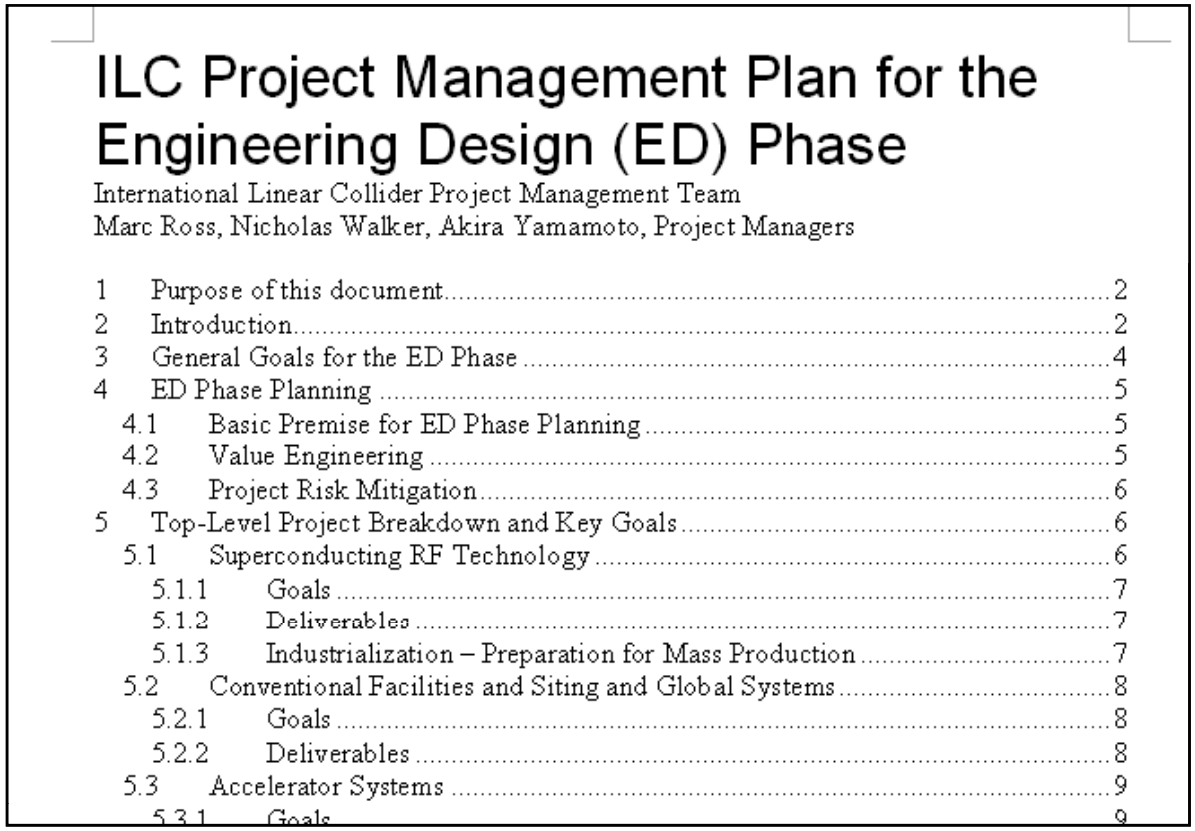
Project Management Wrap-Up

Project Managers:
Marc Ross, Nick Walker, Akira Yamamoto

ILC-GDE Meeting, Fermilab, Oct. 26, 2007

Transition:
From RDR phase to ED phase

Engineering Design Phase
Project Management Plan (PMP)



ILC Project Management Plan for the Engineering Design (ED) Phase

International Linear Collider Project Management Team
Marc Ross, Nicholas Walker, Akira Yamamoto, Project Managers

- Formally released this meeting
  - **Earlier draft submitted to ILCSC in August**
- Working document
  - **Periodically reviewed, updated and released**
  - **Next release possible at Sendai**
- Explains organisation, roles and top-level ED phase management process

url: http://ilcdoc.linearcollider.org/record/11980

ED Phase (PMP) Goals

- demonstrate through the ILC R&D program that all major accelerator components can be engineered to meet the required ILC performance specifications;
- provide an overall design such that machine construction could start within two to three years if the project is approved and funded;
- mitigate technical risks by providing viable documented fallback solutions with estimates of their costs;
- contain a detailed project execution plan including an achievable project schedule and plan for competitive industrialization of high-volume components across the regions;
- limit options and focus R&D and industrialization efforts on those issues where technical decisions are not yet final;
- design the conventional construction and site-specific infrastructure in enough detail to provide the information needed to allow potential host regions to estimate the technical and financial risks of hosting the machine, including local impact, required host infrastructure, and surface and underground footprints;
- provide a complete value cost estimate for the machine, except for the details not yet completed in the site-specific designs, which includes a funding profile consistent with the project schedule proposed;
- begin the transition to a project management model suitable for an ILC construction project.

ED Phase (PMP) Goals

- **demonstrate** [illegible] **components** [illegible] **specifications**
- provide an ove[illegible] to three years
- mitigate techni[illegible] estimates of th[illegible]
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demonstrate through the **ILC R&D program** that **all major accelerator** components can be **engineered** to meet the required ILC **performance specifications** → S0, S1,…

ED Phase (PMP) Goals

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provide an **overall design** such that machine construction could start within two to three years if the project is approved and funded

The EDR (2010) baseline must reflect a feasible engineering solution, and be based on the best technology available at that time.

ED Phase (PMP) Goals

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  construction pro

contain a detailed **project execution plan** including an **achievable project schedule** and plan for **competitive industrialization** of high-volume components across the regions;

Fundamental difference to RDR

ED Phase (PMP) Goals

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begin the **transition** to a **project management model** suitable for an ILC construction project

This transition begins today!

RDR Phase Organisation

RDR matrix

Area Systems					
e- source	e+ source	Damping Rings	RTML	Main Linac	BDS

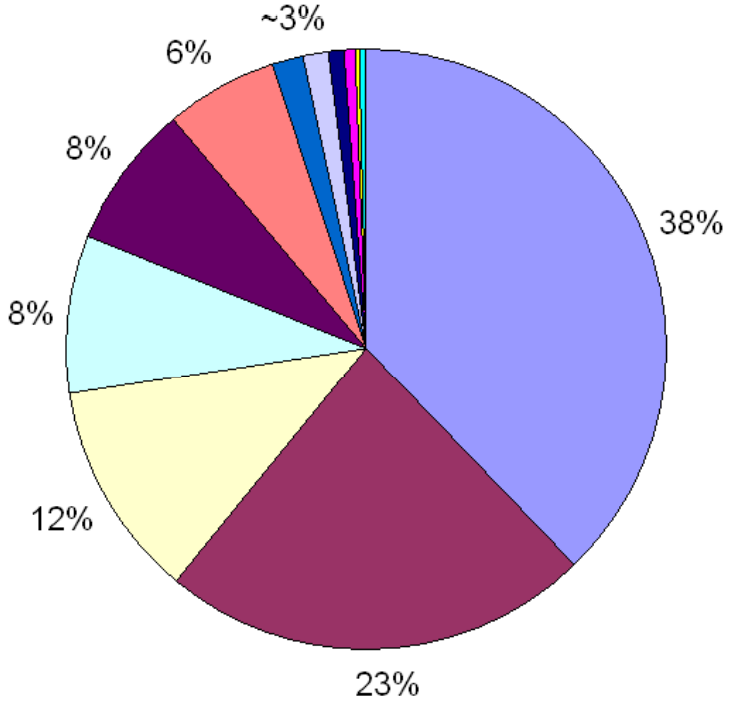
Technical Systems
Vacuum systems
Magnet systems
Cryomodule
Cavity Package
RF Power
Instrumentation
Dumps/Collimators
Acc. Physics

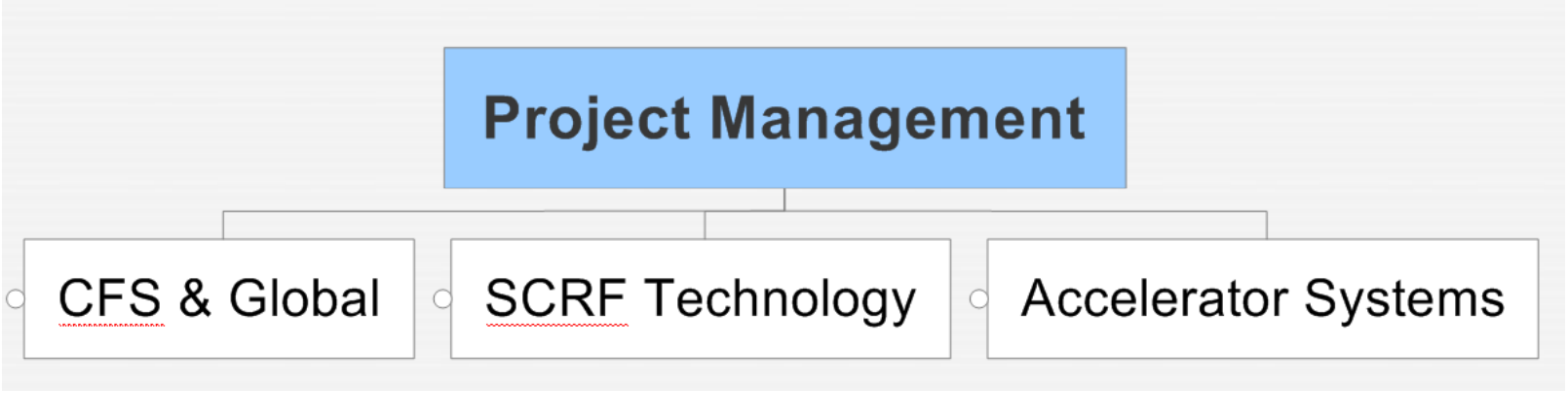
Global Systems
Ops. & Avail.
Controls
Cryogenics
CF&S
Installation

- Successfully delivered the RDR
- Functionality of matrix concept worked with varying degrees of success
- Reporting lines and communications not always clear (often ad hoc)
- Global concept did not really function
  - **Criticised for being US centric**

- ED phase Project Management has been instructed to move towards a more traditional structure
  - **Clear lines of reporting**

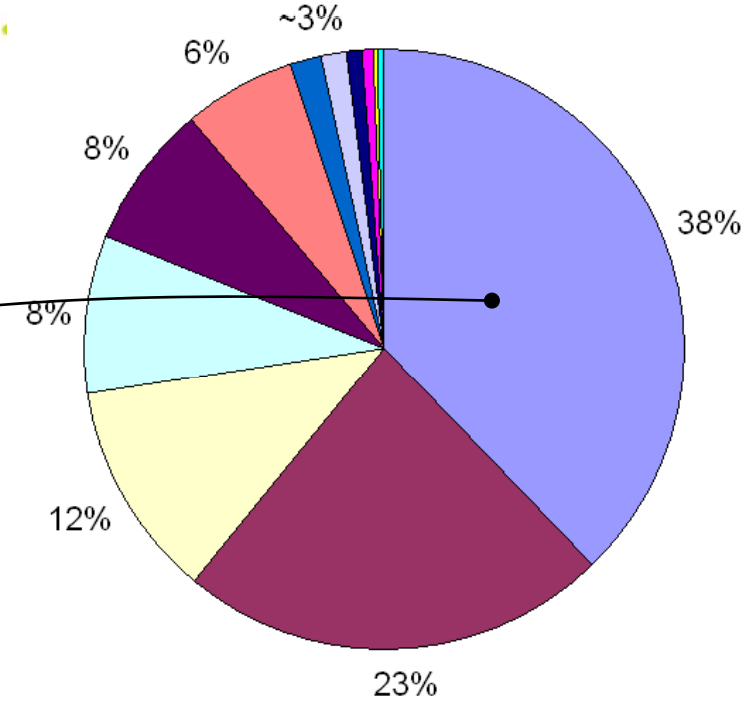
EDP Structure: Focus on Cost Drivers

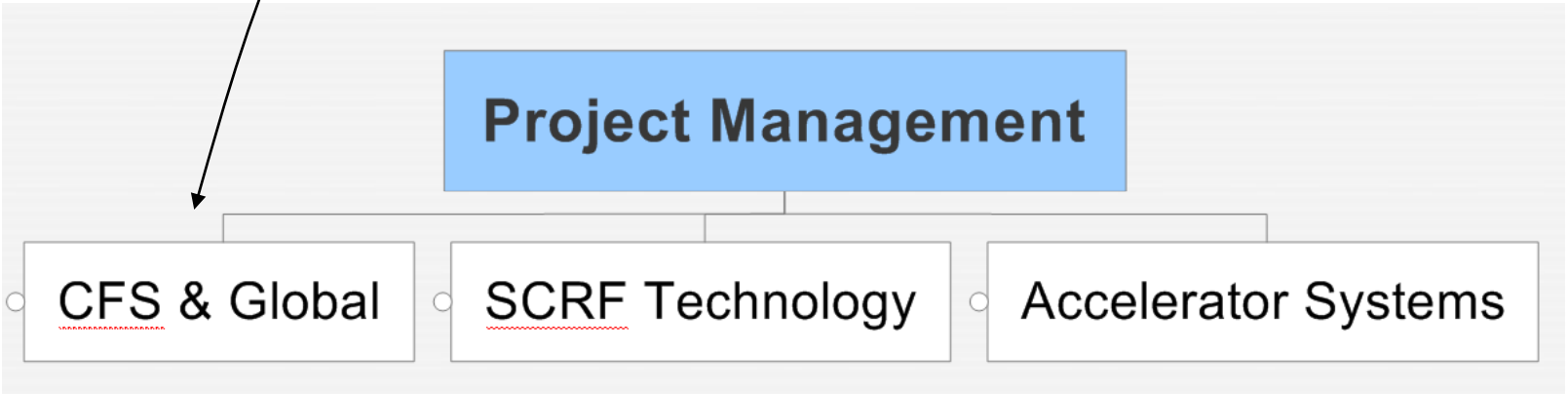




EDP Structure: Focus on Cost Drivers

CFS: 38%

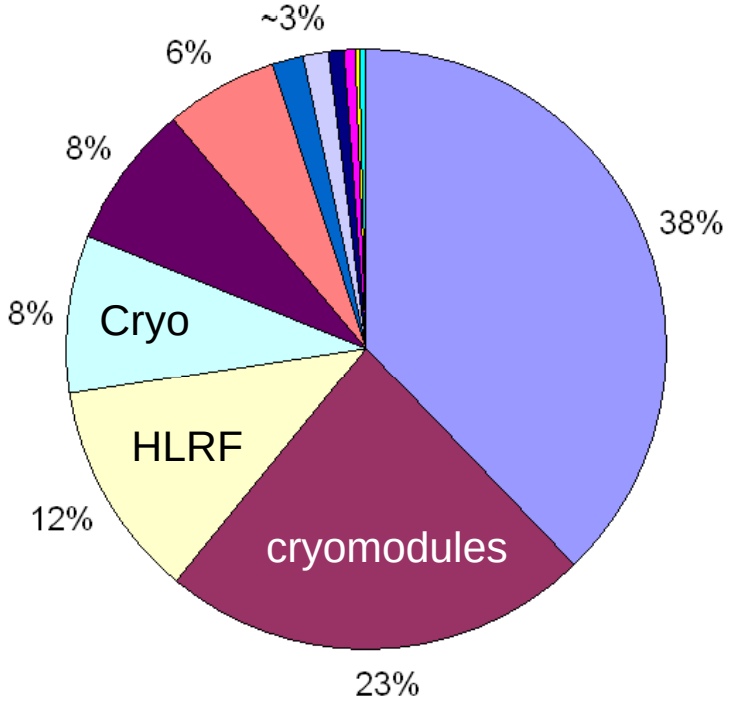


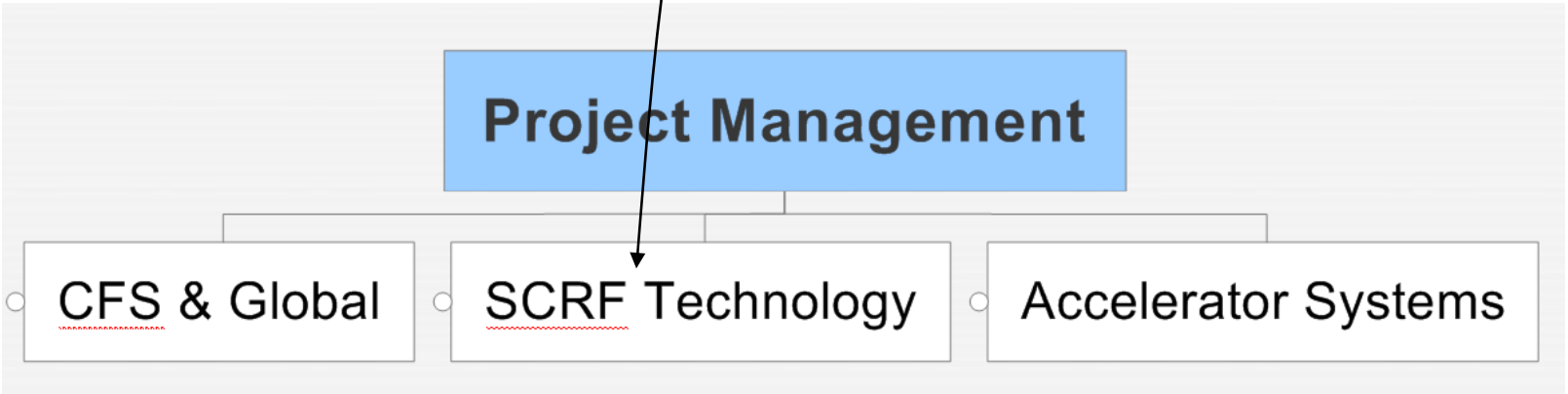


EDP Structure: Focus on Cost Drivers

CFS: 38%

SRF ML Tech: 43%



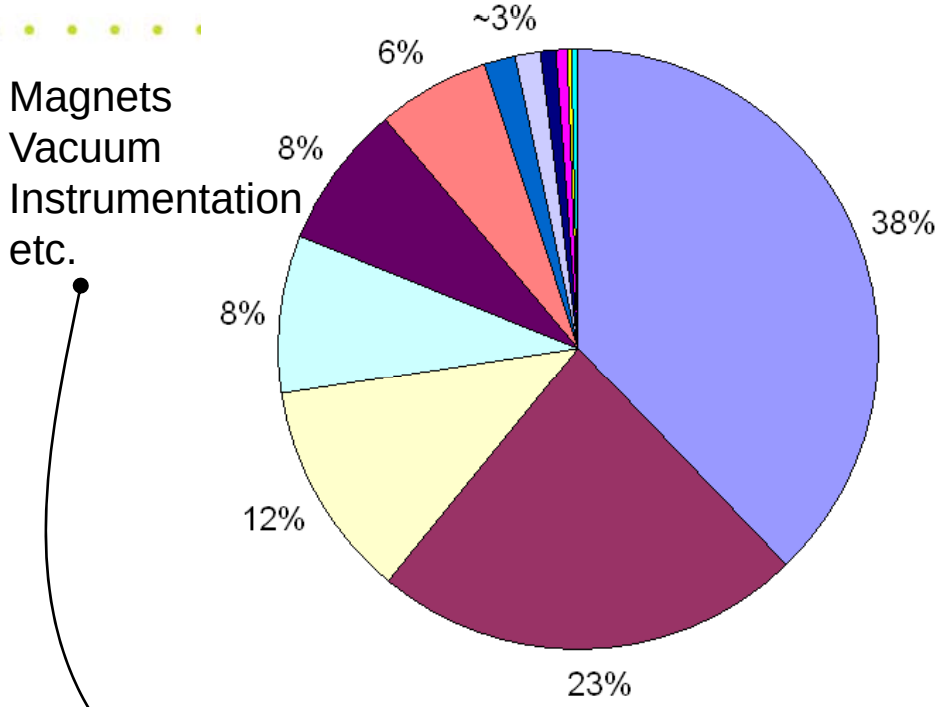


EDP Structure: Focus on Cost Drivers

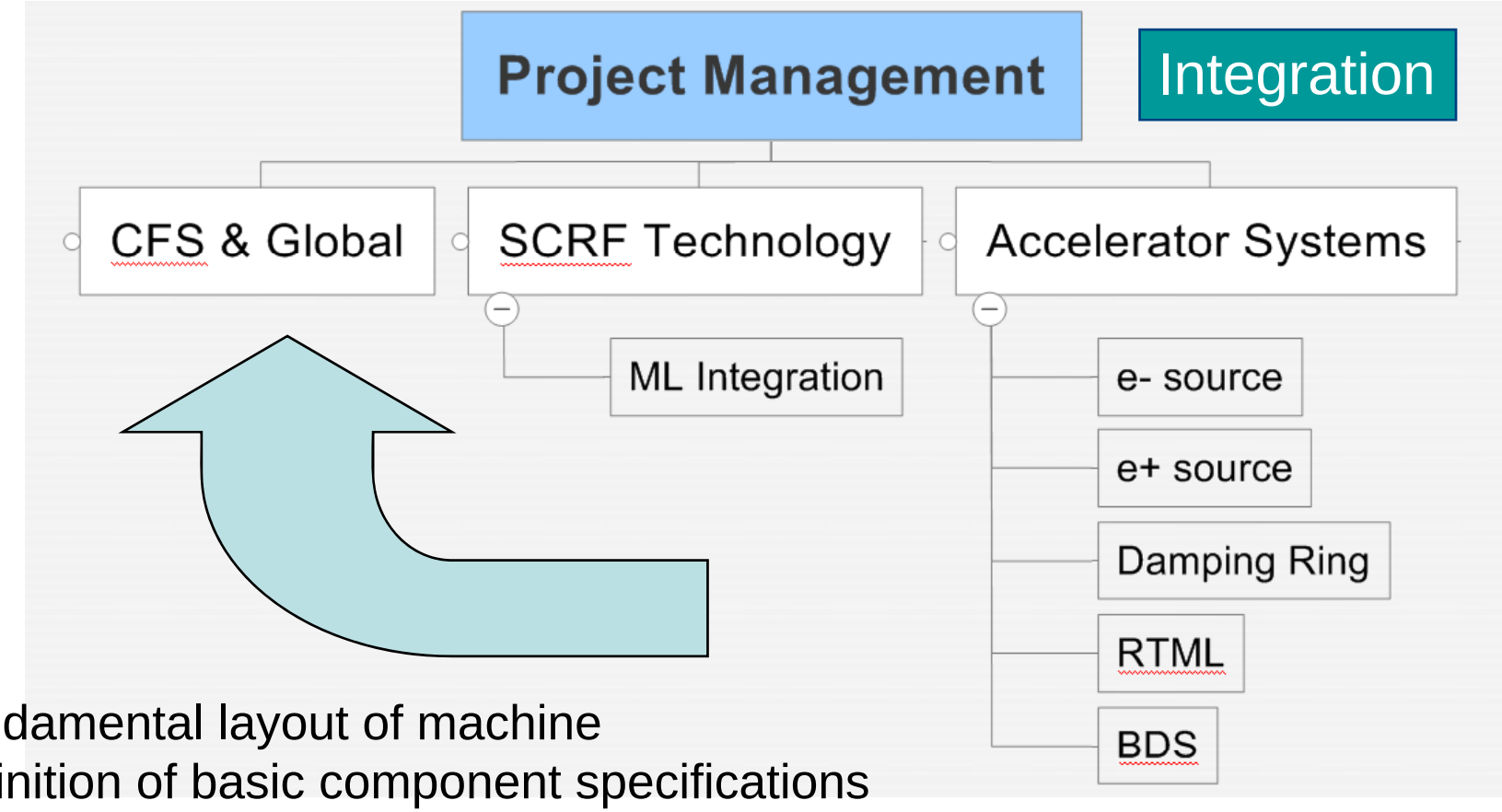
CFS: 38%

SRF ML Tech: 43%

“The rest”: 19%



Driving the (Engineering) Design



Fundamental layout of machine
Definition of basic component specifications
CFS (cost) driver
power in, heat out, underground volume → $$$
Closing this loop is major goal of ED phase (“Value Engineering”)

Other RDR Technical / Global Systems

- Technical (Common/Fundamental)
  - **Vacuum**
  - **Magnet Systems**
  - **Dumps/Collimators**
  - **Instrumentation**
- Global
  - **Installation**
  - **Availability and Operations**

Reflected as **Engineering Work Packages** in Accelerator Systems

Report up to TA group leader and PM

'Horizontal' link between similar Engineering WPs to be re-established under PMO coordination

Remaining Technical / Global Systems

- Technical (Common/Fundamental)
  - **Vacuum**
  - **Magnet Systems**
  - **Dumps/Collimators**
  - **Instrumentation**
- Global
  - **Installation**
  - **Availability and Operations**

Reflected as **Engineering Work Packages** in Accelerator Systems

Report up to TAGL and PM

'Horizontal' link between similar Engineering WPs to be re-established under PMO Engineering coordination

Resource problems
In-kind contribution concept
(Engineering Standards)

Common/Fundamental Technical Systems

- collect and review work package proposals from Groups
- Goal is broad spectrum of inter-regional effort,
  - ***in most cases from a broader base than that used in RDR***

- resist ‘assigning’ technical leadership in an ad hoc fashion:
  - **RDR Technical was quite US-centered in practice**
  - **WP concept to attract potential engineering resources**

- instead ‘cross-collate’ the WP we receive and block out / propose Engineering Leadership from these
  - **Understand ED scope for these systems (cost leverage)**

FNAL GDE Workshop: Formal start to ED Phase

Goals for this Meeting

- summarise and report the results of the recent series of ED phase “kick-off” meetings;
- report and discuss critical technical issues for the ED phase, with an emphasis on those identified Work Packages which require further refinement or definition;
- consolidate and integrate the identified Work Packages (WP) into a complete Work Breakdown Structure (WBS) for the ED phase, including the associated schedules and high-level milestones;
- produce and make a clear and transparent public process for allocation of the Work Packages, together with (management) deadlines for completion of the allocation;
- In accordance with the above goals, agree on the short-term goals leading up to the next GDE meeting (3rd-6th March, 2008 Tohoku U. Sandai, Japan);

Kick-Off Meetings

Technical Group	Day, (Place)	Chaired / Supported by	
Controls	8/20 ~ (ANL)	J. Carwardine (ANL)	
CFS-US	8/22 ~ (FNAL)	V. Kuchler (FNAL)	
RTML	8/27 ~ (FNAL)	P. Tenenbaum (SLAC)	
CFS-EU	9/03 ~ (CERN)	J. Baldy / J. Osborne (CERN)	
CFS-AS	9/10 ~ (KEK)	A. Enomoto (KEK)	
Cryomodulde & Cryogenics	9/12 ~ (KEK)	H. Hayano, N. Ohuchi (KEK) T. Peterson (FNAL)	
Cavities	9/19~ (DESY)	L. Lilje (DESY), H. Hayano (KEK)	
E-source	9/24 ~ (SLAC)	A. Brachmann (SLAC)	
Main Linac Int.	9/27 ~ (FNAL)	C. Adolphsen / T. Shidara (SLAC)	
HLRF	10/1~ (SLAC)	R. Larsen (SLAC), S. Fukuda (KEK)	
E+source	10/8 ~ (Cockroft Inst)	J. Clarke (CCRC), J. Urakawa (KEK)	
Beam Del. Sys.	10/11~ (SLAC)	A. Seryi (SLAC)	
Damping Ring	11/5~ (Cockroft Inst)	A. Wolski (LBNL)	planned

KOM Goals

- CFS
  - **Review and check requirements**
    - Close-loop with AS/MLI
  - **Value Engineering**
  - **Alternative site designs**
  - **ED phase WP**
- SCRF
  - **R&D plans, Test Facilities,...**
  - **Status of 'ACD'**
  - **ED Phase WP**
- Accelerator Systems
  - **Maturity of RDR design**
  - **Completeness of Cost Estimate**
  - **Status of ACD**
  - **ED Phase WP**

} Important concept of Plug Compatibility

Cryomodule Plug Compatibility

- Design parameters to be verified:
  - **Parameters lists of each component,**
  - **Interface between components**

- Plug-compatible concept critically important to allow:
  - **Improvement of base-line design during EDR,**
  - **ACD with keeping plug-compatible interface,**

- Complimentary R&D important
  - **Learn most effective industrialization experience from XFEL**
  - **Further advanced/basic R&D to be complementary carried out**
    - For upgrade of the BCD design based on the previous industrialization experience (with less additional demonstration)

Parameters & Interface Example: Cavity

Category	Item	Parameters	Notes
RF properties	Freguency	1.3 GHz	
	Number cels	9	
	Gradient, Q0	31.5 MV/m, 1.0 E10	In operation
		35 MV/m, 0.8 E10	In vertical test
	HOM damping	Q =	
		R/Q =	
	Short range wake	TBD	
	Temperature	2 K	In operation
Phys. Properties	Length	(1.36) m	
(interface)	Aperture	(60/80) mm	
	Alignment acc.	300 um	
	Wall thcikness	2.8 mm	
	Stiffness		
	Flange/seal system	Material ?	
	Max pressure		
	Lorentz F detuning	1.00 kHz	with flat top at 35 MV/m

Feedback from Groups: KOM

- 13 KOM; 12 completed (DR Nov 5-7)
  - **Closeout presentations for each on InDiCo**
- Fixed format report
  - **Findings, recommendations, action item table**
    - Individuals assigned, due dates not set
  - **Seven done; missing CFS (3), RTML, BDS**
  - **All are (will be) posted on InDiCo**
    - Later in single location (ILC-EDMS and web)
- 94 action items
  - **79 for TAG vary from ‘generic’ to ‘specific’**
  - **15 for PM**

Example Technical Findings from KOMs

Technical Group	Day	Finding (technical topics)
Controls & LLRF	8/20 ~	High availability control and redundancy
CFS-US	8/22 ~	ACD development
RTML	8/27 ~	Common housing/integration, beam dynamics (emit. Preservation)
CFS-EU	9/03 ~	Experience at LHC, Safety, IR Hall structure, exp. from Olympic
CFS-AS	9/10 ~	Time scale required to reach construction, exp. from ITER
Cryomodule & Cryogenics	9/12 ~	Important plug-compatible interface definition, Thermal balance optimization b/w cryomodule and cryogenics, exp. at LHC.
Cavities (process, and production)	9/19~	< E> 30 toward 35 MV/m, Process, Shape, compatibility, Industrialization (XFEL exp.+ ,,) & further improvement (BCD/ACD)
E-source	9/24 ~	Cathode demonstration and vacuum R&D crutical
Main Linac Int.	9/27 ~	Beam dynamics (HP/HOM), Quad. alignment, dE/E acceptable?
HLRF	10/1~	Marx Gen. (ACD) encouraging, Effic. RF distributor, Min. remote cntl
E+source	10/8 ~	Target survivability, undulator, flux concentrater,
Beam Del. Sys.	10/11~	Crab and IR geometry, extendable to 1 TeV
Damping Ring	11/5~	Expect – beam dynamics

Action Items Summary

Microsoft Excel - Action Items

	A	B	C	D	E	F
2	Cavity	3.1.1 Compatibility of Components	Area Group Leader	ILC-ED-CV-1	Develop the plan for the Sendai Meeting	
3	Cavity	3.1.2 Design Rationale	Area Group Leader	ILC-ED-CV-2	Written report for reasons and range of variations that can be supported at Sendai Meeting	
4	Cavity	3.1.3 Definition of Interfaces	Area Group Leader	ILC-ED-CV-3	Specification report for interface for Sendai Meeting	
5	Cavity	3.1.4 Need for Development	Area Group Leader	ILC-ED-CV-4	Plan for development and itemised list to be presented at Sendai Meeting	
6	Cavity	3.2.1 S0 Goals	Area Group Leader	ILC-ED-CV-5	Review the priority for S0 at the FNAL Meeting	
7	Cavity	3.2.2 DESY Production 4	Area Group Leader	ILC-ED-CV-6	Written report on production 4 at the FNAL Meeting	
8	Cavity	3.2.3 Results overall	Area Group Leader	ILC-ED-CV-7	Present the overall progress in a written report at the Sendai Meeting	
9	Cavity	3.2.4 Status KEK and US cavity processing	Area Group Leader	ILC-ED-CV-8	Describe the plans for the US cavity processing capability at the FNAL Meeting	
10	Cavity	3.2.5 Progress in diagnostics and	Area Group Leader	ILC-ED-CV-9	Describe the progress in diagnostics and further requirements at the Sendai Meeting	
11	Cavity	3.3.1 Work Breakdown Structure	Area Group Leader	ILC-ED-CV-10	Develop the full WBS for the FNAL Meeting	
12	Cavity	3.3.2 Down-Selection Process	Area Group Leader	ILC-ED-CV-11	Indicate the requirements and implications for a down-selection example for Sendai Meeting	
13	Cavity	3.3.3 Validation Tests	Area Group Leader	ILC-ED-CV-12	Develop the realistic testing plan for the Sendai	
14	Cavity					
15	e+ Source	3.1.1 Target Lifetime	ANL & DESY Zeuthen	ILC-ED-EP-01	Resolve the lifetime calculation issue as soon as possible and inform the Area Leader. The reliability issues should be addressed by the time of the Sendai Meeting.	
16	e+ Source	3.1.1 Target Lifetime	e+ Source Target WP	ILC-ED-EP-02	Provide a robust target design	

Action Items Summary

- Review action items
- Specify priorities and due dates
  - **Tohuku U. (Sendai, March 08)**
  - **Beyond**
- (Several management items completed this workshop)

Microsoft Excel - Action Items

	A	B	C	D	E
2	Cavity	3.1.1 Compatibility of Components	Area		
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ED RD&E Plan: Work Packages and Schedule towards 2010

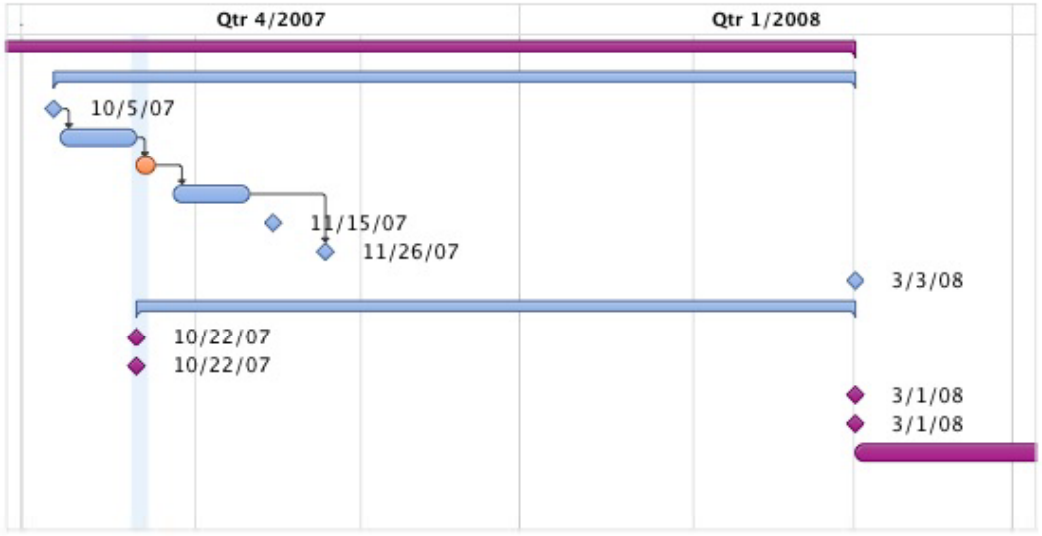
ED PROJECT PHASES, MILESTONES, DELIVERABLES

- Four phases:
  - **Planning**
  - **Execution**
  - **Report Preparation**
  - **Completion**
- Project (non-technical) Milestones and Deliverables
- (presented to EC / ILC Daegu, Aug 14/ 15, 2007)
- Technical milestones
  - **From TAG Work Packages (WIP)**

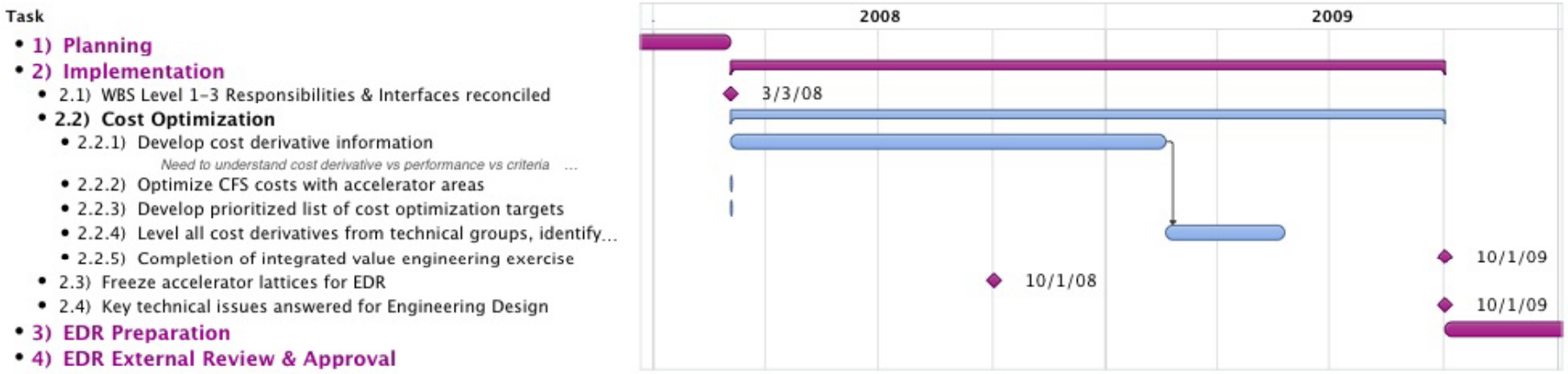
EDR Schedule: Planning

Task

- 1) Planning
  - 1.1) Develop & allocate work packages
    - 1.1.1) Release template for Work Package Definitions to L3Ms
    - 1.1.2) Draft initial Work Package Definitions
    - 1.1.3) Iterate WP definitions, reconcile across area systems
    - 1.1.4) Revise WP descriptions, return to PMO
    - 1.1.5) Send out Call for Expressions of Interest to community
    - 1.1.6) Deliver top-level work package matrix to FALC
    - 1.1.7) Allocate work packages
  - 1.2) Release ED project guidance & tools
    - 1.2.1) Release EDR Project Management Plan Version 1
    - 1.2.2) Release project guidance, tools, organizational info
    - 1.2.3) Release Change Control template to Technical GLs
  - 1.3) Draft proposed accelerator areas WBS dictionaries
- 2) Implementation
- 3) EDR Preparation
- 4) EDR External Review & Approval



EDR Schedule: Implementation



- Next critical step: Fill in the technical details for this phase
- Current end of implementation phase under review
  - **We will likely continue into 2010**
  - **ED phase complete in July 2010**
  - **PMO will provide guidance on exact nature of ED scope and deliverables**

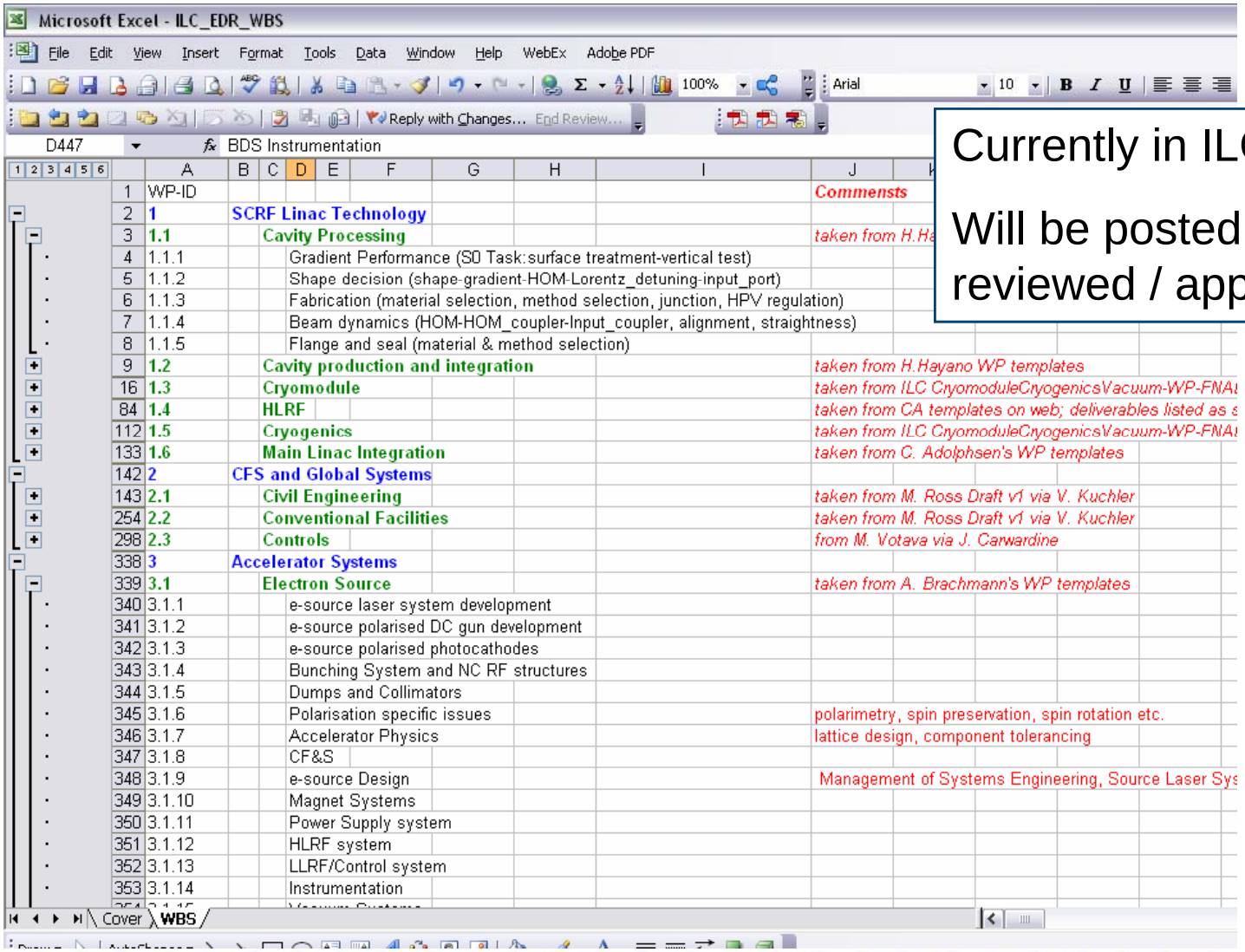
EDR Work Packages

Work Package Details		
Work Package Title	*Modulators*	
Short keyword title	*(For PMO use)*	
Abstract	120 kV, 130 A, 1.7 ms, 5 and 10 Hz modulators are in development at XFEL, FNAL and SLAC. XFEL and FNAL are advancing the baseline Bouncer design. DESY will evaluate an industry-made modulator from PSM. KEK is procuring Bouncers for 120 kV and also plans to build a 120 kV and a 50 kV Marx. SLAC is concentrating on a 120kV Marx prototype that promises a major cost reduction, to be followed by a DFM version.	
Major tasks and objectives	Develop, test ACD Marx Modulator & DFM version. Advance BCD Bouncer design and 50kV design. Down-select by end of EDR.	
Deliverables from Work Package	1. SLAC Marx Prototype operation in LBTA 2. SLAC DFM prototype operation in LBTA 3. FNAL & DESY advanced Bouncer designs at NML & XFEL 4. DESY designs built by industry, new vendor development 5. KEK 120 kV and 50 kV Marx design at STF, built by industry 6. EDR document including costs, schedules, documentation	
Major Milestones (including key decision points)	1. 2000 hr test of Marx prototype 2. Full power test DFM 3. DESY tests industrial designs 4. FNAL tests of bouncers in 5. Technology down-select (Marx or Bouncer) 6. KEK test of 120 kV Marx 7. Complete cost estimate, schedule, EDR documentation 8. KEK test of 50 kV Marx, final down-select	2008 2009 2008-9 2008-9 2009 2010 2010 2011
Resources required (eg expertise, facilities, leader, …)	Lead roles, manpower resources at the various labs are established. Engineering collaboration invited on design and test programs, system testing, EDR documentation, vendor collaboration and liaison.	

Have made a good start…

- TA groups leaders have provided information on over 100 work packages
  - **An excellent start to developing a global picture.**
- PMO will be developing a WP database and a website for visibility of Calls for EOI and WP topics.
  - **the ‘door’ will remain open for future collaborators**
- Some topics have been handled differently group to group e.g. Cryomodules, HLRF for areas other than Main Linac.
  - **PMO guidance: for TA groups in place, WPs should reside in those groups (not with accelerator groups), eg cryo, controls, CMs.**
  - **Should be an ‘interface’ package (specifications)**
- Some topics have no WPs
  - **Safety systems: machine protection, personnel protection**
  - **Commissioning & operations**
  - **Need to include those that have cost or layout implications.**
- WP’s should be assigned a ‘cost leverage’ and ranked accordingly

WP Summary



Microsoft Excel - ILC_EDR_WBS

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Reply with Changes... End Review...

D447 fx BDS Instrumentation

	A	B	C	D	E	F	G	H	I	J
1	WP-ID									Commensts
2	1	SCRF Linac Technology								
3	1.1	Cavity Processing								taken from H.Ha
4	1.1.1	Gradient Performance (S0 Task:surface treatment-vertical test)								
5	1.1.2	Shape decision (shape-gradient-HOM-Lorentz_detuning-input_port)								
6	1.1.3	Fabrication (material selection, method selection, junction, HPV regulation)								
7	1.1.4	Beam dynamics (HOM-HOM_coupler-Input_coupler, alignment, straightness)								
8	1.1.5	Flange and seal (material & method selection)								
9	1.2	Cavity production and integration								taken from H.Hayano WP templates
16	1.3	Cryomodule								taken from ILC CryomoduleCryogenicsVacuum-WP-FNA
84	1.4	HLRF								taken from CA templates on web; deliverables listed as s
112	1.5	Cryogenics								taken from ILC CryomoduleCryogenicsVacuum-WP-FNA
133	1.6	Main Linac Integration								taken from C. Adolphsen's WP templates
142	2	CFS and Global Systems								
143	2.1	Civil Engineering								taken from M. Ross Draft v1 via V. Kuchler
254	2.2	Conventional Facilities								taken from M. Ross Draft v1 via V. Kuchler
298	2.3	Controls								from M. Votava via J. Carwardine
338	3	Accelerator Systems								
339	3.1	Electron Source								taken from A. Brachmann's WP templates
340	3.1.1	e-source laser system development								
341	3.1.2	e-source polarised DC gun development								
342	3.1.3	e-source polarised photocathodes								
343	3.1.4	Bunching System and NC RF structures								
344	3.1.5	Dumps and Collimators								
345	3.1.6	Polarisation specific issues								polarimetry, spin preservation, spin rotation etc.
346	3.1.7	Accelerator Physics								lattice design, component tolerancing
347	3.1.8	CF&S								
348	3.1.9	e-source Design								Management of Systems Engineering, Source Laser Sys
349	3.1.10	Magnet Systems								
350	3.1.11	Power Supply system								
351	3.1.12	HLRF system								
352	3.1.13	LLRF/Control system								
353	3.1.14	Instrumentation								

Cover WBS

Currently in ILC-EDMS

Will be posted on web once reviewed / approved

Identified Common Activities

- Demonstrate required technical performance (eg S0 program)
  - **(Already the main focus of many work packages)**

- Review, integrate, and formalize…
  - **Accelerator specifications and engineering requirements.**
  - **Treaty points and inter-group dependencies**
  - **EDR baseline (RDR + new approved changes)**

Due by Tohuku U. (March 08)

- Develop plug compatibility standards for EDR and beyond.
- Develop approaches to each BCD/ACD selection process.

- Perform integrated cost optimization (to reduce overall cost)
  - **Accelerator design, SCRF, civil, cooling, electrical,…**
  - **Each group must establish a collaborative WP with CFS.**

Resources

- Differing levels of resources available group-to-group
  - **Some key activities have no resources and no expressions of interest. Other activities are over-resourced.**
  - **Appears difficult to re-allocate resources in may cases**
- Differing perspectives of what is needed for the ED phase
  - **Some groups are aiming to be ready for production with detailed engineering drawing packages.**
  - **Others do not have the resources for key tasks, eg basic accelerator equipment layouts.**
- PMO will provide guidance on EDR scope and deliverables

A few comments

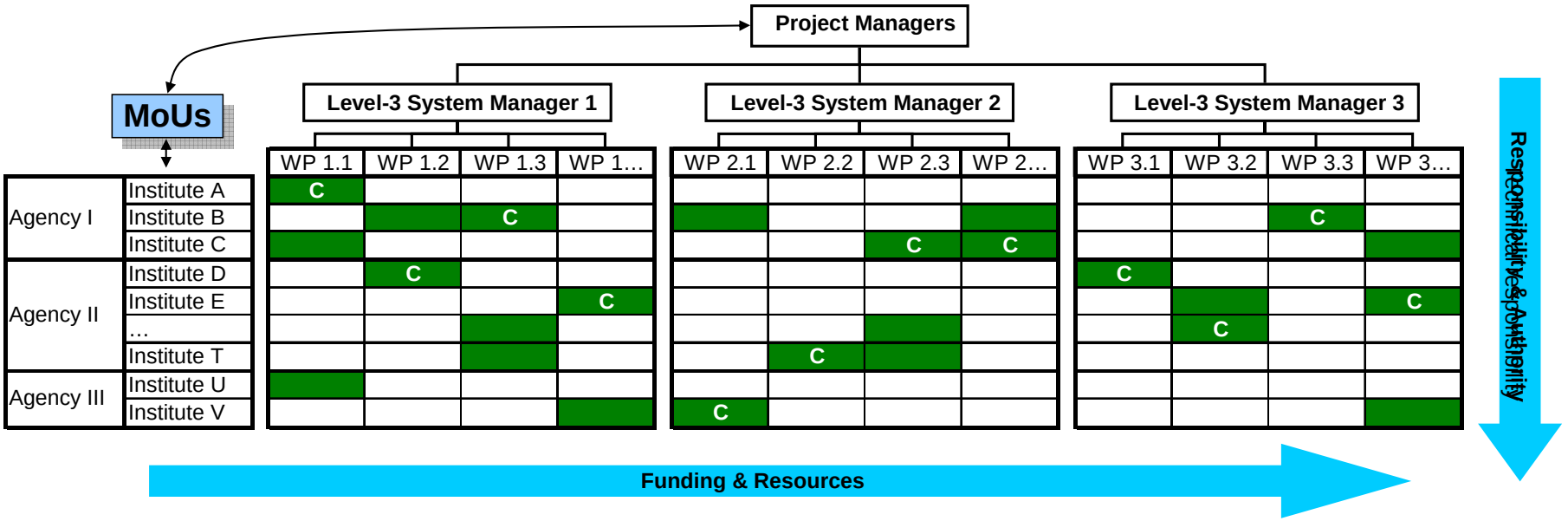
- After March 08, there will be an increase in impedance to making changes to the baseline that are not part of cost optimization
  - **Change control**
  - **CFS drivers are high-impedance**
  - **'Plug Compatibility' will allow component R&D to continue**
    - Interfaces will be baselined

- We must 'freeze' primary requirements & design concepts early enough to allow engineering to proceed
  - **Interfaces to CFS are critical for early 'freeze'**
  - **(SRF) Plug compatible development can continue in parallel**

- We need to fully understand which requirements from each accelerator area have the biggest leverage on subsystem cost.

- We do not have the resources to examine all possible cost optimizations or to do a comprehensive value engineering
  - **Prioritize cost leverage**

Work Package Matrix
(from RDR Chapter 7)



- Green indicates a commitment:
  - **institute will deliver**
- MoUs facilitate connection:
  - **Project Management (authority and responsibility) and institutions (funding and resources).**
- The 'C' → coordinating role in a WP
  - **Each WP has one coordinator.**

Example of “WP Matrix”

WP#	WP Title	ANL	Cornell	FNAL	SLAC	LBNL	LANL	LLNL	UIUC	UM	CI	DESY	LNF	KEK	IHEP	KNU
1	Lattice design and acceptance	X	X			X				??			X		X	X
2	Orbit, optics and coupling correction	X	X		X	X				??	X		X	X		
3	Wiggler		X			X										
4	Instrumentation, diagnostics, controls		X	X		X								X	X	
5	Impedance & impedance-driven instabs.	X			X	X					X			X	X	
6	Fast feedback systems				X	X							X			
7	Electron cloud	X	X	X	X	X	??						X		X	X
8	Power systems		X		X											
9	Other collective effects		X	X	X	X							X		X	
10	650 MHz RF system		X		X	X										
11	Magnets and supports					X									X	
12	Systems integration and availability										??					
13	Vacuum system				X	X					X		X		X	
14	Injection and extraction systems		X	??	X	X		X	X				X	X		
15	Ion effects		X		X	X						X		X	X	X
16	Conventional facilities and cryogenics	X		X		X									X	
	Global Systems Work Packages															
	Conventional facilities															
	Control systems					X									X	
	Cryogenics systems	X														
	Survey and alignment	X														
	Installation and commissioning plans	X														
	Polarisation										X	X				

“as received”

Short-term Goals:
What we need to do after this meeting

What is needed for FALC RG

- Deliverable to FALC includes information on global resources, R&D plans, and work packages
- Practical difficulty: not all groups have sufficient information on globally available funded resources.
- Will continue the bottom-up approach, and consolidate with a top-down approach at institutional level.
- Schedule
  - **November 2: Known global resources compiled and summarised**
    - All known info to Carwardine, Lehner, Shidara ASAP
  - **November 16: Draft report on EDR resource breakdown**
    - Iteration/review with EC, institutional managers etc.
  - **November 30: Deliver to FALC RG**
    - Note: this will not be made generally public

Finalizing WP (WBS)

- Some clarification/review still required
  - **WP duplication**
  - **Overlap (interfaces)**
  - **Naming inconsistencies (cosmetic)**
- FALC info review
  - **Institute Participation**
  - **Coordinating Institute (note: only one)**
  - **Resources**
- Expect PM sign-off for AS within next two weeks
  - **SRF, CFS after**
  - **Complete sign-off by FALC RG meeting**

General Goals For Tohoku-U

- Consolidate RDR Documentation
  - **All supporting RDR documentation needs to be uploaded to ILC-EDMS**
  - **Critical: re-establish traceability for VALUE estimate**
    - Important for future cost containment and change control
    - Several KOMs identified sub-standard documentation
- Begin first iteration of accelerator design
  - **Lattice review**
  - **Aim for partial EDR freeze by Tohoku-U meeting (Sendai)**
- Note: we continue the post-Vancouver process of cost-reduction
  - **Identify design modifications that will reduce cost**
    - (e.g. complete or partial removal of TeV upgrade support in BDS)
    - See list of KOM action items
  - **Review list at Tohoku-U (Sendai)**
- After Tohoku-U, accepted modifications will be implemented to designs
  - **Layout/lattice freeze for CFS engineering and 'value engineering'**

PM/EC Policy Action Items

- Policy decisions
  - **Safety**
  - **Supported (endorsed) R&D on ‘Alternatives’**
  - **Support for Physics Options in baseline**
  - **Support for TeV upgrade in baseline**
  - **Cost confidentiality**

Longer-term strategy: Critical R&D reviews ‘Alternatives’

‘08 R&D Reviews

- Seven identified 2-day R&D review meetings
  - **Between Tohoku U (March) and JINR (June) GDE meetings**
- Goal to review technical maturity of critical key R&D items
  - **e.g. Marx modulator**
- General goals:
  - **detailed technical review**
  - **schedule**
  - **baseline up-select criteria (for ACD)**
- RDR phase lacked ‘internal’ technical reviews
- Use of remote conferencing (WebEx) where possible
  - **small core group to be physically present.**

Support for Alternative Concepts in the ED Phase

- RDR phase 'ignored' Snowmass ACD items
- These items will be in general continued to be supported in the ED phase
  - **resource permitting**
- BASELINE remains PRIORITY
  - **especially for alternatives that have high CFS impact**
- SCRF 'plug compatibility' softens ACD/BCD boundary
  - **however, a baseline design is still maintained**
  - **well-defined plug compatible interfaces will minimize impact (on CFS) of up-select**

- BASELINE for updated VALUE estimate in 2010 will reflect the most mature and cost-effective technology
  - **but promising alternatives will continue beyond the ED phase.**
  - **Important for potential project approach such as 'in kind' contributions for construction.**

- PM/EC policy on alternate R&D in preparation

Meetings, meetings, meetings…

General Meeting Schedules

- Upper management (PMO+TA group leaders) will meet via WebEx on a 4-week rotation
  - **we start this Wednesday with SCRF Tech.**
- Face-to-face at GDE workshops
  - **Tohoku (Sendai, March ’08)**
  - **JINR (Dubna, June ’08)**
  - **US LCWS (October ’08)**
- Workshops will now be more focused on Work Package technical content
  - **more real work ☺**
    - FNAL workshop has been necessarily focused on organisation.

GDE Workshops (General Approach)

- Workshop discussions will be orientated around ED Work Packages
  - **technical content / progress**
- TA group leaders should set clear goals for interim period work
  - **plan at current meeting for next**
  - **Sets agenda in advance**
  - **Identifies key people who must attend**
    - mandatory for TA group leaders and PMO
- Do not in general expect 15 parallel sessions
  - **Agree on focus at previous meeting**
    - depends on interim goals
- Note: LCWS will be next ILC general workshop
  - **expect entire collaboration to attend**
  - **large attendance**
- These schedules/milestones will be developed with PMO during weekly WebEx meetings

Project Management Technicalities

ILC-EDMS

- Need to collect, review and consolidate RDR documentation identified in KOMs
  - **critical item for Tohoku (Sendai)**
- ILC-EDMS structure (keywords) is currently being established
  - **N. Toge to manage, will be sending email to TA group leader**
- Groups will require 'EDMS' training
  - **there are 'rules'**
  - **Remote WebEx training will be offered**
  - **(Power User workshop in November)**
- TA group leader must identify individual to act as 'TA Configuration Managers' for their area
  - **will work with Toge to bring identified documentation into EDMS**
- Once documentation is uploaded, will establish and *release* ILC-EDMS baseline configuration
  - **placed under Change Control (see PMP)**
- Again- goal for formal baseline release ASAP after Tohoku

Communications

- Between the Project Management
  - **PMO+TA Group Leaders**
- Between the larger community

- Still remains a challenge in a globally distributed work-force

- Global GDE mailing list being constructed
  - **'all-hands'**
  - **M. Hronek to have sole 'send access'**
  - **Local TA group mailing lists should form sub-sets of this large inclusive list.**

- Produce a technical summary each month which will be publicly posted
  - **1-2 paragraphs each from TA Group Leaders, PMO**
  - **Highlighting progress and problems**

Final Comments

Final Words

- Birth of the ED Phase has been
  - **long, protracted**
  - **sometimes painful!**
  - **(note draft RDR delivered at Beijing Feb. 2007)**
- We are finally in place! Now the hard work really starts
  - **we set ourselves high expectations**
  - **but that is our style!**
- Carry on – stiff-upper-lip (British)

"I love deadlines. I like the wishing sound they make as they fly by"
Hitchhiker's Guide to the Galaxy