MBSE ON ARIANE 6 APPLIED TO FLIGHT SOFTWARE

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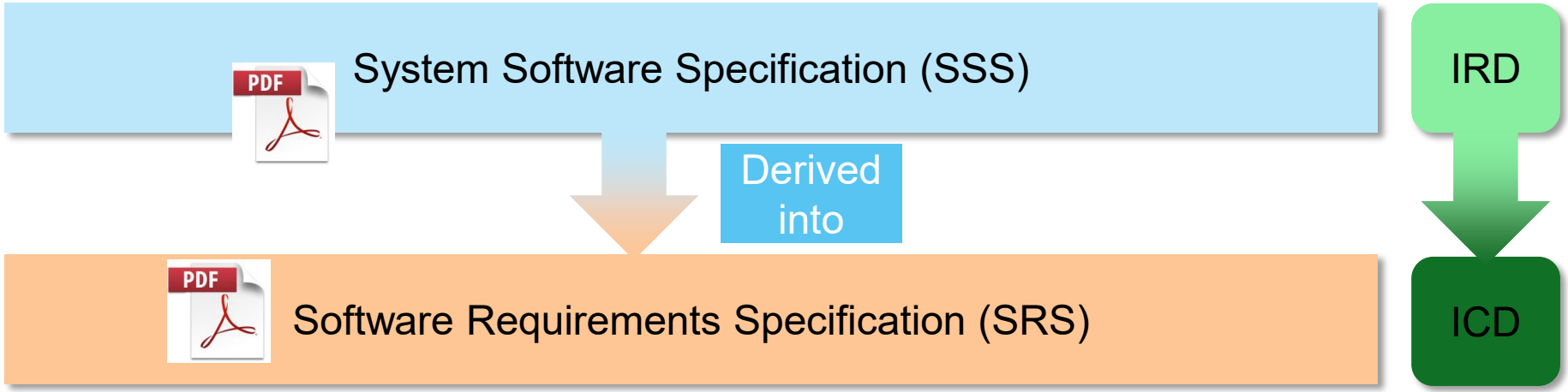
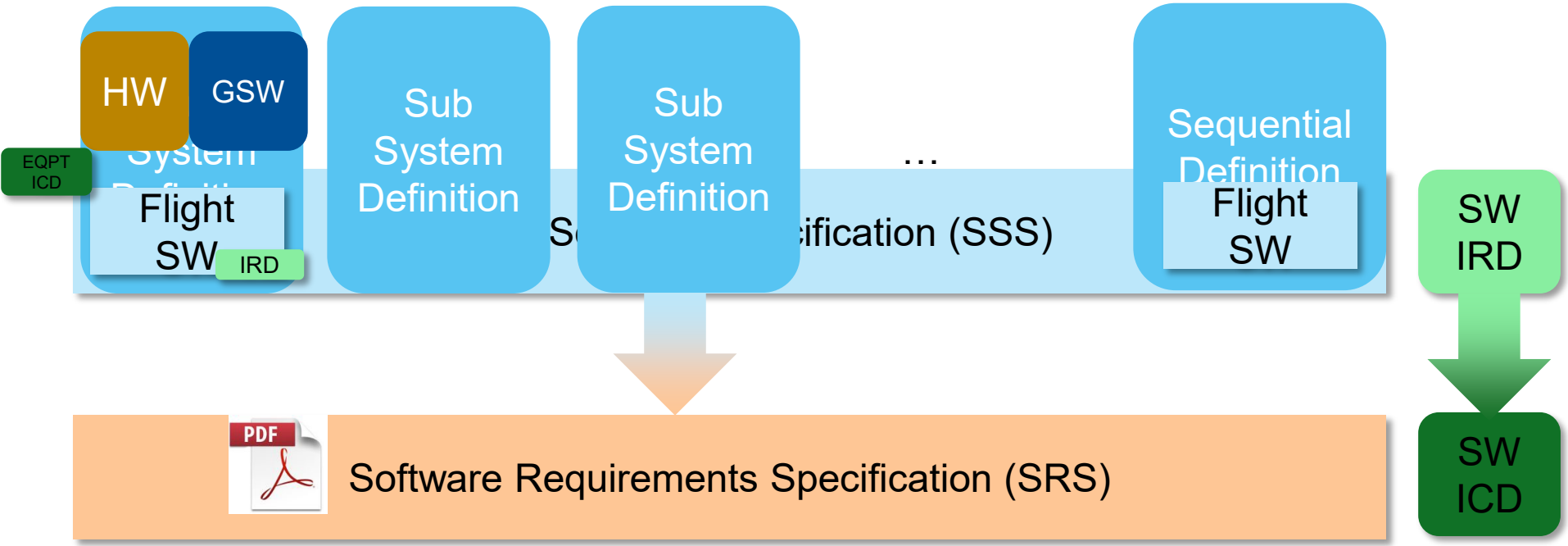
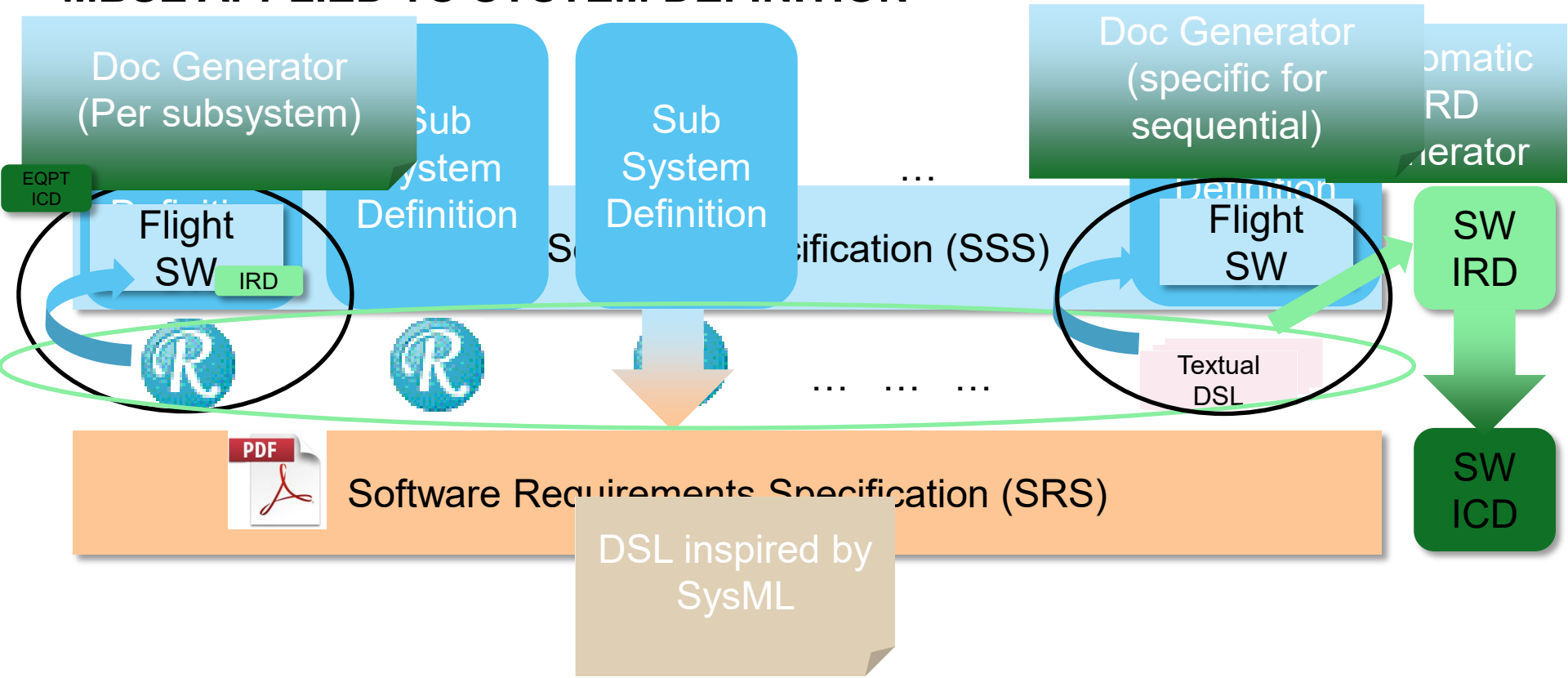
ECSS DOCUMENTS, STANDARD PROCESS



A6 DOCUMENTATION TREE



MBSE APPLIED TO SYSTEM DEFINITION



Sub System Definition

Flight SW

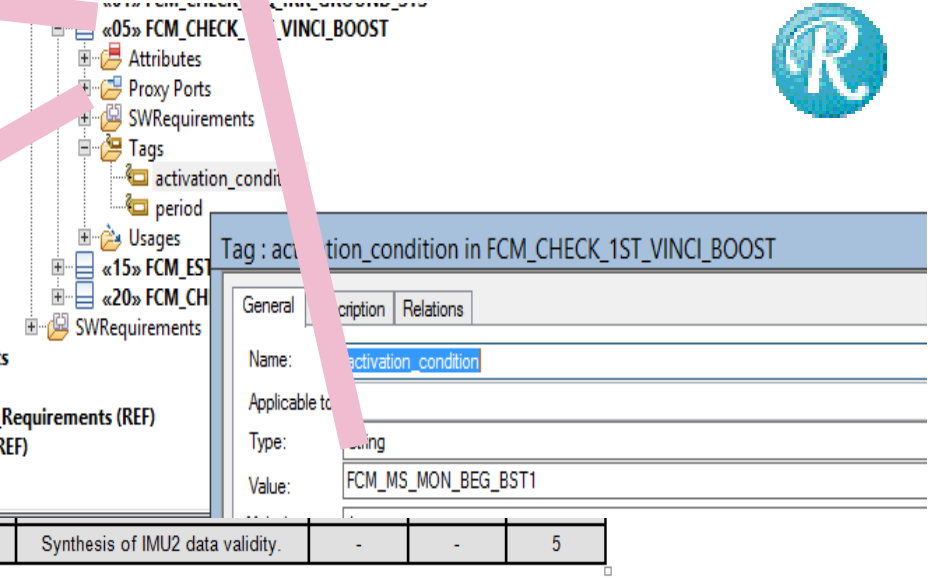
ESSING FCM_CHECK_1ST_VINCI_BOOST

processing activation

processings activation:

Processing name	Activation Conditions	Activation Period (ms)
FCM_CHECK_1ST_VINCI_BOOST	FCM_MS_MON_BEG_BST1	100

- Table 9.2-1 - Conditions for processing activation

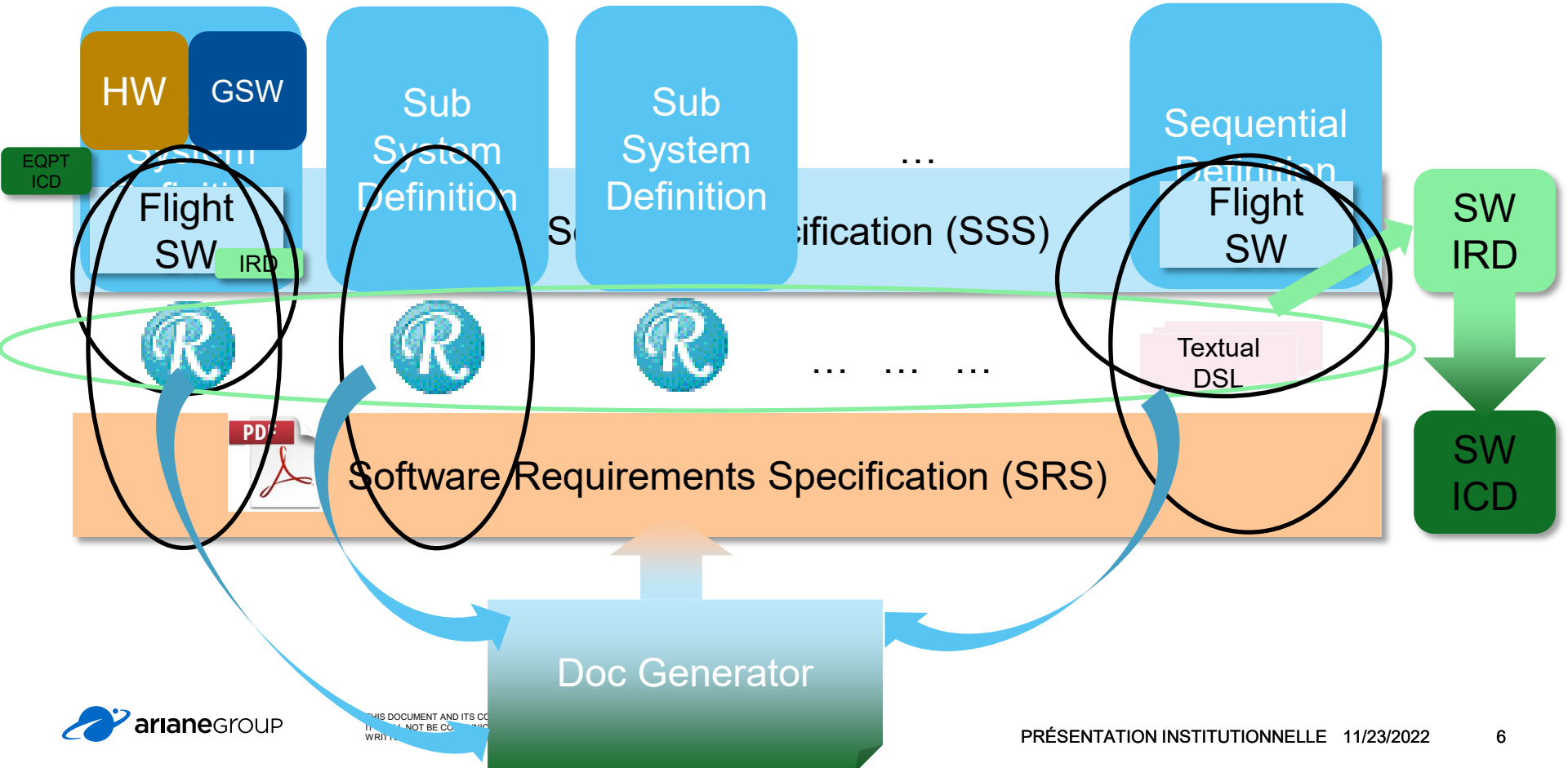


9.2.2 Inputs

Table Processing inputs:

Input	Source	Type				
NAV_ANGRATE_RLV_UF_10_1	NAV	T_Angular_Rate_Ve_F64	ants			
NAV_ANGRATE_RLV_UF_10_2	NAV	T_Angular_Rate_Ver_F64	rd_Requirements (REF) s (REF)			
NAV_IMU1_DATA_IS_OK	NAV	T_Boolean				
NAV_IMU2_DATA_IS_OK	NAV	T_Boolean	Synthesis of IMU2 data validity.	-	-	5

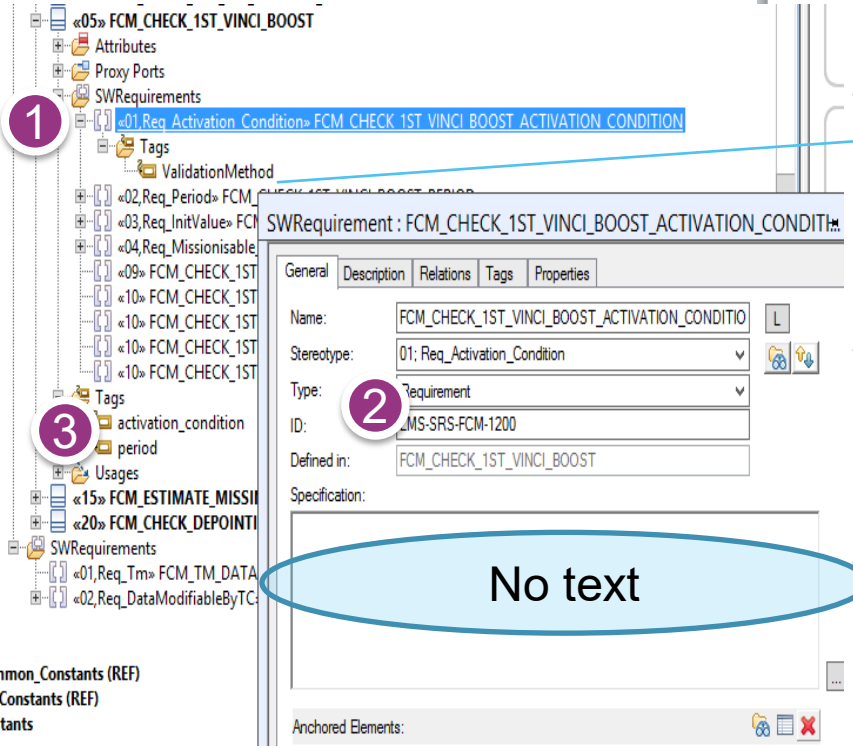
MBSE APPLIED TO SOFTWARE REQUIREMENTS SPEC



RHAPSODY MODEL : PROCE

Constant Data Identification	Type	Description	Range	Unit	Constant Value
C_Initial_FCM_1ST_VINCI_BOOST_RES	T_FCM_1ST_VINCI_BOOST_RES	Initial value of FCM_1ST_VINCI_BOOST_RES	Enumerate	-	NOT_FAILED
C_Initial_FCM_ACCNG_LONGI_THD	T_Acceleration_F64	Initial value of FCM_ACCNG_LONGI_THD	-	Meter-PerSquareSecond	0

Table: List of Constants Data



Details of Processing

DEFINE_REQUIREMENT LMS-SRS-FCM-1200, FCM_CHECK_1ST_VINCI_BOOST_ACTIVATION_CONDITION GENERIC

VALIDATION_METHOD Analysis

UPWARD_REQ

The LMS shall activate the processing ECK_1ST_VINCI_BOOST on the following conditions:

FCM_MS_MON_BEG_BST1

RATIONALE

None

END_REQUIRE

DEFINE_REQU ENERIC

VALIDATION_

UPWARD_REQ

The LMS sha

RATIONALE

None

END_REQUIRE

DEFINE_REQU ENERIC

VALIDATION_

UPWARD_REQ

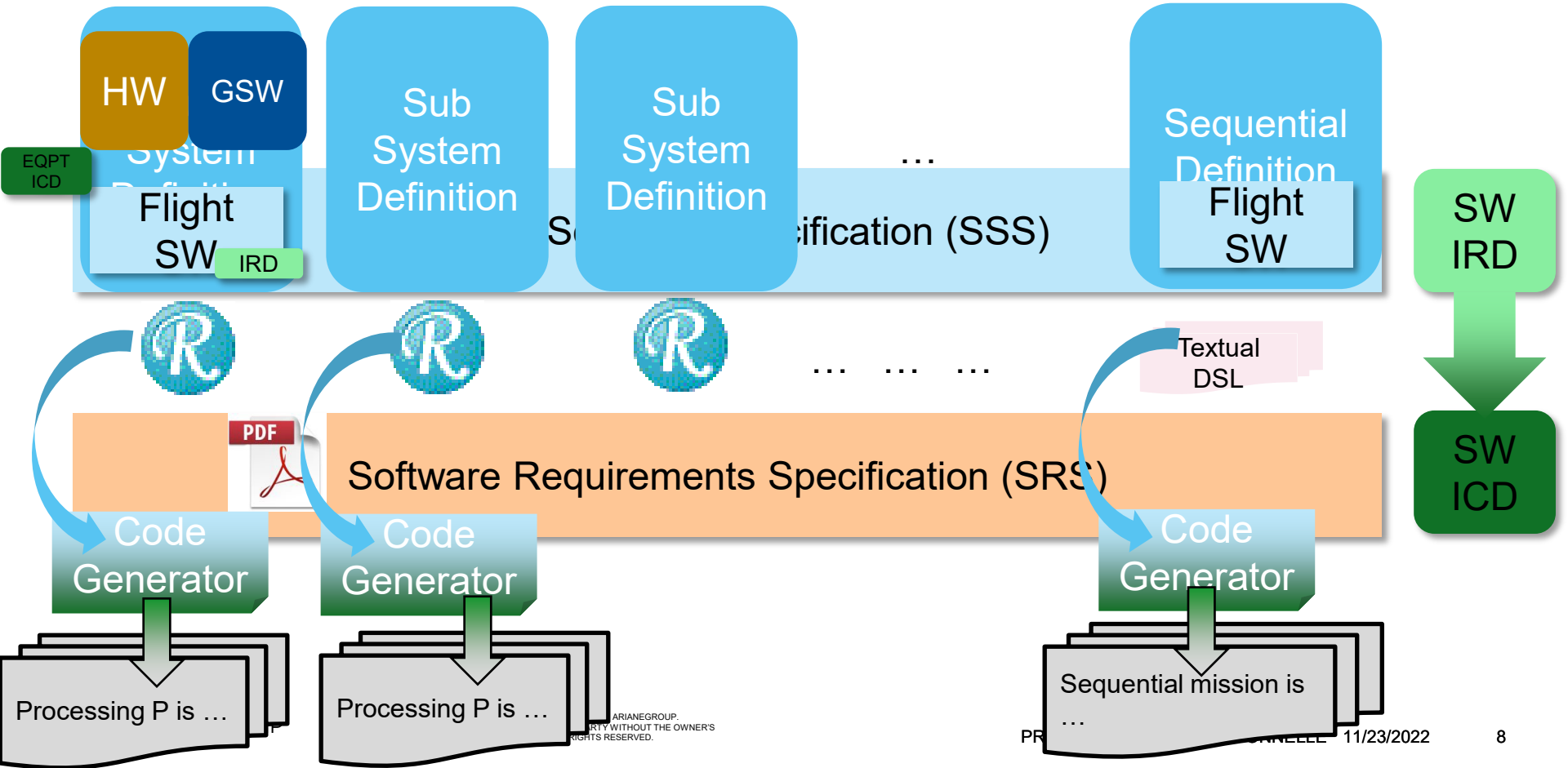
Until first acti

FCM_1ST_VINCI_BOOST_RES	1st Vinci boost		

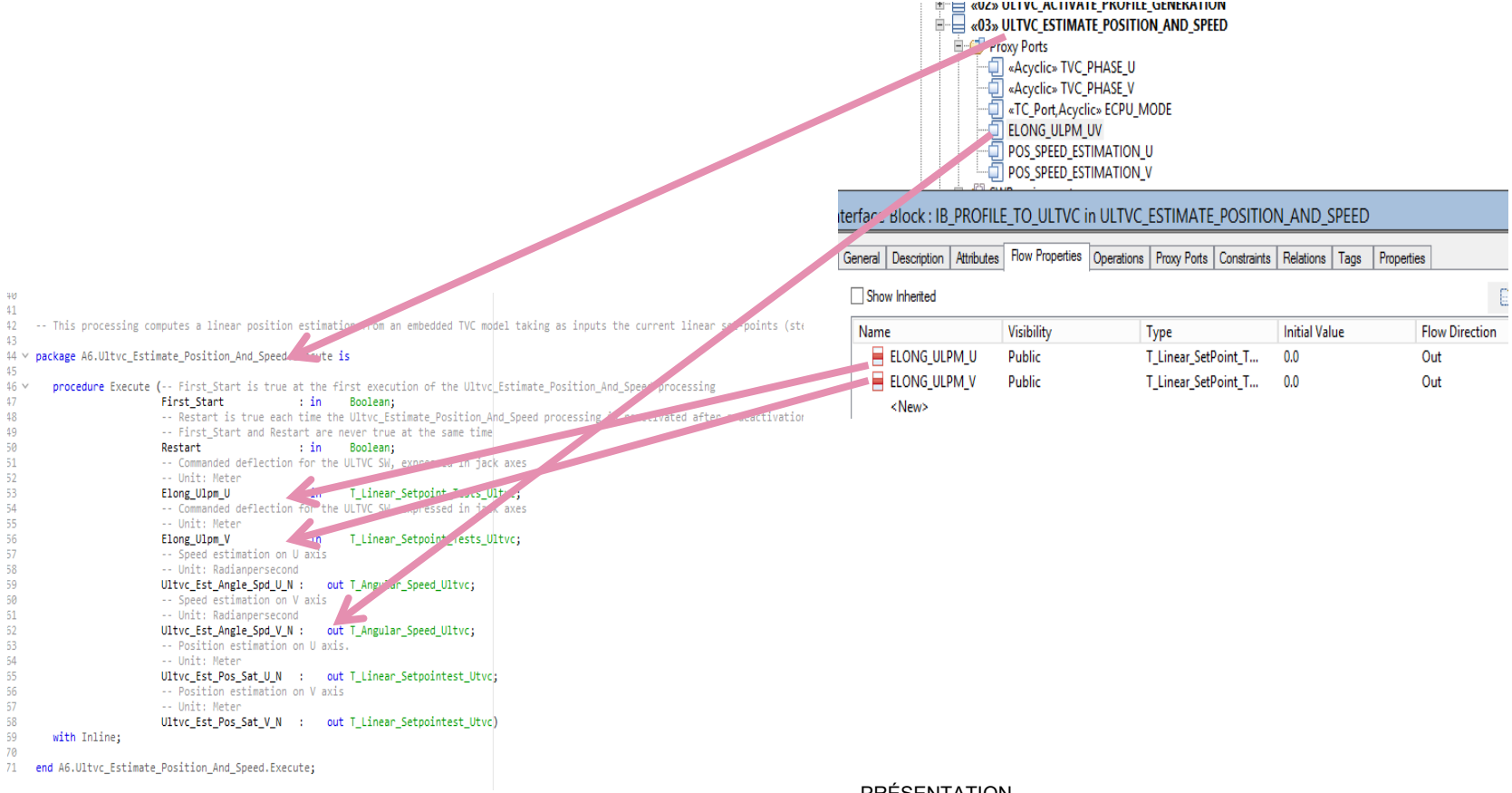
1

Some requirements are predefined sentences completed with information found in the model.

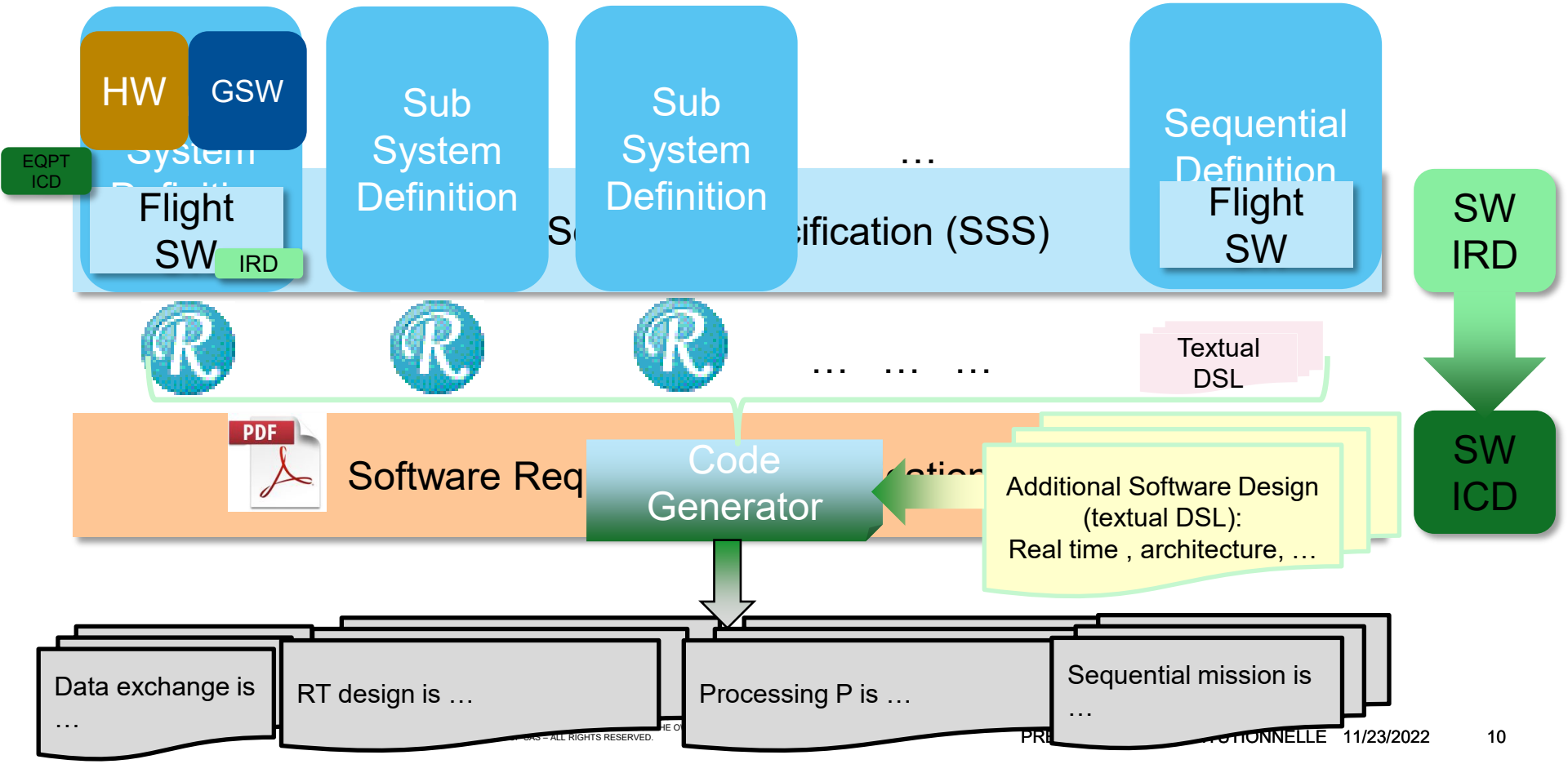
MBSE BONUS : CODE GENERATION STEP 1 : STATIC ARCHITECTURE



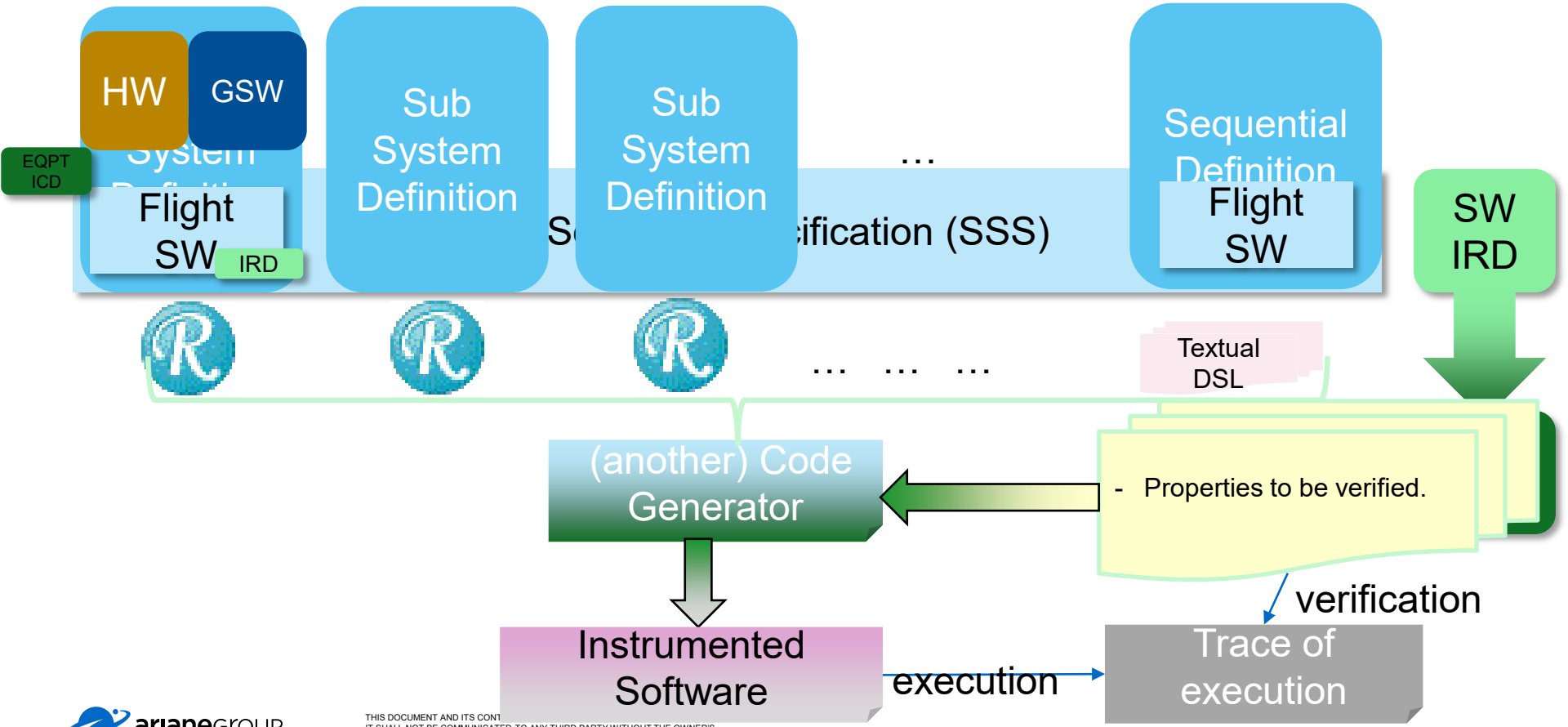
MBSE BONUS : CODE GENERATION STEP 1 : EXAMPLE



MBSE BONUS : CODE GENERATION STEP 2 : ARCHITECTURE



MBSE BONUS : EARLY VERIFICATION AND AUTOMATIC TESTS



CONCLUSION

- (not presented) The model is develop by the software team:
  - Improve the consistency System/Software
  - Additional cost, since SW team is involved much earlier in the process.

- A model which is able to generate the code and (part of) the system definition :
  - Impose to have a system definition very close to software (at least with our current modelling environnement, where there is no refinement possible for data/datatypes).
  - Allow verifying the system definition very early in the process.