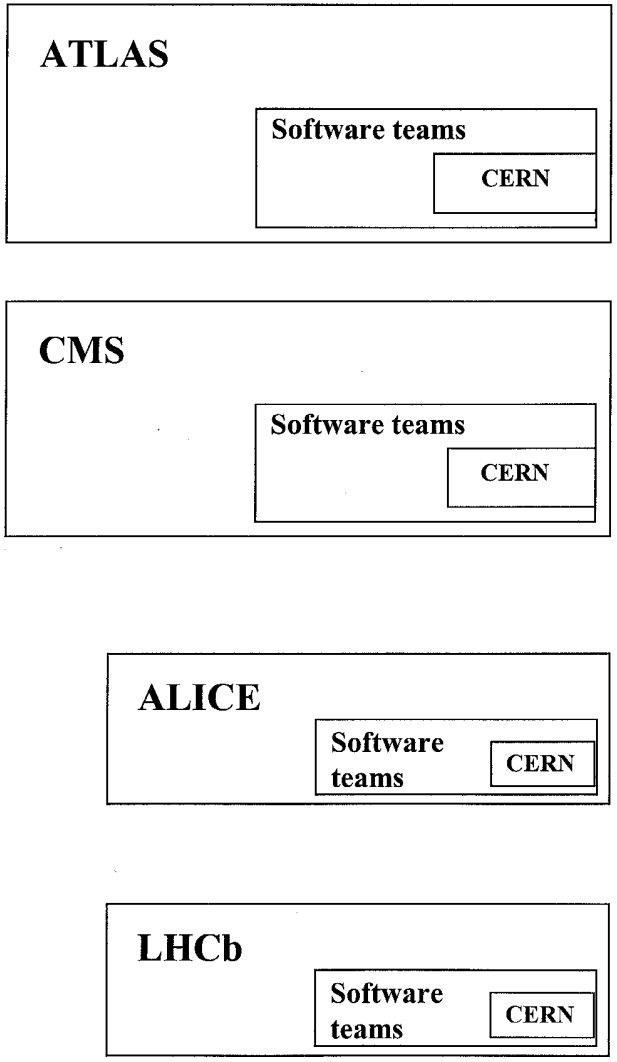
Role of IT/IPT group

"Today & Tomorrow"

ATLAS presentation, 5 May 1998

G.Kellner

The Context

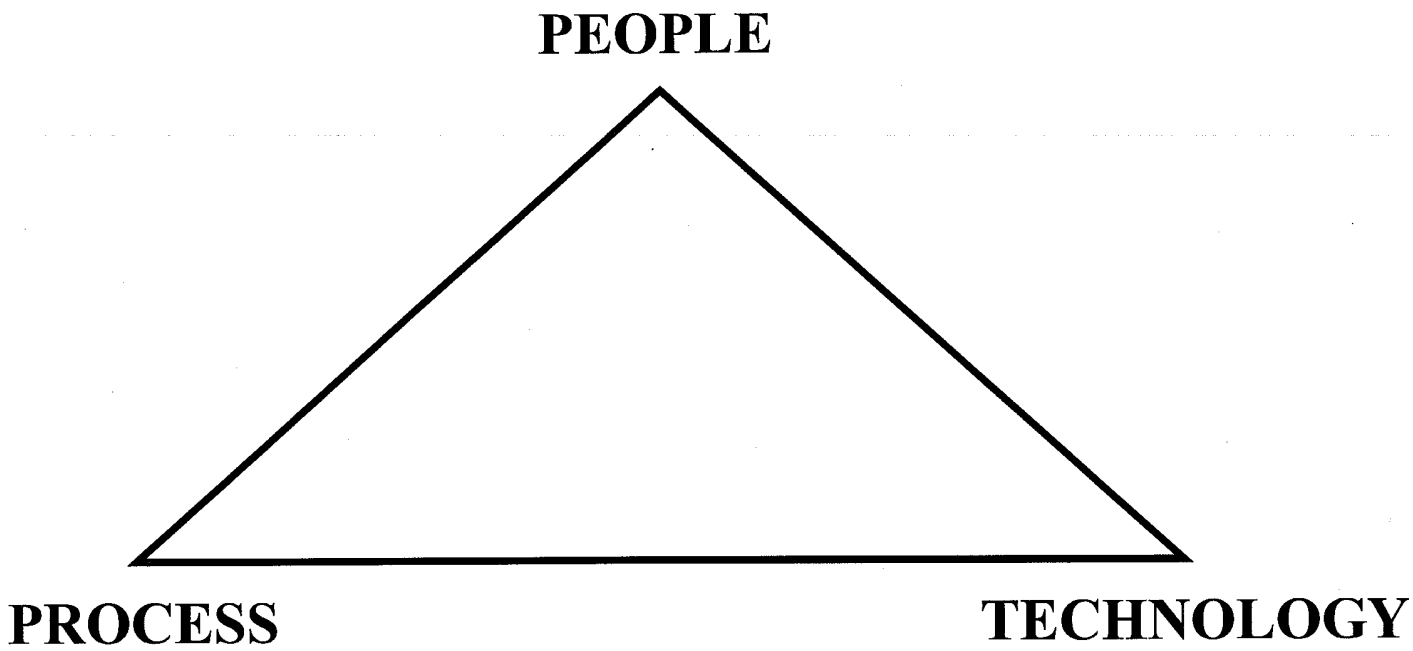


- **LHC project Goals**
  - build LHC and experiments within agreed time-scale and resources
  - assure successful operation during its life-time
- **Experiments**
  - large, complex, long life-time
  - complex organization
  - limited resources
- **Software**
  - changing paradigm (object-orientation)
  - rapid evolution, changing environment
  - quality requirements

Software Development

- **Review of Research to analyze resources and requests**
- **Working Group ("Thursday Club") set up to identify and analyze together with experiments potential areas for 'common approach'**
- **identified activities to be set up as projects and monitored through LCB (LHC Computing Board)**
- **keep a central team - IPT group - to assist LHC projects in improving software development process**
- **mandate for IPT group to prepare project SDE - "Software Development Environment "**

Software Development



Major determinants of software cost, schedule, and quality performance

Role of IPT

- **On request from, and together with, experiments:**
  - **assist in establishing, maintaining, and improving a software production process**
  - **select, introduce and support integrated set of software engineering standards, procedures, methods, tools**
  - **share/collect process improvement ideas with/from all projects**
  - **transfer software technology to developers in projects, directly participating for limited period of time (mentoring)**
  - **identify / foster common aspects (within / across experiments)**
  - **assist with customization and specific requirements**
  - **watch technology trends**
  - **provide for adequate training**

Issues identified sofar as urgent and important :

- Quality assurance, methods and tools for testing and verification, quality requirements for different s/w levels
- documentation systems and document management
- project planning and tracking in distributed environment (collaborative tools)
- configuration management (i.e. above CVS and extensions)
- participation model, transfer of expertise, mentoring, training, teaching - also in outside laboratories

ATLAS (Steve Fisher, Bob Jones [+ SDE & Process URD])

milestones: from December 1997 DAQ, offline start integration, testing, verification
interest for Saclay trigger=2 software, from July 1998

- **Techniques and Tools for Testing** - *need NOW*
  - how to organise, how to define tests, test requirements
  - development platforms - DAQ=Solaris, NT, Lynx OS, offline=HP, NT
  - training at CERN and outside (IPT, US tutorials, outside experts)

- **Configuration Management**
  - at present SRT (software release tool) used = CVS + BaBar + own mods.
  - need to address migration from make

- **Documentation systems, Documentation management**
  - need to decide on FrameMaker, WORD, or what?
  - commercial templates sought (for Word?)
  - for Mario's templates need descriptions how and what to use
  - LIGHT OO for documentation
  - Steve would like to know on use of EDMS, maybe presentation at RAL

- **Installation model for tools** - *important*
  - PT Tools, AFS - need to review
  - use of NT platform is increasing
  - need help with licensing HEP-wide (like LHC++)

Planning of Actions

- initial determination of priorities for areas of improvement
  - discussions with experiments individually
  - input from Barcelona workshop
  - "kick-off" meeting together with all experiments, identify projects
- set up working groups
  - define work plans for few selected projects
- set up LCB project "Software Development Environment" and present to LCB for approval
- implement project(s) and capture lessons learned
- LCB reviews, iterate, etc.

CMM: Process Categories

Categories levels	Management	Organization	Engineering
5 Optimizing			
4 Managed			
3 Defined	**Integrated Software Management** **Inter-group Coordination**	**Process Focus** **Process Definition** **Training Program**	**Software Product Engineering** **Peer Reviews**
2 Repeatable	**Requirements Management** **Project Planning** **Project Tracking & Oversight** **Software Quality Assurance** **Configuration Management** **Subcontract Management**		
1 Initial	**Ad hoc process**		

Members of IPT group

- Alberto Aimar
- Mark Dönszelmann
- Gottfried Kellner
- Arash Khodabandeh
- Stefano Paoli (since 2.2.98)
- Gabriele Pawlitzek (from 4.5.98)

- Eric Poinsignon
- Mario Ruggier

- *Bertrand Rousseau* *(detached to CEDAR project)*

IPT activities over past year

- **A.K.:**
  - **re-engineering of OPAL trigger code (Requirements, design with OMT (Rose), C++, Sniff+, Insure, Logiscope, LIGHT**
  - **Software Tools service (with E. Poinsignon)**
  - **integration Insure, Logiscope with SRT, for ATLAS DAQ backend**
  - **presentations & exercises for CSC'97, CSC'98**
  - **Configuration Management - learning**

- **A.A.:**
  - **consultancy/mentoring on OMT design for ALICE (ROSE, StP)**
  - **LIGHT - DELPHI, OPAL, ATLAS, BaBar, Kloe, GEANT4**
  - **LIGHT 2.0 - requirements, architecture**
  - **Project Management - learning**

IPT activities over past year

- **M.D.:**
  - **WIRED - DELPHI, Chorus, ATLAS, LHCb**
  - **Java, JavaBeans, Corba, RMI technology**
  - **Mobile agents, etc.**
  - **CSC'97, CSC'98**
- **S.P.:**
  - **testing - started discussions with ATLAS, GEANT4**
- **M.R.:**
  - **FrameMaker support, URD, TDR, UG templates, WebMaker config.**
  - **FrameMaker 5.5, template updates, external distribution**

Summary

- **Role for IPT group defined**
- **first ideas on domains where experiments require assistance**
- **next round of discussions of IPT with experiments / projects**
  - **need to refine and identify specific projects and actions**
  - **draw up list of suggestions and time-scales**
  - **discuss together with all experiments and get agreement**
- **prepare PAP of SDE project for LCB, prepare action plan for IPT**
- **execute SDE project**