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**MORE Evolution Executive Summary Report**



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| Prepared by: |  |  | 22-11-2017 |

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|  | W. Heinen |  | Date |

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# Background

## MOIS Writer, Flowcharter and Publisher

MOIS is the ESOC S2K framework for Manual Flight Control Procedure preparation. The core components of MOIS are MOIS Writer, an off-line procedure editor (based on Microsoft Excel). MOIS Flowcharter, a graphical procedure editor (based on Microsoft Visio) used in conjunction with MOIS Writer and MOIS Publisher, a document editing tool based and compatible with Microsoft Word.

## MOIS&MORE GSTP Study

The GSTP Study “MOIS and MORE” implemented a prototype framework to allow a more coordinated and consistent management of data related to the preparation of operations, especially in the areas of integrated user presentation and version control.

Successfully integrated tools within the prototype were:

* MOIS Writer/Flowcharter (manual flight control procedures)
* MOIS Publisher (FOP production)
* Mission Planning Rules LMP language Editor
* On-Board Control Procedures language Editor
* S2K Synthetic Parameters Editor

## Missions Involved

All ESOC missions have been kept up-to-date with the progress of the activity. The following missions have been more closely involved during the execution of the activity: GAIA has participated in the OBCP Editor finalisation. The Juice, Solar Orbiter & Bepi Colombo team has followed the overall status of the activity.

# Achievements of the Activity

## Objectives and Results

The overall objective of the MORE Evolution activity was to evolve the initial MOIS&MORE framework prototype towards operational use. The key objectives which have set were:

1. Evolve the MOIS&MORE framework prototype towards operational use by the future S2K based missions currently under preparation phase. This entails the following:
   1. Correction of issue and shortcomings
   2. More extensive test coverage
   3. Documentation improvements
   4. Finalisation of functions for the plug-ins introduced by the M&M study

Outstanding issues and missing functionality have been successfully addressed. In particular the FOP publishing aspects that are imperative for an operational use have been addressed and successfully been accepted by the missions and documentalists.

1. Rationalisation of engineering processes to harmonise, streamline and enable control of framework deployment in various contexts (e.g. outside MOIS deliveries).

The build process has been redone and a full build followed by automatic testing can be initiated by a single command (Maven build with JUnit tests). The quality of the code is also monitored by tool (Findbugs) and some issues have been found and corrected in this process. The build generates 3 final products that are a non-MOIS version, a version including MOIS but not EUD and a full version including MOIS & EUD.

1. Streamlining the integration of Microsoft Office/Windows based plug-ins (i.e. MOIS Writer, MOIS Flowcharter and MOIS Publisher) into the Eclipse RCP framework. This shall also contribute to prepare further work to be done in order to enable compatibility of the legacy MOIS plug-ins with the future OPEN framework.

A single point of access that is an API between the MORE framework and the MOIS Office tools has been developed and documented. This means that now the MOIS Office tools could be plugged into another framework like OPEN provided that OPEN implements the API as documented – and no further modifications to the MOIS Office tools are be needed.

1. Integrate the EUD Display Editors in the framework and Integrate the capability to generate EUD Matrix Displays from MOIS Writer (based on conversion from XML definition to EUD Matrix, as already implemented for Gaia). Enable generation of Snapshot Check files as required by the S2K Snapshot Checker

The additions have also been released for the MOIS6 version and they are in use operationally for all missions.

1. Enhance the OBCP GAIA/OL Text Editor prototype.

The OL text editor could be finalised and it has been accepted for operational use.

1. Enable merging imported data from external libraries.

The MORE framework acts on a local workspace and *sets* of data can be committed, a compare function has been implemented that shows the differences marking files that changed and also changes within an individual file can be compared. Users can therefore import data, have a report on the changes and commit them to the library in a single action.

1. Enable export of specific data subsets at specific versions.

The get version into the local dataset together with a data type specific export has been implemented. This allows a range of new possibilities; any set of data from the past can be viewed, exported or compared against other data sets.

## Operational Use

As a result, the work has been rolled out to the following missions: the GAIA mission uses MORE for the purpose of editing OBCPs, Solar Orbiter uses MORE in replacement of MOIS6 for the Operations Preparation activity. Other new missions start requesting the setup for the MORE, currently Sentinel-6 is in preparation.