WP4 Activities

J. Nash – SLHC-PP SG

Task 4.1

Description of work

Task 4.1 Coordination and organisation of CMS2

Overall coordination task for managing the upgrade of the experiment for SLHC; identification of participating institutes and their contribution, including activities related to seeking and integrating new partners; definition of the organisational project structure needed to manage the consortium of institutes participating in the construction and modification work; negotiation with institutes and funding agencies to establish collaboration agreements, cost books and reporting methods; exchange and dissemination of scientific and technical information (CERN, Imperial)

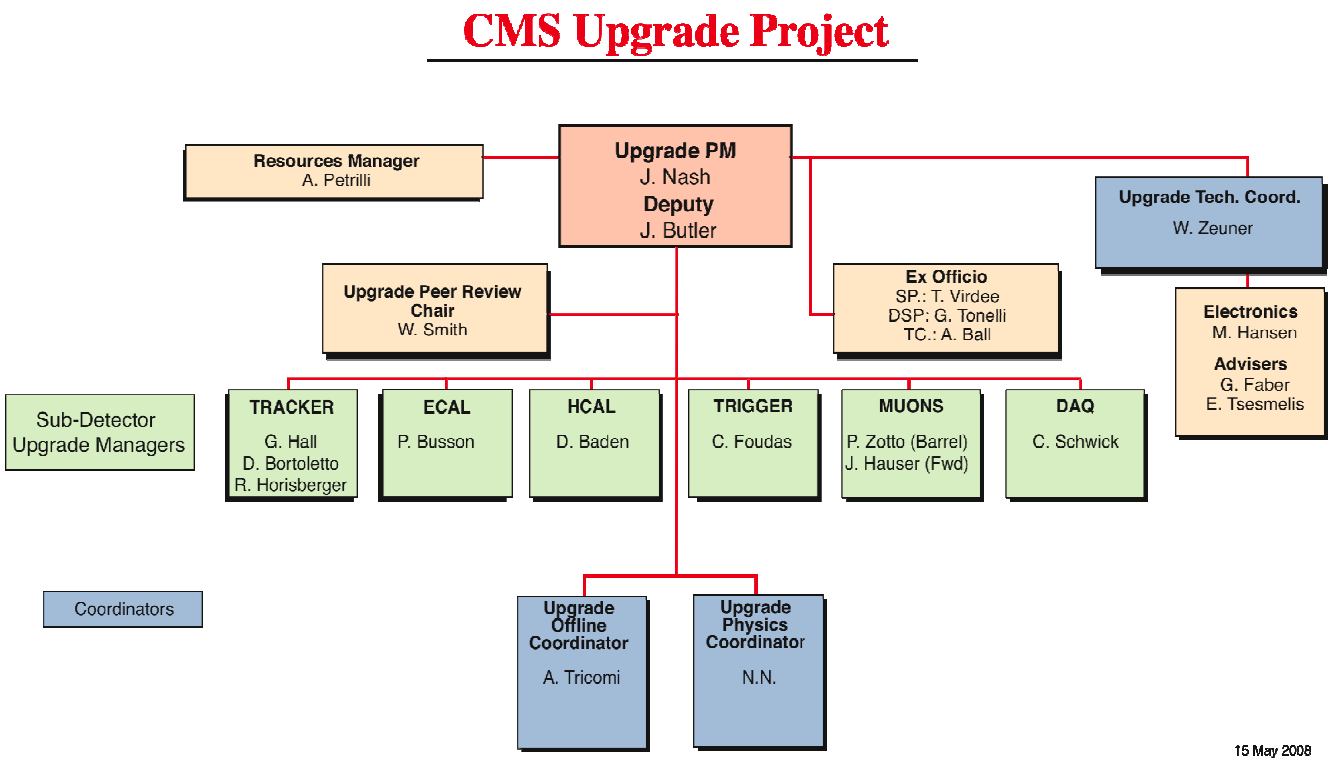
Deliverables task 4.1	Description	Nature	Delivery date
4.1.1	Project Structures for construction of systems and sub-systems	O, R	M12
4.1.2	Cost book and MoU for the upgrade and installation phase	R	M36

Milestone	Description	Nature	Expected date
4.1	Upgrade Project Scope defined	R	M18

Task 4.1.1 – Management Structure

- Project management structure defined
- Management team put in place
- Team and mandate approved by CMS
  - Now a "project" (ala Tracker/ECAL…)
- Regular meetings of management team
- Monthly meetings of overall upgrade team
  - Regular meetings of many subgroups within sub-detector upgrade projects
- Four Workshops held, more planned next year
- Report published

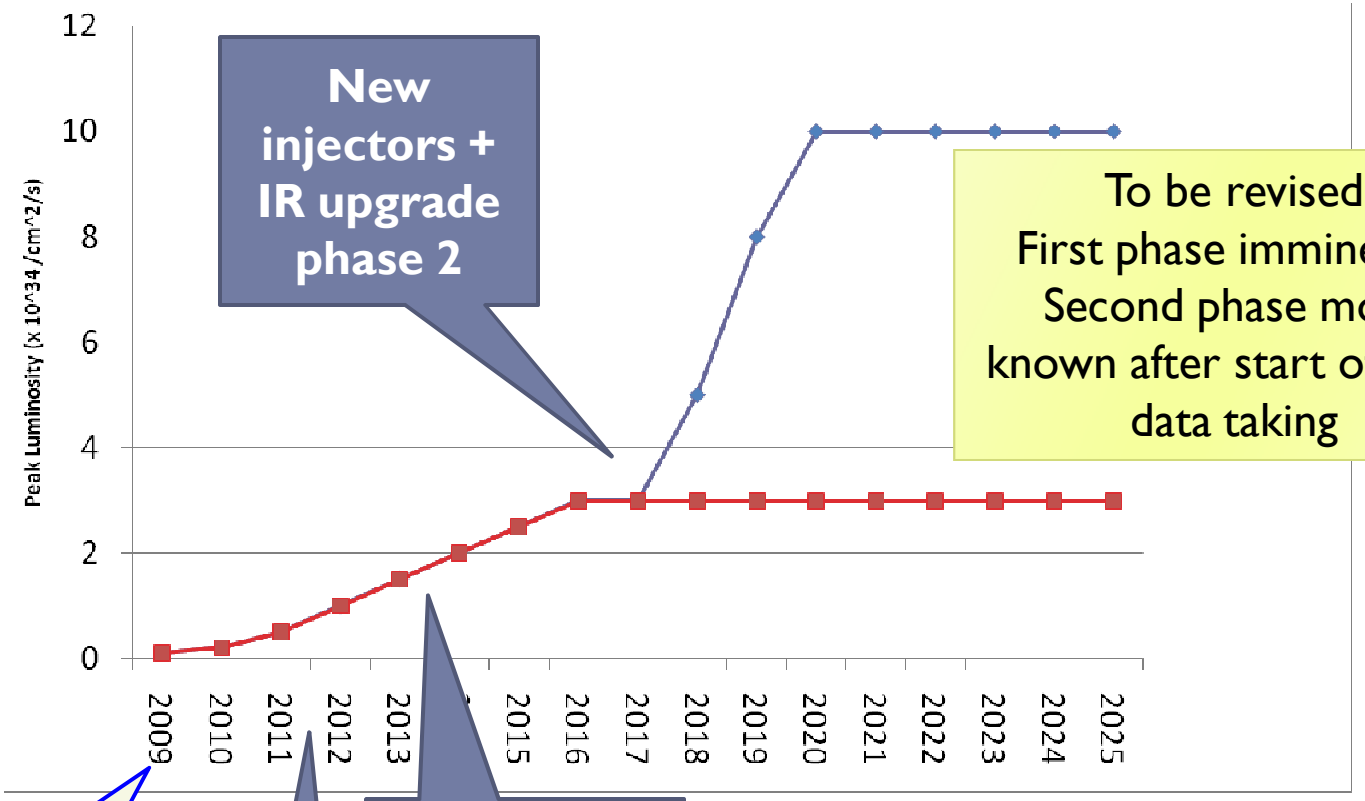
Upgrade project organization



Milestone 4.1 – Upgrade Scope

- Workshop in May 2008 at CERN to define the scope of upgrades
  - What needs to be done in Phase I, Phase 2
- Follow up workshop held November 2008 in FNAL (150 participants) to track progress, and prepare work plan for the following six months
  - Goal prepare TP for phase I upgrades
- Workshop held in May 2009 to present, approve plans for phase I upgrades, and also progress towards a "Strawman" for phase 2 upgrades.
- Follow on Workshop held in Oct 2009 at FNAL
- Report published to EU – Milestone passed
  - Explicitly break out phase I and phase 2

Agreed Scenario for Peak luminosity (CMS/ATLAS/Machine/LHCC)



New injectors + IR upgrade phase 2

To be revised
First phase imminently
Second phase more known after start of LHC data taking

Early operation

Collimation phase 2

Linac4 + IR upgrade phase I

Upgrades required to keep CMS operating at maximum potential throughout

Agreed at the May 2008 Upgrades Workshop
http://indico.cern.ch/conferenceDisplay.py?confId=28746

Upgrade Scope

System	Phase 1	Phase 2
Pixel	New Pixel Detector (1 or 2 iterations?)	
Tracker	FEDs?	New Tracking System (incl Pixel)
HCAL	Electronics + PD replacement	HF/HE?
ECAL	TP (Off Detector Electronics) ?	EE?
Muons	ME4/2, ME1/1 ,RPC endcap, Minicrate spares, some CSC Electronics	Electronics replacement
Trigger	HCAL/RCT/GCT to μTCA	Complete replacement

WP 4.2 Deliverables

Deliverables task 4.2	Description	Nature	Delivery date
4.2.1	Personnel and working practices of the Technical Coordination unit in place	O, R	M12
4.2.2	Key structural requirements (information repository, tools, coordination framework, safety and quality systems, integration office) and scheduling and reporting mechanisms in place	O, R	M18
4.2.3	Pilot design and schedule for the upgrade project published.	R	M36

Task 4.2.1 – Upgrade TC Unit established

- Upgrade TC named (W. Zeuner)
- Working within the current technical coordination unit.
- Have started work on defining the working methodology
- Planning for Muon system phase I upgrade (ME 4/2 Construction and installation) well advanced. Preparing area in bat 904 for construction
- Meetings between Executive Board, and Project Managers to discuss procedures for reviews, TC needs for upgrades, engineering support issues
- Report published

Task 4.2.2 – Upgrade TC methodology defined

- Working within the current technical coordination methodology.
- Examined potential changes for future operation
- Report nearly published

Conclusions

- Good progress on tasks/Milestones
  - Upgrades teams established
  - Upgrade Scope understood
    - Details being studied/prepared
- Phase I/Phase 2 split actually allows us to deliver a fairly complete upgrade plan during the course of this FP7 project
- There may be some issues with completing cost book/MOU by the end of the project, although we should be able to define how these will work. Although several upgrades are nearly "Shovel ready" we may not get funding in place on the timescale of the project due to the delayed startup of the LHC