

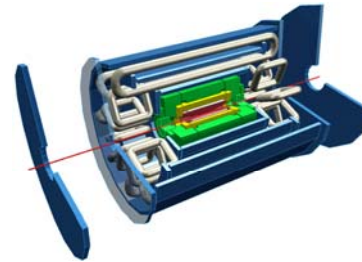
Cost Estimate Tool

For CLIC

Jurgen De Jonghe CERN / IT-AIS
jurgen.de.jonghe@cern.ch,

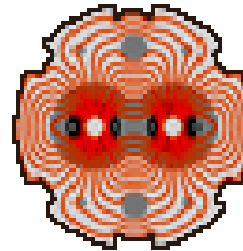
ATLAS Detector

500 MCHF CORE Cost,
150 institutes in 35 countries



LHC – Earned Value Management

3.3 BCHF expenditure
12 years



CNGS – Earned Value Management

75 MCHF expenditure
CERN & Gran Sasso



EGEE – EU FP 6/7

50 MCHF,
70 partners, 800 project members



APT: CERN wide strategic planning

1999

2002

2003

2004

2005

E.g. EVM for Linac4

User : J. DE JONGHE [Logout](#)
Project Progress Tracking

[Workunits](#) [Reports](#) [Administration](#) [Help](#)

WBS **Search workunits**

LINAC4 - Linac4 Project

- 1 - Project Management
 - 1.1 - Project Management
 - 1.2 - Planning Installation and
 - 1.3 - External collaborations co
 - 1.4 - Linac Beam Performance c
 - 1.5 - Accelerating section coord
 - 1.6 - System integration coordi
 - 1.7 - PSB commissioning coordi
 - 1.8 - PSB Beam Performance cc
 - 1.9 - Technical coordination, Q
- 2 - Linac Systems Engineering and
 - 2.1 - Ion Source and LEBT
 - 2.2 - Radio Frequency Quadrup
 - 2.3 - Chopper line
 - 2.4 - Accelerating Structures
 - 2.5 - Linac Beam dynamics
 - 2.6 - Radio Frequency Systems
 - 2.7 - Beam Instrumentation
 - 2.8 - Transfer line
 - 2.9 - Magnets
 - 2.10 - Power Converters
 - 2.11 - Vacuum systems
 - 2.12 - Control systems
- 3 - PS Booster systems
 - 3.1 - Booster injection modifica
 - 3.2 - PSB Beam dynamics
- 4 - Installation and commissioning
 - 4.1 - Test stand operation
 - 4.2 - Transport and installation
 - 4.3 - Survey
 - 4.4 - Linac beam commissioning
 - 4.5 - PSB commissioning to nor
 - 4.6 - PSB commissioning to ult
- 5 - Building and infrastructure
 - 5.1 - Building design and const

Quick Search Start Date to

 Workunit Code End Date to

 Budget Code

 Workunit Holder

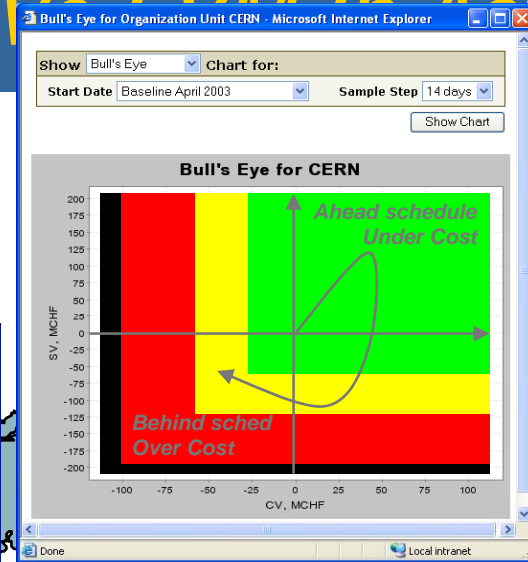
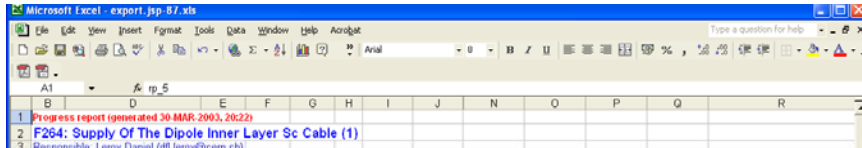
Concise Page 1 Page size: 30

<input type="checkbox"/>	Status	Description	Task	WBS	Holder	Start Date	Finish Date
<input type="checkbox"/>		Not Fake any more - real stuff		5.3	J. DE JONGHE (IT-AIS-PM)	04-Jan-2007	31-Oct-2007
<input type="checkbox"/>		Installation		4.2	J. DE JONGHE (IT-AIS-PM)	01-Jan-2007	31-Dec-2007
<input type="checkbox"/>		Removal		1.7	J. DE JONGHE (IT-AIS-PM)	01-Jan-2007	31-Dec-2007
<input type="checkbox"/>		Another Description		2.6.2	J. DE JONGHE (IT-AIS-PM)	01-Jan-2007	31-Dec-2007
<input type="checkbox"/>		New Description for this one		5.2	J. DE JONGHE (IT-AIS-PM)	01-Jan-2008	31-Dec-2008
<input type="checkbox"/>		Test test test Test		6	J. DE JONGHE (IT-AIS-PM)	01-Jan-2008	31-Dec-2008
<input type="checkbox"/>		Magnets detection		6.1	J. DE JONGHE (IT-AIS-PM)	01-Jan-2008	31-Dec-2008
<input type="checkbox"/>		Sample Workunit for Wbs 3.1		3.1	B. COPY (IT-AIS-PM)	03-Jan-2007	27-Oct-2008
<input type="checkbox"/>		Another Workunit for Wbs 3.1		3.1	N. POLIVKA (AB-ADM-BL)	03-Jan-2008	27-Oct-2008
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Workunit for Wbs 3.2		3.2	M. ROPKA (IT-AIS-PM)	03-Jan-2006	27-Oct-2006
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Workunit for Wbs 3		3	B. HALLGREN (PH-ATE)	03-Jan-2006	27-Oct-2008

Page 1

E.g. Excel upload of workunits

cmd	wu	Code	Status	Description	Task	WBS	Holders Email	Start Date	Duration	Comments
cmd	Pxx	Code	Skill	[Missing JobType] Email or Profile	Budget Code	Duration	Unit (M.WK, %)	Start Date	Duration	Comments
cmd	PSx	Code	Skill	[Missing JobType] Email or Profile	Budget Code	Duration	Unit (M.WK, %)	Start Date	Duration	Comments
cmd	Mxx	Code		Expenditure Description	Budget Code	Amount	Currency	Start Date	Duration	Comments
cmd	de	Code	Weight	Deliverable description	Actual Qty	Total Qty	Unit	Start Date	Duration	Comments
Specify command N, M, D; Commands: N (New), M (Modify), D (Delete)										
wu	ACDTC_P2	PL		Procurement of DTL-Cav materials		5.1.1.1	Suitbert.Ramberger@cern.ch	1-Jan-2008	3mths	
MSP	ACDTC_P			Steel 52	69742	100000	CHF	1-Jan-2008	3mths	
MSP	ACDTC_P			Duraluminium	69742	100000	CHF	1-Jan-2008	3mths	
MSP	ACDTC_P			Supply to DTL-Cav Manufacturer	69742	10000	CHF	1-Jan-2008	3mths	
de	ACDTC_P	1		Steel 52	0	100	%	1-Jan-2008	3mths	
de	ACDTC_P	1		Duraluminium	0	100	%	1-Jan-2008	3mths	
wu	ACDTC_P1	PL		Procurement of DT materials		5.1.2.1	Suitbert.Ramberger@cern.ch	1-Jan-2008	3mths	
wu	ACDTC1_M	PL		Manufacturing of DTL-Cav 1		5.1.1.3	Suitbert.Ramberger@cern.ch	ACDTC_P2.end	3mths	
MSP	ACDTC1_M			Cavity segment machining	69742	10000	CHF	ACDTC_P2.end	3mths	
MSP	ACDTC1_M			Cavity segment welding & test	69742	1000	CHF	ACDTC_P2.end	3mths	
PSI	ACDTC1_M	1.3.2		Suitbert.Ramberger@cern.ch		1	M.WK	ACDTC_P2.end	3mths	
de	ACDTC1_M	1		Cavity segment machined, welded & testec	0	2	U	ACDTC_P2.end	3mths	
de	ACDTC_P	1		Seals etc.	0	100	%	1-Jan-2008	3mths	
wu	ACDTC_D	PL		Drawings of DTL-Cav		5.1.1.2	Suitbert.Ramberger@cern.ch	1-Jan-2008	6mths	
MSP	ACDTC_D			Draftsman	69742	25000	CHF	1-Jan-2008	6mths	
MSP	ACDTC_D			Elaboration	69742	40000	CHF	1-Jan-2008	6mths	
PSI	ACDTC_D	1.3.2		Suitbert.Ramberger@cern.ch		1	M.WK	1-Jan-2008	6mths	
de	ACDTC_D	1		Production drawings	0	100	%	1-Jan-2008	6mths	
wu	ACDTC_D	PL		Drawings of DTs		5.1.2.2	Suitbert.Ramberger@cern.ch	1-Jan-2008	6mths	
MSP	ACDTC_D			Draftsman	69742	25000	CHF	1-Jan-2008	6mths	
MSP	ACDTC_D			Elaboration	69742	40000	CHF	1-Jan-2008	6mths	
PSI	ACDTC_D	1.3.2		Suitbert.Ramberger@cern.ch		1	M.WK	1-Jan-2008	6mths	
de	ACDTC_D	1		Production drawings	0	100	%	1-Jan-2008	6mths	
wu	ACDTC1_M	PL		Manufacturing of DTL-Cav 1		5.1.1.3	Suitbert.Ramberger@cern.ch	ACDTC_P2.end	3mths	
MSP	ACDTC1_M			Cavity segment machining	69742	10000	CHF	ACDTC_P2.end	3mths	
MSP	ACDTC1_M			Cavity segment welding & test	69742	1000	CHF	ACDTC_P2.end	3mths	
PSI	ACDTC1_M	1.3.2		Suitbert.Ramberger@cern.ch		1	M.WK	ACDTC_P2.end	3mths	
de	ACDTC1_M	1		Cavity segment machined, welded & testec	0	2	U	ACDTC_P2.end	3mths	



EVM Notification
 James Purvis
 To: James Purvis

You receive this message because you are the holder of the following active workunits:

- 07000: F264 Supply Batch #8
- 11471: F265 Supply Batch #6: Cable 02
- 11497: F265 Supply Batch #B02: Bus-bars

Please update the status of the deliverables for these workunits. You may obtain an Excel file for reporting at:

Thank you for your time!

All folders are up to date. Connected

Level of Effort: No
 Comments:

Deliverables

Description:	Actual/Total Quantity:	Planned Finish:	Actual Finish:	Comments:
Conceptual design approved	0 / 1 Unit	31-Aug-2000	31-Aug-2000	
Report on the TED thermo-mechanical behaviour	0 / 1 Unit	31-Jan-2001	31-Jan-2001	

Update Cancel



Microsoft Excel - export_jsp_87.xls

Progress report (generated 30 MAR 2003, 20:22)

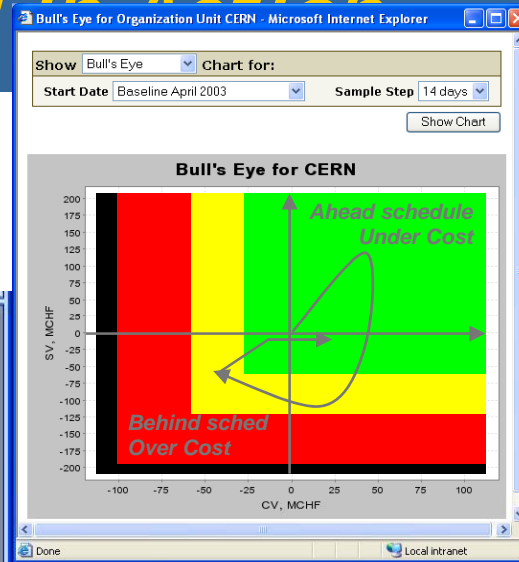
F264: Supply Of The Dipole Inner Layer Sc Cable (1)

Responsible: Leroy Daniel (dl.leroy@cern.ch)

Supplier: Alstom S.A., FR

Inv Tender: IT-2472/LHC/LHC

ID	Description	Eq. Code	Actual Quantity	Total Quantity	Unit	Planned Finish	Actual Finish	Value to Date (PV)	Earned Value (EV)	Schedule Variance (SV)	Reference	Comments
7	6992 F264 Batch #0 Acceptance		20	20	UL	14-Nov-00	14-Nov-00	309,052	309,052	0		
8	6993 F264 Batch #1 Acceptance		24	24	UL	17-Mar-01	17-Mar-01	467,071	467,071	0		
9	6994 F264 Batch #2 Acceptance		104	104	UL	14-Sep-01	14-Sep-01	2,027,440	2,027,440	0		
10	6995 F264 Batch #3 Acceptance		128	128	UL	21-Jan-02	21-Jan-02	2,485,311	2,485,311	0		
11	6996 F264 Batch #4 Acceptance		136	136	UL	14-Apr-02	14-Apr-02	2,651,269	2,651,269	0		
12	6997 F264 Batch #5 Acceptance		136	136	UL	29-Jan-02	29-Jan-02	2,651,269	2,651,269	0		
13	6998 F264 Batch #6 Acceptance		180	180	UL	30-Oct-02	30-Oct-02	3,509,031	3,509,031	0		
14	6999 F264 Batch #7 Acceptance		200	200	UL	29-Jan-03	29-Jan-03	2,699,296	2,699,296	0		
15	7000 F264 Batch #8 Acceptance		156	200	UL	15-May-03	15-May-03	1,520,041	2,012,062	-492,041		
16	7001 F264 Batch #9 Acceptance		0	200	UL	14-Aug-03	14-Aug-03	0	0	0		
17	7002 F264 Batch #10 Acceptance		0	200	UL	15-Dec-03	15-Dec-03	0	0	0		
18	7003 F264 Batch #11 Acceptance		0	220	UL	18-Mar-04	18-Mar-04	0	0	0		
19	7004 F264 Batch #12 Acceptance		0	220	UL	29-Jun-04	29-Jun-04	0	0	0		
20	7005 F264 Batch #13 Acceptance		0	220	UL	15-Oct-04	15-Oct-04	0	0	0		
21	7006 F264 Batch #14 Acceptance		0	220	UL	29-Jan-05	29-Jan-05	0	0	0		
22	7007 F264 Batch #15 Acceptance		0	220	UL	15-May-05	15-May-05	0	0	0		
23	7008 F264 Batch #16 Acceptance		0	220	UL	14-Aug-05	14-Aug-05	0	0	0		
24	7009 F264 Batch #17 Acceptance		0	220	UL	15-Dec-05	15-Dec-05	0	0	0		
25	7010 F264 Batch #18 Acceptance		0	148	UL	29-Jan-06	29-Jan-06	0	0	0		
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EVM Notification
James Purvis
To: James Purvis

This mail is sent to make you aware of changes in workunits in the EVM application.

On 17-JUN-2004, 15:40 Michael ALLITT made the following changes:

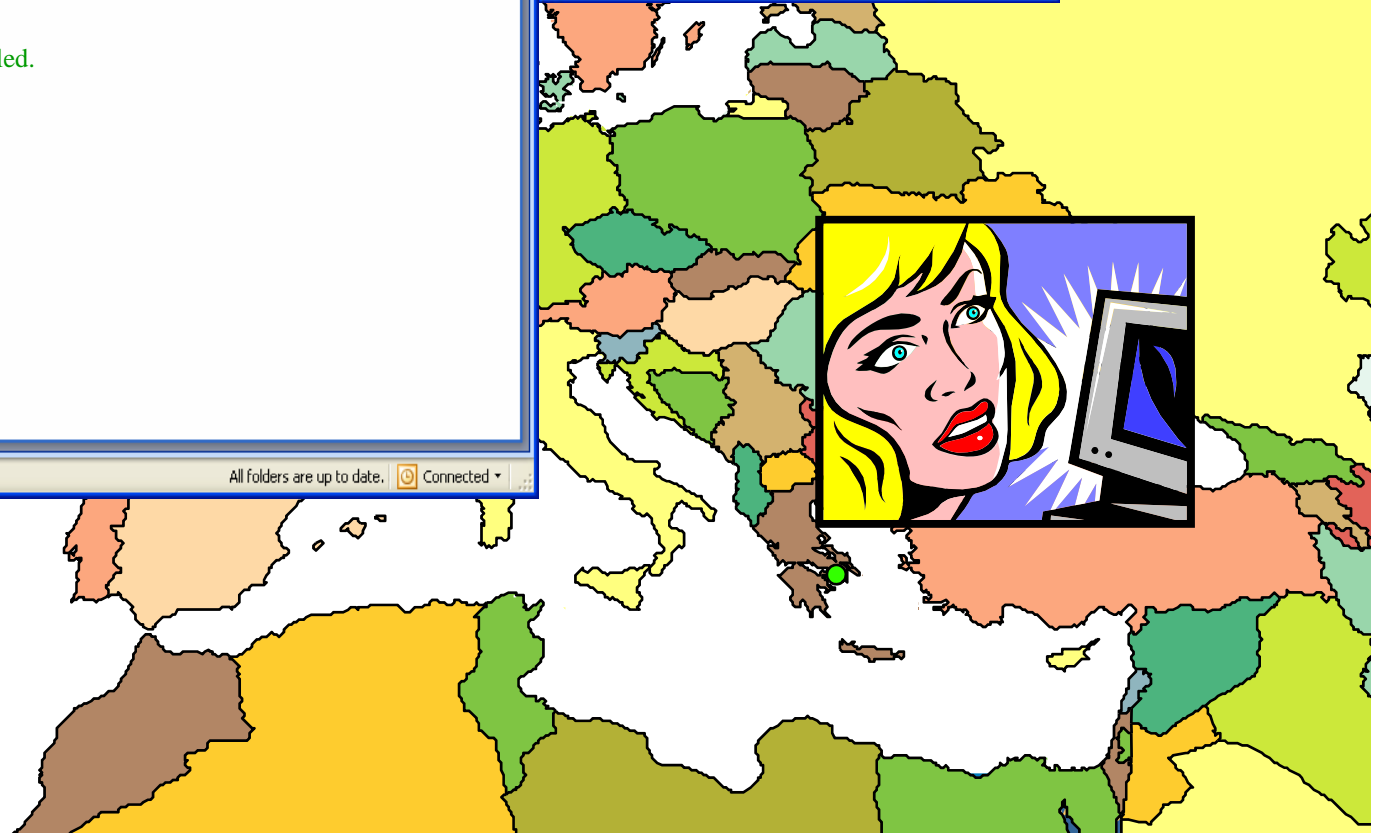
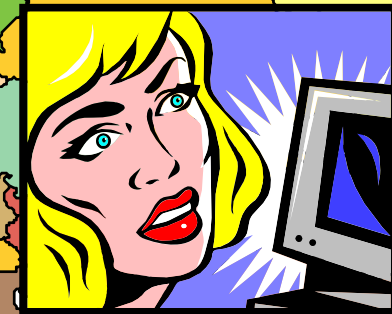
Comments from Michael ALLITT :
Supplier able to deliver earlier than scheduled.

Cost Impact:
No impact

Schedule Impact:
workunit 15237: brought forward 73 days

Full details of the change:

All folders are up to date. Connected



Dynamic Reports, multiple Breakdown Structures

APT CERN - European Organization for Nuclear Research
 User: DE JONGHE Jurgen | Help | Support | Logo

Welcome Workunits Reports Action Log HR Costing Issues Budcode

Search Last update: 09-Jun-2006 15:25 Update now Reports: [Dropdown]

Filter

Org (Res): CERN Project/Operation: PROJECT OPERATION

Org (Per): [] Resource Category: P PSI PSL PFE PPA PBU POM PIK

Org (Holder): [] M MSP MIS MOM MTP MIK PPJ

Budget Code: [] Workunit Status: Draft Planned Active Completed Canceled

WBS: CERN-PPA Job Category: 1 2 3 4 5

WBS (Res): [] Career Path: A B C D E F G

Skill: [] Missing Type: Not Missing NEED REPL MTOP POST

Time: 2006...2008 (Current+2) [Dropdown]

Measure
 Personnel + Material (kCHF) [Dropdown]
 Normalize overallocated
 Include EVM/LHC

Show
 A APT [Dropdown]
 B MTP 06 New [Dropdown]
 A-B
 Totals Empty cells

Dimensions

Rows: WBS [0] [1] Org (Res) [0] [1] None [0] [1] None [0] [1]

Columns: Time [0] [1] Project/Operation (WBS) [0] [1] None [0] [1] None [0] [1]

Save as Report Take Snapshot Manage Snapshots / Reports [Icons] Reset Search

				2006			2007			2008			Grand Total
CERN-PPA	LHC-PPA	CERN	CERN (ROOT)	OPERATION	PROJECT	2006 Total	OPERATION	PROJECT	2007 Total	OPERATION	PROJECT	2008 Total	
			APT										
			Target B		22,870	22,870		78,120	78,120				
			A-B		-22,870	-22,870		-78,120	-78,120				
		AB	APT	12,863	97,591	110,455	18,604	45,079	63,683	27,876	19,457	47,333	
			Target B	26,930	103,310	130,240	46,930	22,720	69,650	46,350		46,350	
			A-B	-14,067	-5,719	-19,785	-28,326	22,359	-5,967	-18,474	19,457	983	
		AT	APT	59,323	292,240	351,563	52,651	90,917	143,568	52,617	2,686	55,303	
			Target B	63,360	285,280	348,640	38,590	35,295	73,885	53,525		53,525	
			A-B	-4,037	6,960	2,923	14,061	55,622	69,683	-908	2,686	1,778	
		DG	APT										
			Target B	800		800	800		800				
			A-B	-800		-800	-800		-800				
		IT	APT	19,414	26,706	46,121	20,317	22,898	43,215	16,716	27,346	44,062	
			Target B	16,165	24,965	41,130	14,430	16,635	31,065	15,115	21,290	36,405	
			A-B	3,249	1,741	4,991	5,887	6,263	12,150	1,601	6,056	7,657	
		LHC	APT	968	3,380	4,348		2,853	2,853		1,010	1,010	
			Target B	7,300	1,975	9,275	4,265	6,275	10,540	2,320		2,320	
			A-B	-6,332	1,405	-4,927	-4,265	-3,422	-7,687	-2,320	1,010	-1,310	

- Upload of CLIC tailored Excel templates to a central database.
- Additional parameters in this database:
 - labor cost by year
 - commodity cost by year
 - inflation, currency exchange scenario's
 - ...
- OLAP engine
 - slice & dice cost measure
 - by any combination of dimensions (PBS, System, WBS, Configuration)
 - summing up along any hierarchy.
 - comparison of detailed cost estimates versus estimates at higher levels...

Proposal, Cont'd

- Management of access rights (who can view, who can modify).
- Management of history of changes (if needed: alert for new changes).
- Optionally: in this early phase we can also support storage cost-related documents along the breakdown structures. At later phases a dedicated "EDMS" will be needed.

Advantages / Disadvantages

- ✓ We have the experience of rolling out this kind of applications, we have the technology, we can reuse existing components. We do have to develop and apply these to the CLIC cost domain.
- ✓ We are in full control of the data, so we can export to another application later if needed.

- Not a standard, commercial-off-the-shelf tool.
- Further development may be required for risk analysis, what-if scenario's.
- We are overloaded and will need help with manpower.

Conclusion

*If providing the initial resources is not a problem,
we can provide a pragmatic and 'tailored'
solution.*

And there's no lock-in...