simulator and a CMS development reference:

- IRS: The modified IRS will be provided by DCNS and jointly reviewed with BN.
- Simulator: An updated version of the NEWS simulator will be provided by DCNS. In order to ensure independence between simulators and CMS modifications, we will ensure that:
 - Simulator update is performed by DCNS (different department than CMS)
 - Simulator update will be formally verified by the practical case team allowing at the same time to learn to manipulate the simulator
 - CMS update will be performed by practical case team
- CMS development reference: CMS system and software documents, model and source code. They will be provided by DCNS adequately for the different phase of the practical case.

Outputs will consist in updating the CMS development reference to integrate CMS software evolution. They will be produced by BN representatives and reviewed by DCNS. When feasible, outputs will be produced in revision marks in comparison to the inputs to ease future review.

This practical case will be performed by BN representatives with DCNS support from different departments according to the phase of the practical case. They will be performed on BN software development platform

This practical case will cover all CMS development "V cycle" starting from CMS system engineering to CMS system verification.

The practical case will contribute to the following high level objectives listed on paragraph 8.6.6.6 of the contract 1A:

- To modify and substitute the elementary source code software of the CMS
- To implement interfaces with new equipment;

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- To integrate new functions
- To modify the functions.

2.3.2 Acceptance Criteria

As discussed in meeting held on 06th and 13th September 2013, acceptance criteria for the practical cases are:

- Completion of work: Software properly running and integrated with CMS
- All the technical documentation used as a reference, as input and outputs, shall be delivered to BN;
- Software source code and configuration lines added or modified by BN during the activity are delivered to BN.

Intermediate review with BN and DCNS management will be performed at the end of each main phase to measure the progress.

2.3.3 Practical Case: To add a Mine and Obstacle Avoidance System (MOAS) in the Combat system (at CMS Sub-System level).

This practical case will consist in adapting the CMS to add a Mine and Obstacle Avoidance System (MOAS).

Impacted CSCI: TBEP, LOCTM, PMFL, USW

Used bricks: GATEWAY, VEGA, DLRL, MANAGEMENT, ROLE_MANAGEMENT

This practical case will consist of:

- Adapt, modify the CMS software (including full and complete "V" cycle from specification to the coding, integration and test) to interface with the MOAS
- Implement the MOAS interface with the CMS : GATEWAY, TBEP
- Adapt, modify the CMS Tactical Situation (taken into account MOAS bearing cuts with or without range) : TBEP, LOCTM MMI, VEGA, DLRL
- Adapt modify the Combat System PMFL (monitoring MOAS) ; PMFL, MANAGEMENT
- Integrate a new sub-system (MOAS) of the Combat System within the MFCC : USW , ROLE_MANAGEMENT




CDRL : N/A

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Date: 05-06-2015

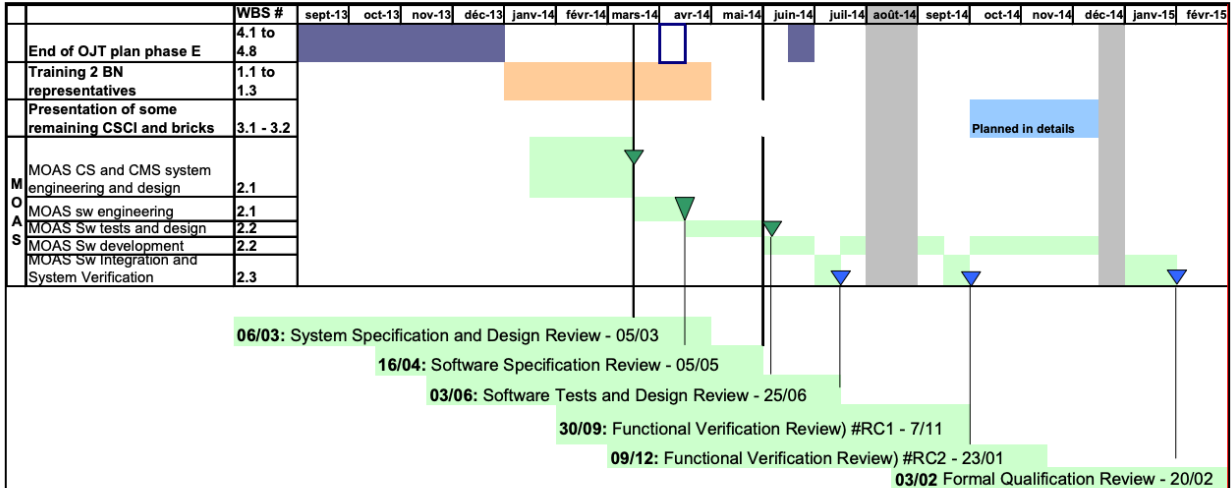
WBS OJT EXTENSION	Description	Status 28/07/2014	Status 15/11/2014	Status 15/12/2014	Training completion 28/02/2015
1	TRAINING new BN representatives	100%	100%	100%	100%
1.1	CMS fonctionnal overview (CMS V1 Demonstration on PF, using simulators, Focus on Sonar Processing)	100%	100%	100%	100%
1.2	Galaxi principles, UBP, UML, Design and Method	100%	100%	100%	100%
1.3	GPRO TUTORIAL	100%	100%	100%	100%
1.4	USW	100%	100%	100%	100%
1.5	PMFL	100%	100%	100%	100%
1.6	TBEP	100%	100%	100%	100%
1.7	LOCTM	100%	100%	100%	100%
2	Practical Case MOAS	46%	64%	73%	100%
2.1	MOAS - CMS system engineering	100%	100%	100%	100%
2.2	MOAS - SW development with design	50%	70%	80%	100%
2.3	MOAS - CMS Integration / Qualification	10%	35%	50%	100%
3	Presentation of additionnal CSCI and Bricks	0%	36%	86%	100%
3,1	Additionnal CSCI (OSW, TRAJM, TTMA, TACTAB, CARTO, CMSADM, TDL, EXTTM)	0%	33%	71%	100%
3,2	Additionnal Galaxi Bricks (CARTO_EXT, GEOGRAPHICS, EVENT, GEO_CONTAINER, GRAPHICAL_TRACK, GEOMATICS, GX, FAULT_TOLERANCE, SYSTEM_START_STOP, PRINT_MANAGEMENT, HIERARCHICAL_MENU, HELP_MANAGEMENT, REMOTE_COPY, DATA_IMPORT_EXPORT)	0%	38%	100%	100%
4	CMS OJT Plan Issue E (09/13-02/14)	99%	99%	99%	100%
4.1	Follow up The LYB provider	100%	100%	100%	100%
4.2	ASRU IHM presentation	100%	100%	100%	100%
4.3	PF Installation (Software)	95%	95%	95%	100%
4.4	TBEP (DLRL Brick)	100%	100%	100%	100%
4.5	LOCTM (VEGA and CONTROL_COMMAND Brick)	100%	100%	100%	100%
4.6	Practical Case On LOCTM : Follow The V-Cycle to implements an evolution	95%	95%	95%	100%
4.7	Implements Software Correction on LOCTM	100%	100%	100%	100%
4.8	OPMNT (DOMAIN LOGBOOK, REPLAY)	100%	100%	100%	100%
	Total	59%	73%	82%	100%

Table 5: CMS OJT activities completion

		
CDRL : N/A	Doc. status: Issued	Date: 05-06-2015


2.2.2 MOAS practical case

The picture below shows how the MOAS Practical Case (activities 2.1 to 2.3) was performed.



As specified in the CMS OJT Plan for Phase 2, the MOAS Practical Case progress is monitored all along with formal reviews. The presentations associated to these reviews are attached in Appendix 3.

The MOAS Practical Case was completed at the FQR Review passed on 20 February 2015 as is reported in the document SIS-SBR-OJT-MOAS-000169-FQR-RC3 [OJT03] which summarizes the tests results. The criteria specified in the CMS OJT Plan for Phase 2 [OJT01] "software properly running and integrated with CMS" were fulfilled successfully demonstrating the 100% completion for the activities 2.1, 2.2 and 2.3.

		
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4 Conclusion

As summarized above and recorded in detail in the following appendices, all the activities specified in the CMS OJT Plan for Phase 2 were completed by February 2015.

A complete check of the associated documentation was performed and it was concluded on 19 May 2015 that there was no pending point regarding the CMS OJT phase 2.