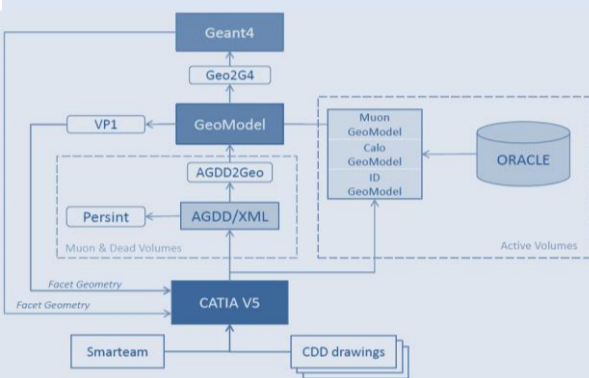




# DEVELOPMENT OF GEOMETRICAL DESCRIPTION FOR THE SIMULATION OF THE ATLAS NEW SMALL WHEEL

CATIA v5 has been implemented as a hub for:

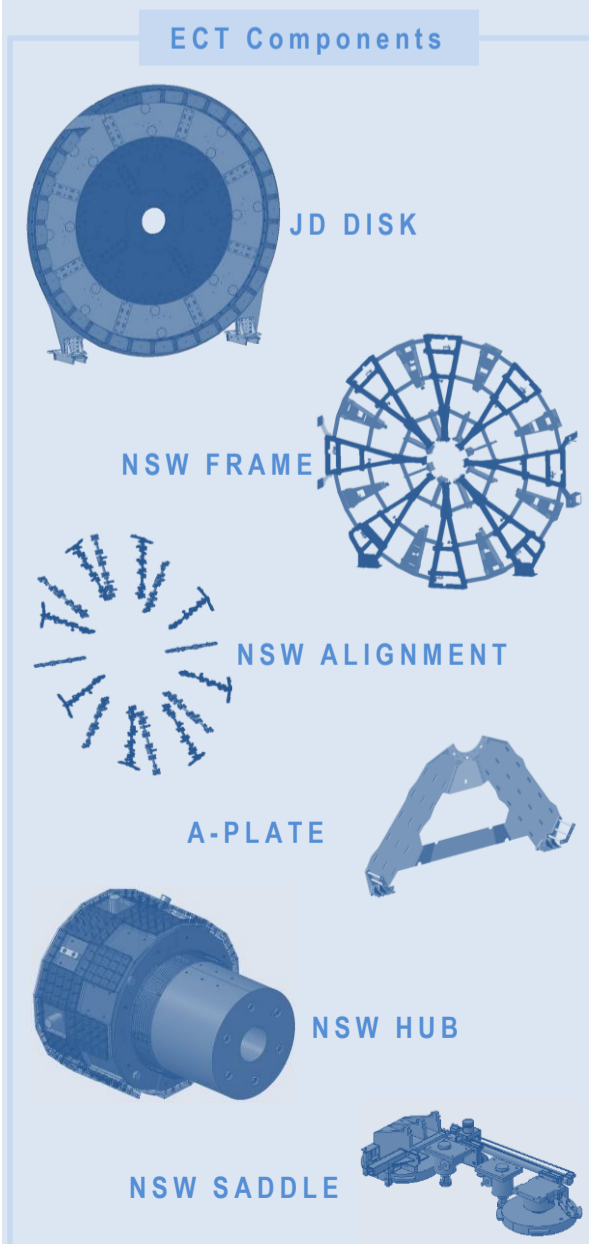
- collecting CAD data from different platforms
- Preparing geometry descriptions on XML/GeoModel/GEANT
- Comparing analyses and Integration conflicts checking



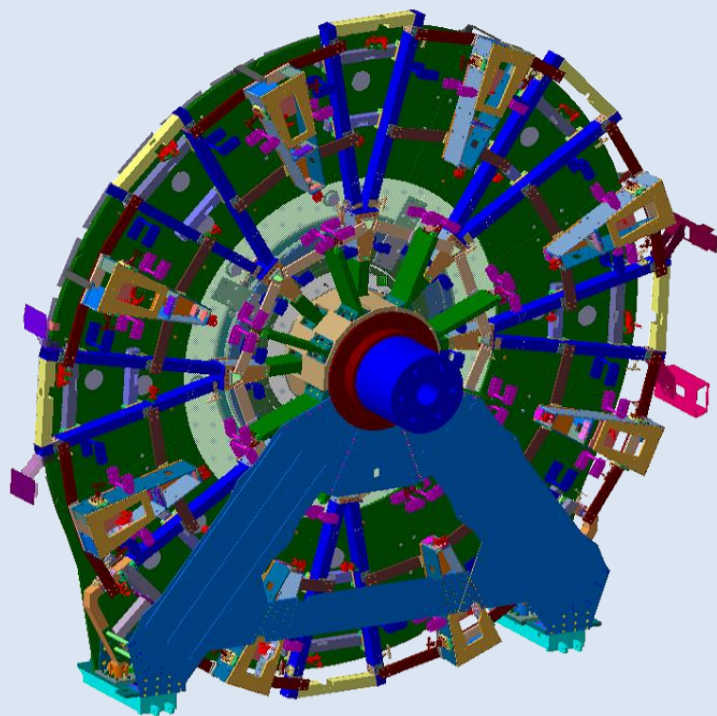
The main steps of work:

## STEP 1

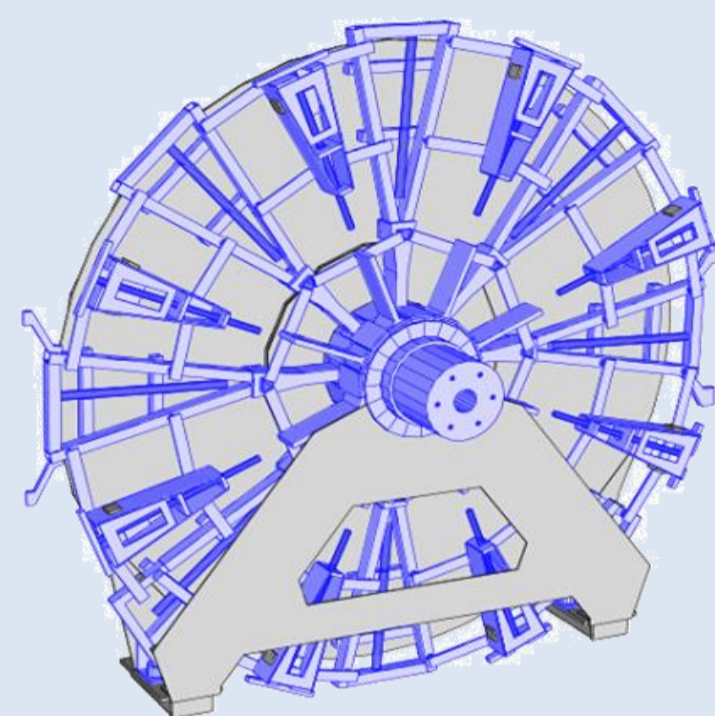
Engineering 3D model of New Small Wheel has been taken from SmartTeam Engineering Database



## CATIA GEOMETRY



## XML GEOMETRY



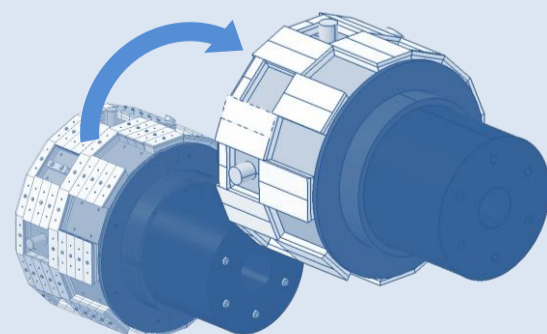
## STEP 2

Segmentation and calculation of Mass Properties

NSW Hub	
Volume	Weight
1,7093	15315,3
0,8139	7292,5
0,0118	102,6
0,0158	126,4
0,0071	56,8
0,0109	87,2
0,0791	79,9
0,0892	1012,5
0,1454	232,6
8824	24305

## STEP 3

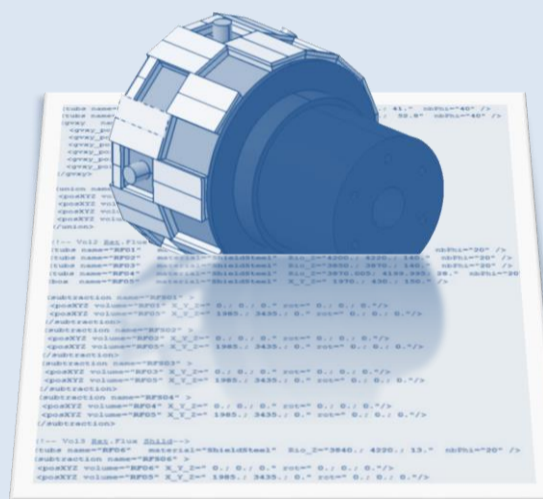
Simplification of 3D model by keeping mass properties



NSW HUB	Volume	Weight
Simplified	2,8821	24292
Detailed	2,8824	24305
Difference	-0.0003	-13

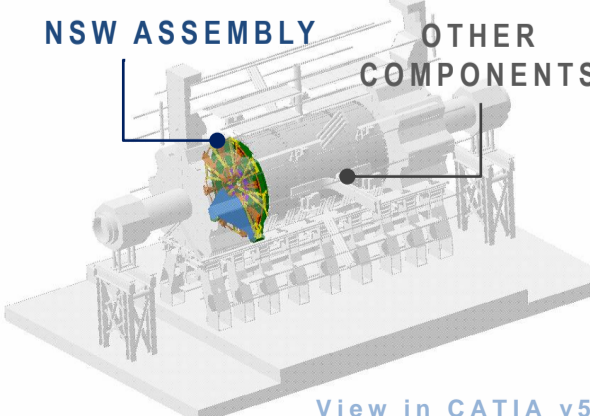
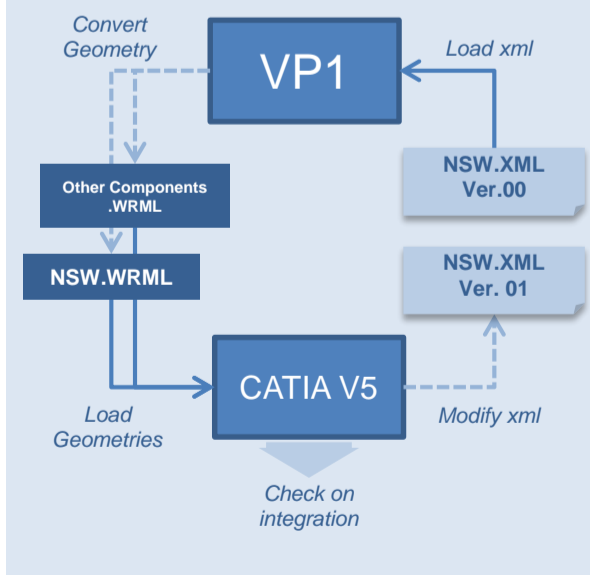
## STEP 4

Creation of Geometry descriptions in XML



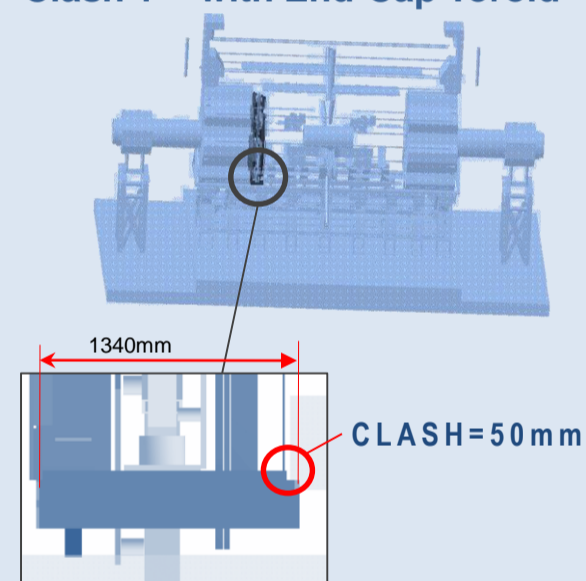
## STEP 5

Integration conflicts checking

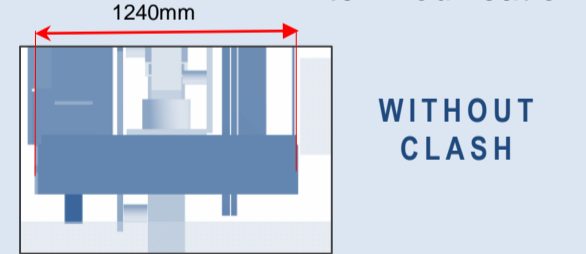


Examples of clashes found and resolved

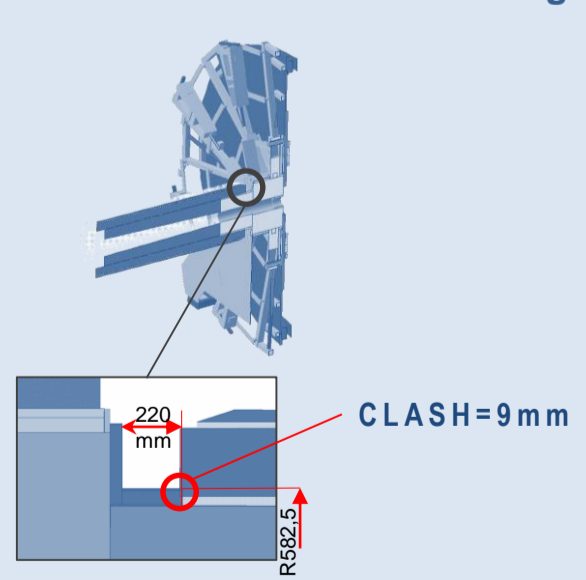
Clash 1 - with End-Cap Toroid



After modification



Clash 2 - with Toroid Shielding



After modification

