



Simulations Group: EDR Plans

Some top-down guidance

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WebEx meeting 17.7.07

Global Design Effort

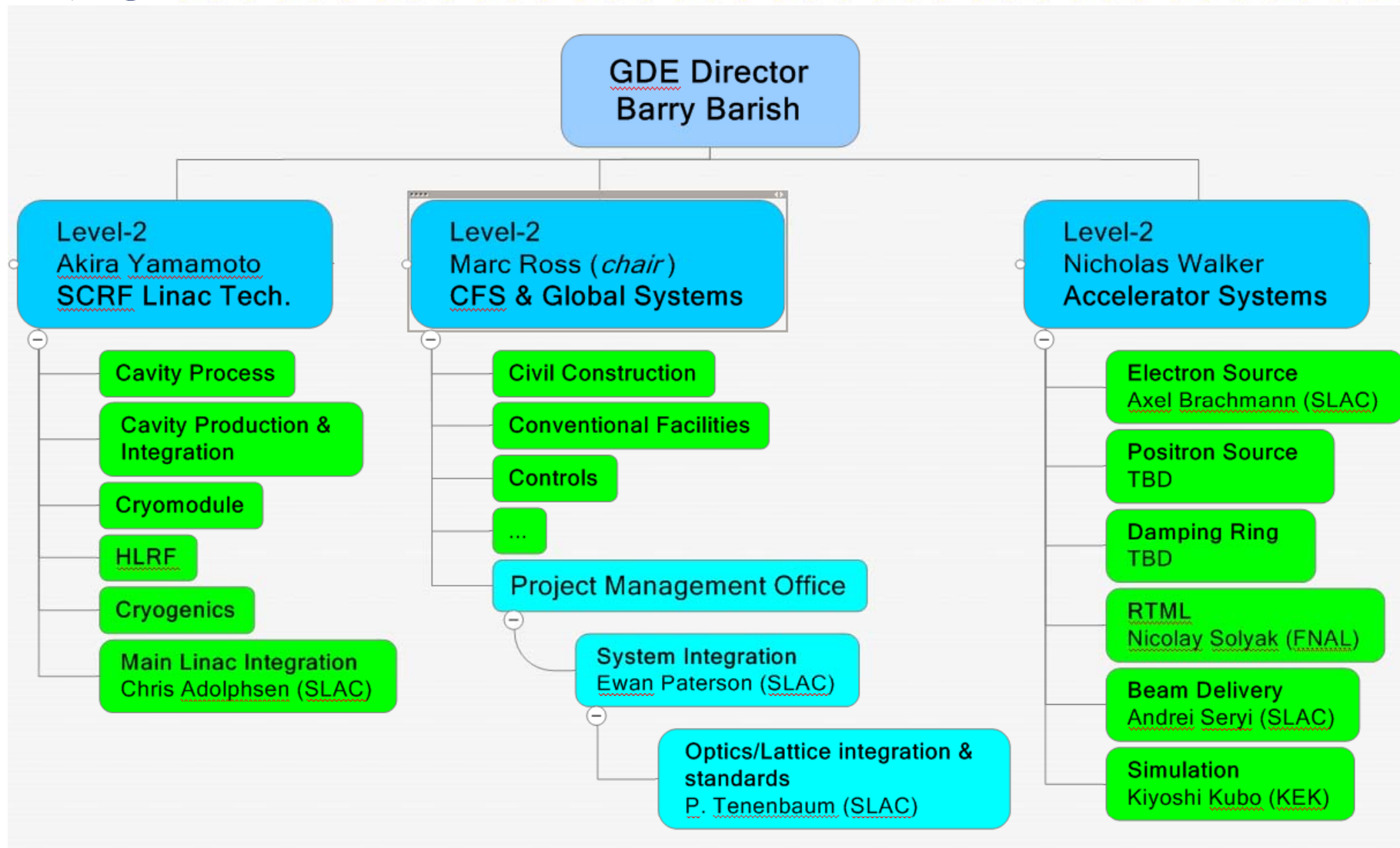


EDR Goals

- We are now moving into an Engineering Design Phase
 - **Premise: RDR conceptual design is sound and will perform as required.**
 - (much of the basic accelerator physics is done.)
- Primary focus is **cost control**
 - **We will be looking hard to reduce the cost of the machine.**
 - **Understanding the cost/performance trade-offs**
- Buzz phrase: “VALUE engineering”
 - **Loosely defined: VALUE = worth / cost**



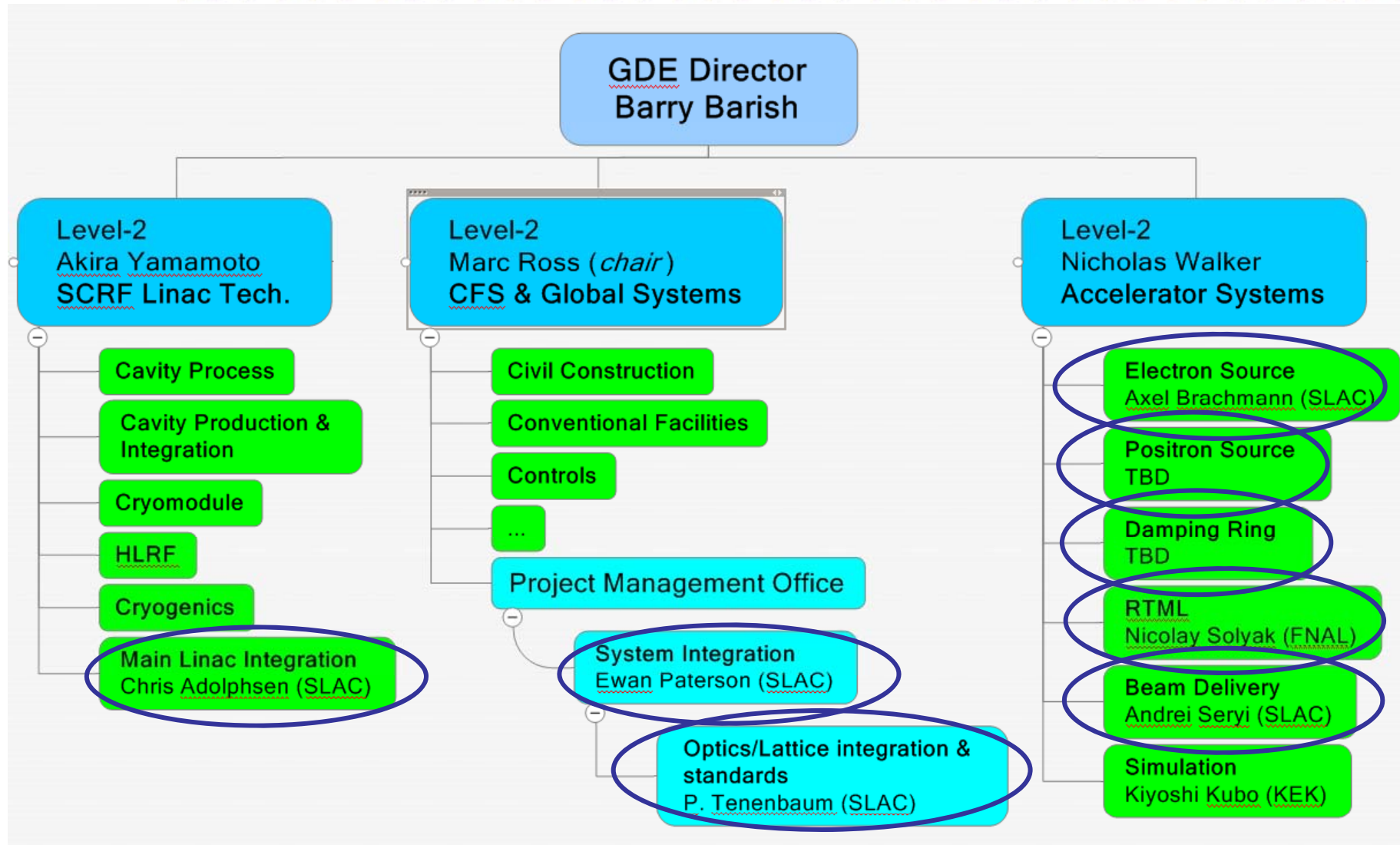
EDR Project Structure



Global Design Effort



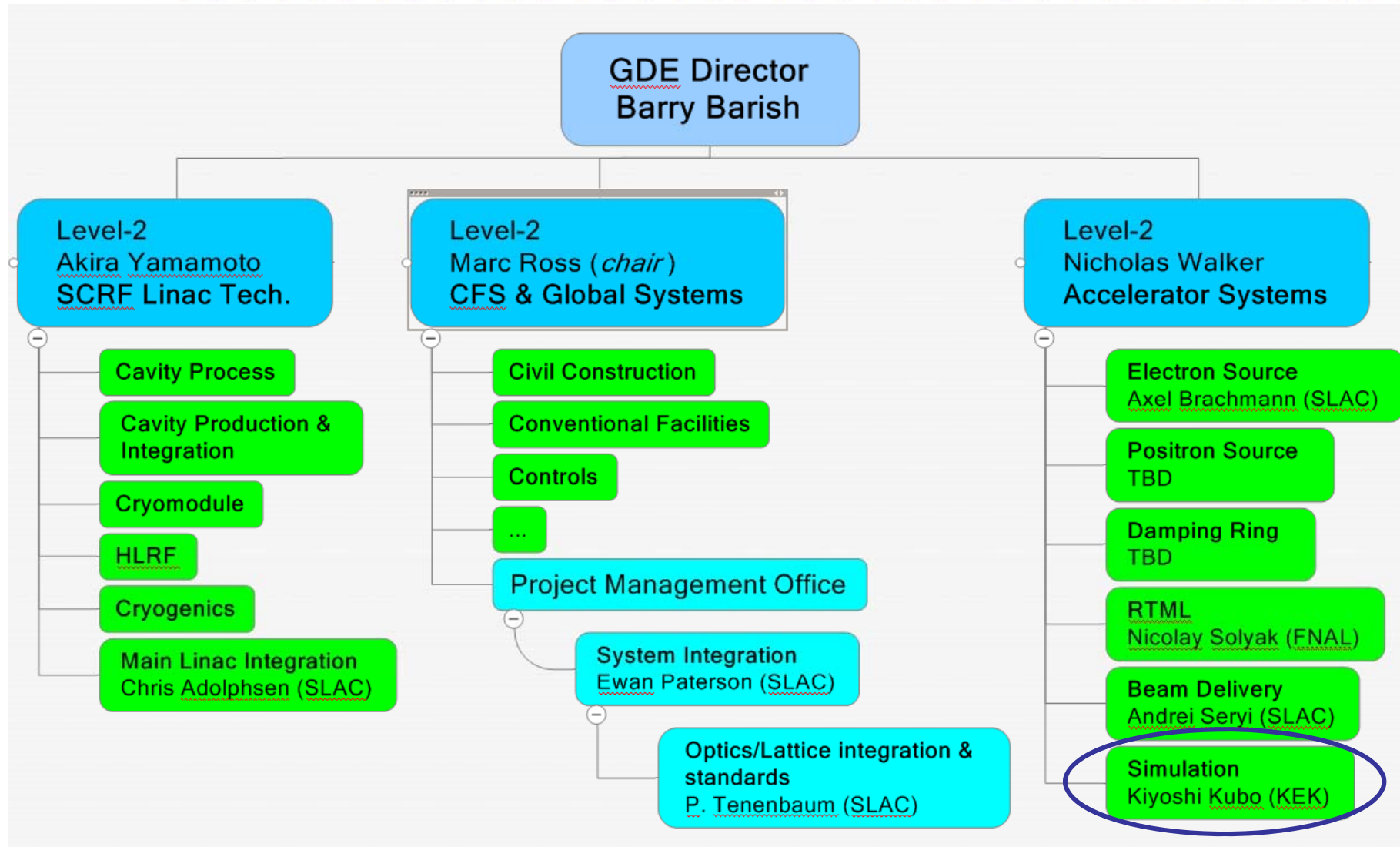
EDR Project Structure



Global Design Effort



EDR Project Structure



Global Design Effort



Accelerator Systems

- Accelerator System Managers (level-3) are responsible for Beam Dynamics issues within their area:

- | | |
|-------------|--------------------|
| – E- source | – Brachmann (SLAC) |
| – E+ source | – TBD |
| – DR | – TBD |
| – RTML | – Solyak (FNAL) |
| – ML | – Adolphsen (SLAC) |
| – BDS | – Seryi (SLAC) |

Historically the focus of this group

- We expect beam dynamics related WPs for EDR in each system reporting to level-3 manager.
 - **Identify critical issues to be resolved**
 - integrated into EDR engineering and R&D plans
 - **Prioritization**
 - **(implementation?)**



System Integration

- Systems Integration Group under E. Paterson will play critical role in Engineering Phase.
- Acc. Phys. Relevant roles:
 - **Top-level machine parameter sets**
 - **Definition/maintenance of interfaces and boundaries (including beam parameters)**
 - **Optics/lattice integration (P.T.)**
 - Lattice file standards, maintenance, *etc.*
 - Optics integration (making sure they all fit together)
 - Individual system lattices will originate with AS managers, but will come here to be ‘integrated’
 - **Dealing with integration issues which go beyond any one accelerator system.**



Simulations Group

- Level-3 Manager: Kiyoshi Kubo
 - **Will report directly to me.**
 - **(regular level-3 management meetings)**
- Need to identify communication channels between other relevant Level-3 managers
 - **Simulations Group is a Service Industry**
 - **Must react to the needs of the Area Systems**
 - but can clearly also identify issues.
- Acc. Phys. WP distribution:
 - **Division between AS and Sim. Group**
 - **Resource driven (?)**
 - **Start-to-end “like” WPs will need to be under Simulation Group (i.e. Kiyoshi)**
- This Group will act as a collaboration focus for all Acc. Phys. In the EDR
 - **Irrespective of where the physics WP in the WBS is located**
- Note that “Simulations” (Acc.Phys in RDR) is the only Technical/Global Group to have explicitly survived from the RDR into the EDR WBS
 - **Physicist driven: not engineering based!**



Planning

- Need EDR plan with corresponding Work Packages
 - **Milestones, deliverables**
- Will need to work together with AS and Syst. Integration people to develop the plan
 - **They have the responsibility within their area(s)**
 - **Work with them to identify critical (high-priority) items**
- Primary link through Kiyoshi and L3 meetings.
 - **But people “doing the work” will ultimately form the stronger link**
- Phased approach to “known issues”
- Prepare to react to critical issues and question from AS.
 - **Good example: coupler kicks & wakefields.**



Suggestions (cont.)

- Resources
 - **Make registry of active ILC BD groups**
 - **Who is doing what? Areas of expertise?**
- Understand what critical areas will be directly covered by AS systems
 - **Ask for names and add to your registry**
- Look at your list(s) and prioritize remaining issues
 - **Current lists I have seen seem very inclusive**
 - **Will probably not be able to do all within the EDR resources**
 - **(many issues look open ended...)**



(Known) Priorities

- Impact of newly identified coupler and HOM effects for SCRF cavities
- Emittance budgets for the LET
 - **What can be achieved assuming current standard(?) errors and tuning algorithms.**
- Dynamic correction configuration for LET
 - **Where, how many, why?**
 - **What does each system buy you (“value”)**
- Specifications for diagnostics and corrector systems (magnets, cavities etc.)
- Note: already decade(s) of work: what do we really already know?



Service Industry

- Will need to react in a timely fashion to requests from engineers
- As we push back on costs, we may increase the performance risk: this will need to be evaluated
- Much of this is currently hard to plan for
 - **Things should be clearer after EDR kick-off meetings**



Deliverables

- Your deliverables will always be documents
- Regular and better structured reports are required
 - **Current Acc.Phys. results are scattered across many reports and presentations (workshops, PAC, EPAC etc.)**
 - **Many quasi-independent publishing groups**
- Identify the report and you will identify the work
 - **Define a series of topic reports**
 - **Kiyoshi will have the lead here.**
- “Real work is defined by having deadlines”
 - **M. Ross.**



Organisation of Resources

- The biggest challenge (for Kiyoshi 😊)
- Too much parallel effort – must consolidate
 - **Clear delineation of responsibilities**
 - **Crisply defined work packages and deliverables**
 - (not easy I know)
- Competition is good!
 - **Physicists thrive on it**
 - **Cross-checking of results**
 - Two groups to cross-check results. More is probably not needed!
- Need a documented plan by GDE meeting at FNAL meeting in October
 - **Written report submitted to me (via Kiyoshi)**
 - **Presentation at FNAL GDE**
 - **Should contain input from EDR kick-off meetings**



Project Management Related

- Resource reporting
 - Resources and milestones will need to be tracked (Kiyoshi's responsibility)
 - Exact reporting mechanisms are being developed
 - Needed for presentations by top-level management to (for example) FALC
 - (location of WP in WBS here is critical for reporting authority)
- Agreeing to do the work:
 - Work package allocation will be via MoU between project management and respective institutes
 - Your management will agree to you delivering something on time and on budget!
 - (For this group, may be more loosely defined)