Costing the Target

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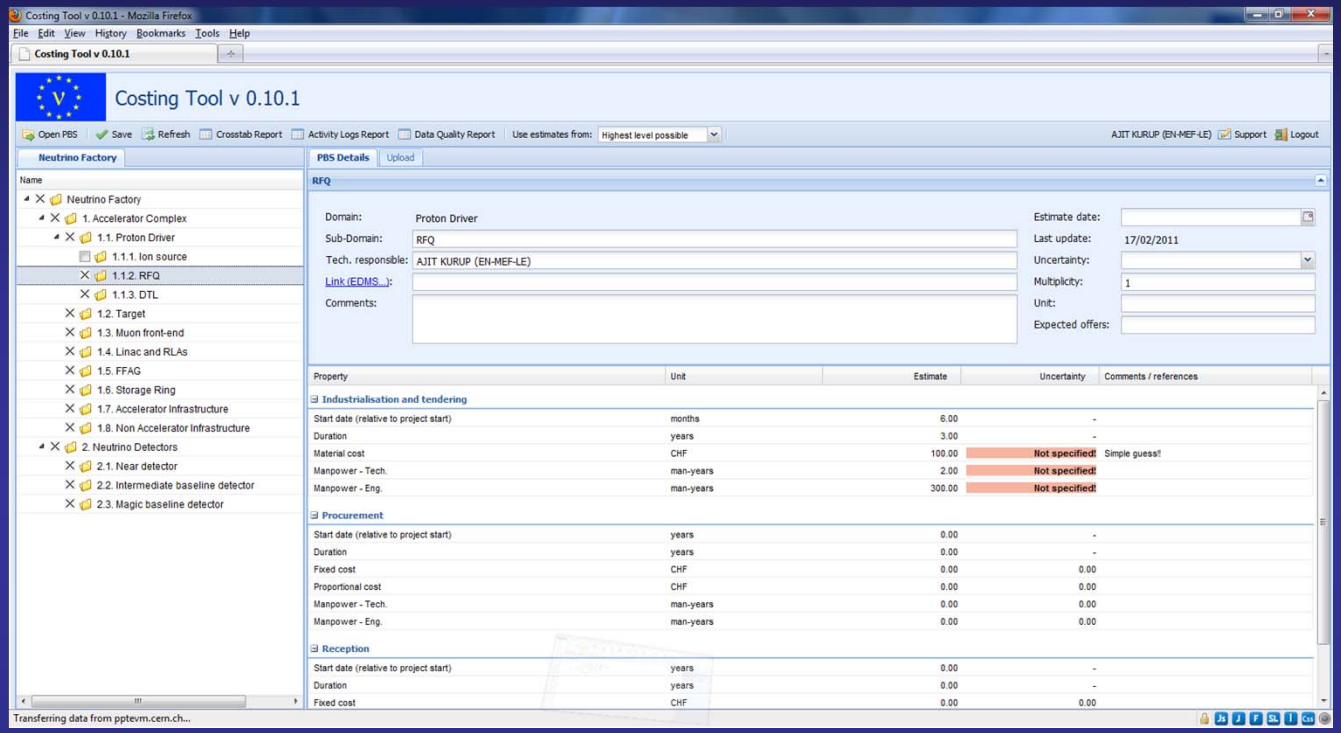
Introduction

- Costing of the target for the RDR needs to be done using the CERN costing tool.
  - The tool was originally designed to cost CLIC but is being used for EUROnu.
- The tool is mainly for accounting and reporting, so we need to provide it with the right information!
  - Broken down into 3 project phases with associated costs and man-power.
- Costing workshop on 25th May at CERN
  - Plan is to discuss Project Breakdown Structures (PBSs).

CERN Costing Tool

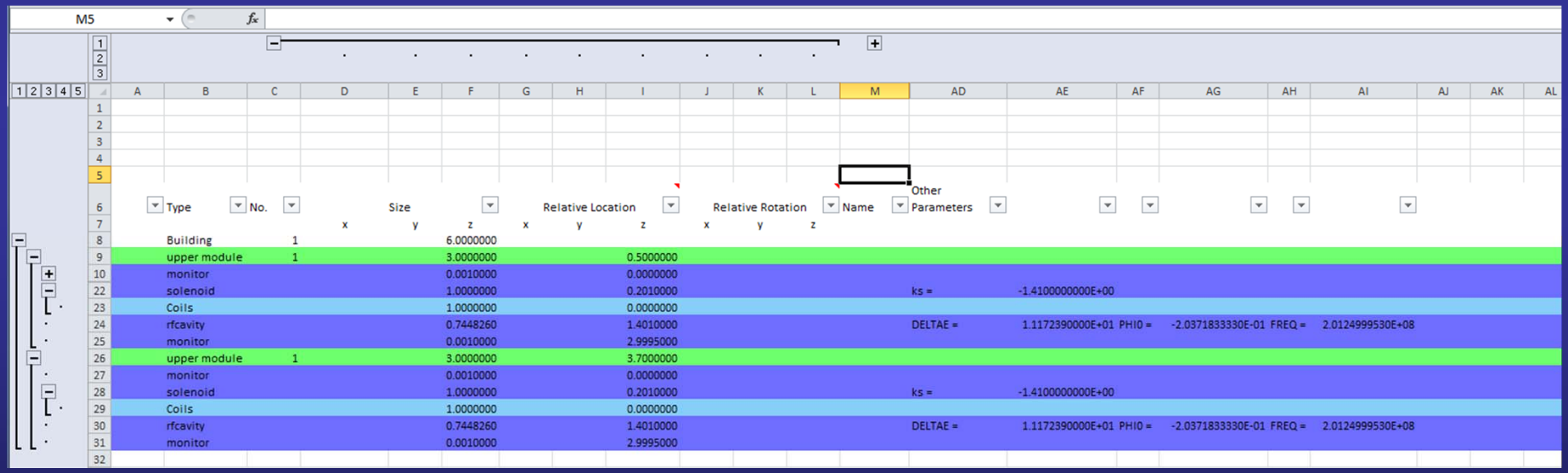


- Project has 3 phases
  - Industrialisation
  - Procurement
  - Reception (i.e. commissioning)
- Each phase has a start date, duration, costs and manpower

- It's an Oracle database with a web interface.
- An Excel spread sheet input has been developed to facilitate data entry.
- I'm developing another tool to store the engineering design and calculations and it will interface to the tool.
- CERN Tool links to the CERN document sever (EDMS) to store things like invoices, engineering drawings, etc, to document how costs are derived.

Spread Sheet

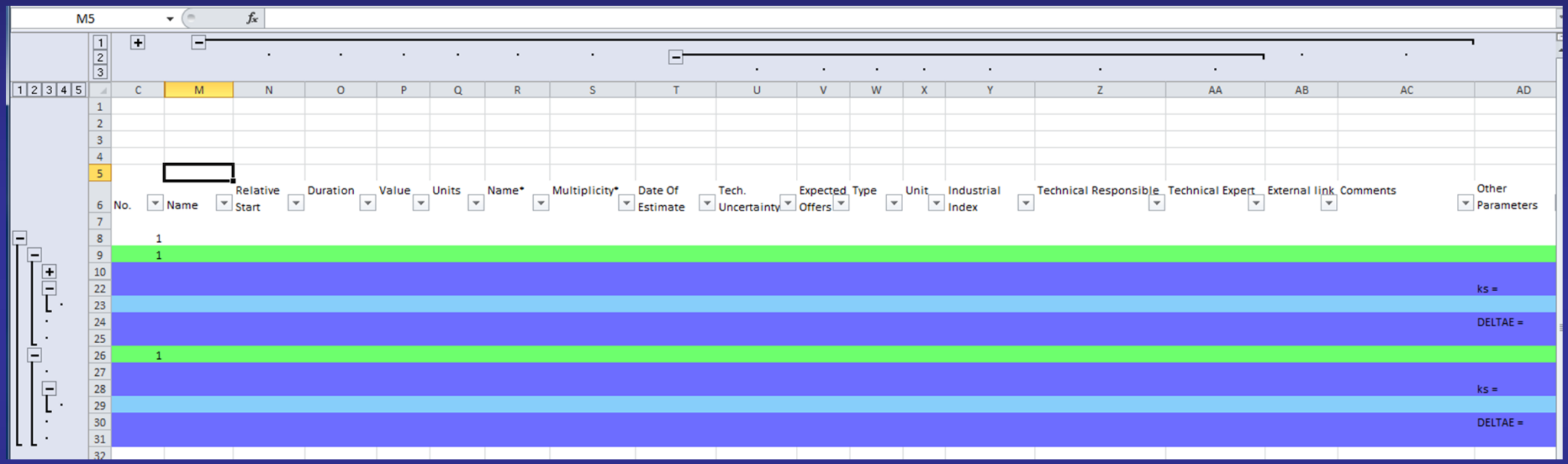
- I'd like to use this spread sheet to store the information needed for the costing and also a way of specifying the current design of the target.
- It was primarily designed with beamlines in mind but I think it is also suitable for the target.
  - Will have a separate sheet for the liquid, solid and powder options.



	Type	No.	Size x	Size y	Size z	Relative Location x	Relative Location y	Relative Location z	Relative Rotation x	Relative Rotation y	Relative Rotation z	Name	Other Parameters							
8	Building	1			6.0000000															
9	upper module	1			3.0000000			0.5000000												
10	monitor				0.0010000			0.0000000												
22	solenoid				1.0000000			0.2010000					ks =	-1.4100000000E+00						
23	Coils				1.0000000			0.0000000												
24	rfcavity				0.7448260			1.4010000					DELTAE =	1.1172390000E+01	PHI0 =	-2.0371833330E-01	FREQ =	2.0124999530E+08		
25	monitor				0.0010000			2.9995000												
26	upper module	1			3.0000000			3.7000000												
27	monitor				0.0010000			0.0000000												
28	solenoid				1.0000000			0.2010000					ks =	-1.4100000000E+00						
29	Coils				1.0000000			0.0000000												
30	rfcavity				0.7448260			1.4010000					DELTAE =	1.1172390000E+01	PHI0 =	-2.0371833330E-01	FREQ =	2.0124999530E+08		
31	monitor				0.0010000			2.9995000												

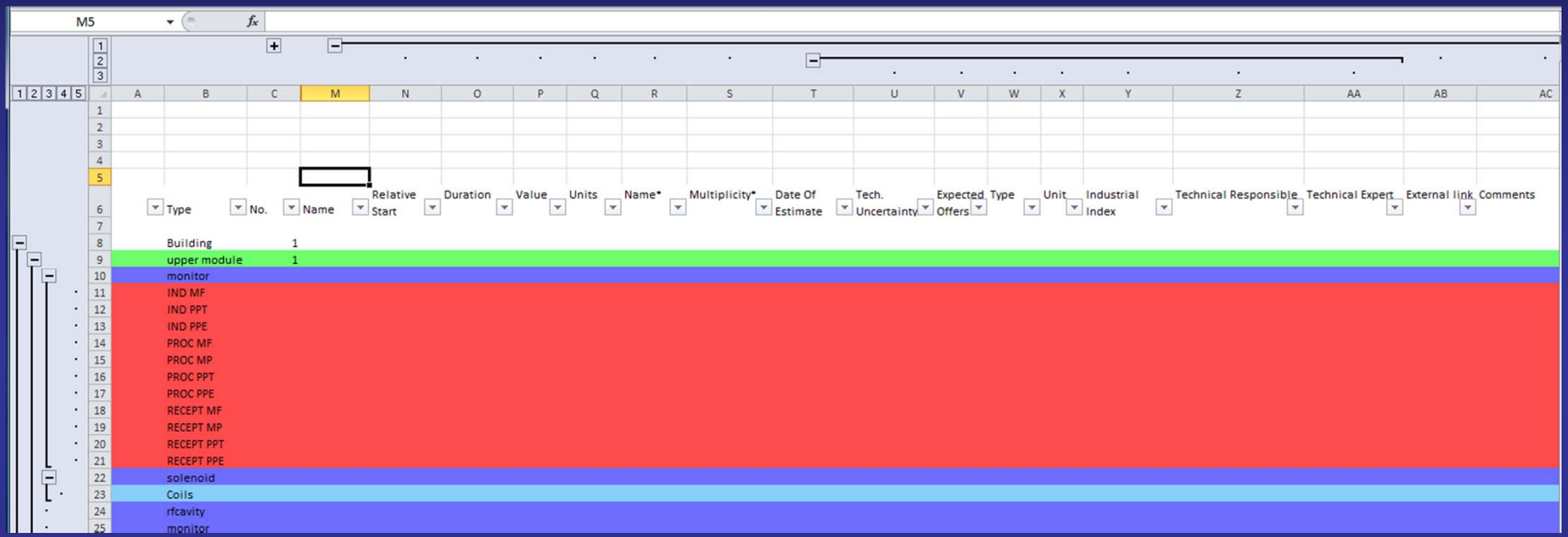
- Example shows the muon linac.
- Rows and columns are grouped to provide different levels of detail. Current view shows the lattice design.

Spread Sheet



- Additional details gives project start date, duration, link to EDMS, etc

Spread Sheet



Type	No.	Name	Relative Start	Duration	Value	Units	Name*	Multiplicity*	Date Of Estimate	Tech. Uncertainty	Expected Offers	Type	Unit	Industrial Index	Technical Responsible	Technical Expert	External link	Comments
Building	1																	
upper module	1																	
monitor																		
IND MF																		
IND PPT																		
IND PPE																		
PROC MF																		
PROC MP																		
PROC PPT																		
PROC PPE																		
RECEPT MF																		
RECEPT MP																		
RECEPT PPT																		
RECEPT PPE																		
solenoid																		
Coils																		
rfcavity																		
monitor																		

- Sections in red correspond to costs and manpower for the different phases of the project.
- A VBA macro is used to generate the input for the costing tool.

So …

- I’d like to know how you think the target should be broken down?
  - What information is required for each of these parts?
  - My naïve idea of a first level breakdown is something like
    - Proton beam transfer line
    - Target delivery system
    - Capture Solenoid
    - Shielding (including containment and maintenance access details)
- We have limited engineering effort, so we should try to base costs on similar built parts where possible.
- Are there any problems with using the spread sheet to store this information?