

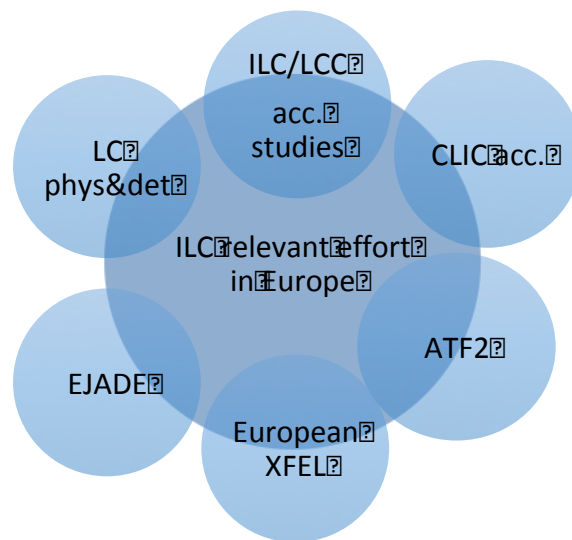
## Possible layout (status Monday 17.10) (in red tasks for next meeting)

### Chapter 1) Short introducing (max 1 page):

- Purpose of document (mention EJADE) incl. relevance to EUS
- Define timeline being used
- Introduce relevant activities 1)GDE/LCC/ADI, 2)XFEL, 3)CLIC, 4)ATF2, 5) EJADE
- Define detectors (mostly) away from this document (action Marcel, Thomas), mention overall costs, refer to LHC experience and costs, author model for sharing (maybe separate chapter 4.5)
- Include material costs – the one used to define sharing - and personnel cost associated

### Chapter 2) Prep-Preparation phase (2017-18), 3-5 pages plus appendix

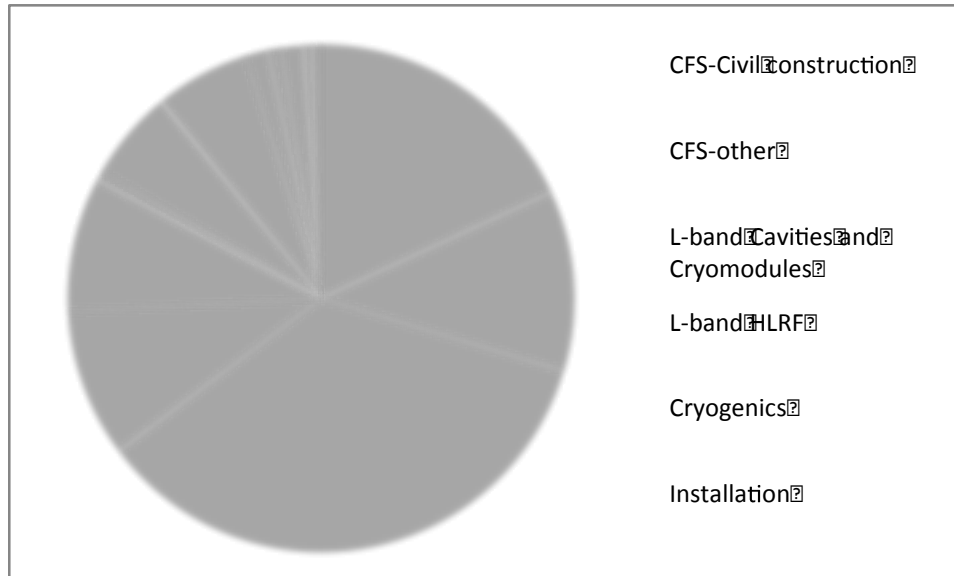
- Explain status quo and five brief subchapters the efforts in the five activities above that are relevant for ILC.
- Discuss how we keep knowledge from E-XFEL to a potential ILC constr. start



- Focus R&D on some key areas (cost/power/critical items): SCRF optimization, High Eff. klystrons, CFS, positrons, beam-dump, etc
- Discuss how to summarize this in table/figures for personnel and material. Action: Steinar for two point above.
- Include XFEL WBS with labs/groups and industries behind (in appendix?). Shown in talk of Olivier.

### Chapter 3) Preparation phase (after some level of Japanese and ESU green light) - 2019-2022, 4-6 pages

- Introduction saying that we will look at European capabilities for deliverables across the ILC WBS:  
<https://indico.cern.ch/event/571650/contributions/2320068/attachments/1355782/2049013/wbs-ilc.xlsx>
- Choose as model 1/3 of high tech items (~23% of overall), justify by common sense and Nomura report



- Estimate ~3% (~200 M\$) in overall prep. phase budget, with ~40 M\$ European budget
- Emphasis that we now consider a build up phase towards construction later (beyond 2022) for each item.
- Assume we are talking about final prototypes, pre-series with (preferable) European industry, plus participation in technical design team, facility preparation where relevant
- Define estimate per item for Europe
- Match possible deliverables across the WBS with an estimate of persons/material budgets needed (using availability of expertise based on what we know from the activities above and input from each country (equivalent of the one for EXFEL)  
Action: Nick (with Hans, Olivier) prepare blank EXCEL ala E-XFEL for ILC, fill in for DESY and distribute to all WG reps. See slides of Nick, Olivier, Angeles Andrea plus oral statements.

	Germany	France	Italy	Poland	Russia	Spain	Sweden	Switzerland										
	DSY	CIA Secity	LAL	RN Milan	FJ PAN	WUT	NCU	INR Moscow	NIIRA	BNP Nov	BIEP Protivno	UPM, Madrid	CIELS	CIEMAT	Uppsala U.	Stockholm U.	PSI	Totals
INC	420.4	36.0	28.9	15.9				42.9			9.5		4.9	9.1	557.6			
CASH	253.0	0.0	4.1	8.9				263.5			1.5		12.6	7.9	551.6			
TOTAL	663.4	36.0	33.0	24.8				306.4			11.0		17.5	17.0	1109.1			
rel	60%	3%	3%	2%				28%			1%		2%	2%				
1 WPG-1 LINAC																		
1.1 WP-01 RF Systems																		
1.2 WP-02 LLRF																		
1.3 WP-03 Cryomodules																		
1.4 WP-04 SRF cavities																		
1.5 WP-05 Power Couplers																		
1.6 WP-06 HOM couplers																		
1.7 WP-07 Frequency Tuners																		
1.8 WP-08 Cold Vacuum																		
1.9 WP-09 Cavity string assembly																		
1.10 WP-11 SC magnets																		
1.11 WP-46 3.9 GHz System																		
2 WPG-2 Accelerator Subsystems																		
2.1 WP-12 Warm magnets																		
2.2 WP-14 Injector																		
2.3 WP-15 Bunch compression																		
2.4 WP-16 Lattice																		
2.5 WP-17 Standard e- diagnostics																		
2.6 WP-18 Special e- diagnostics																		
2.7 WP-19 Warm vacuum																		
2.8 WP-20 Beam dumps																		
2.9 WP-21 FEL Concepts																		
3 WPG-3 Control & Operations																		
3.1 WP-28 Accelerator control system																		
3.2 WP-35 Radiation safety																		
3.3 WP-36 General safety																		
3.4 WP-38 Personnel interlock																		
3.5 WP-39 EM compatibility (EMC)																		
4 WPG-4 Infrastructure																		
4.1 WP-10 AMT																		
4.2 WP-13 Cryogenics																		
4.3 WP-32 Survey & Alignment																		
4.4 WP-33 Tunnel installation																		
4.5 WP-34 Utilities																		
4.6 WP-40 Information & process support																		

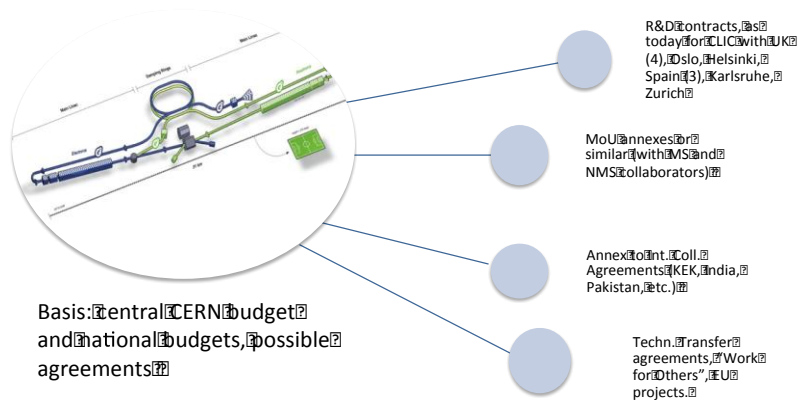
- For organization see chapter 5.
- Also important in this phase will be international negotiations.

## Chapter 4) Mini chapter about construction phase beyond the timeline above (2 pages)

- Costs of the items considered above if we would deliver the percentages mentioned.
- Explain how to scale costs/personnel/European effort with delivery percentages.
- Include estimate of prod. capacities (Nomura and experience) in (mostly) European industries.
- Budget profile estimate (timeline, big money in 2026 onwards)

## Chapter 5) Possible involvement forms of Europe (2 pages)

- Project organization in Europe (particularly relevant for prep. phase)  
Action Steinar



- Council papers for involvement with Japan, brief discussion of possible models in construction phase (Action Steinar)

## Chapter 6) Summary with plots and statements that can be used in slides (1-2 pages)

- Repeat that we have looked at potential of researchers and industry in Europe to aid informed discussions and decisions about a potential European role in the project if it becomes reality.
- Summary timeline needed on European side for decisions (maybe trivial and can be skipped) on our side.

## Refs and appendixes

## Questions/Comments:

- Next meeting looking at main points in red, main discussion of the ILC equivalent EXFEL table (four points, one per chapter 1, 2, 3 and 5)
- When ? DOODLE by Marcel.
- Contact Poland – who ?
- Cryomodules not at CERN (decide) ?
- Operation costs ? Both acc. and detectors