

Schedule Quality



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2011.03.01, Jeremy Clarke

BOMBARDIER

Scheduling in BT Division RCS

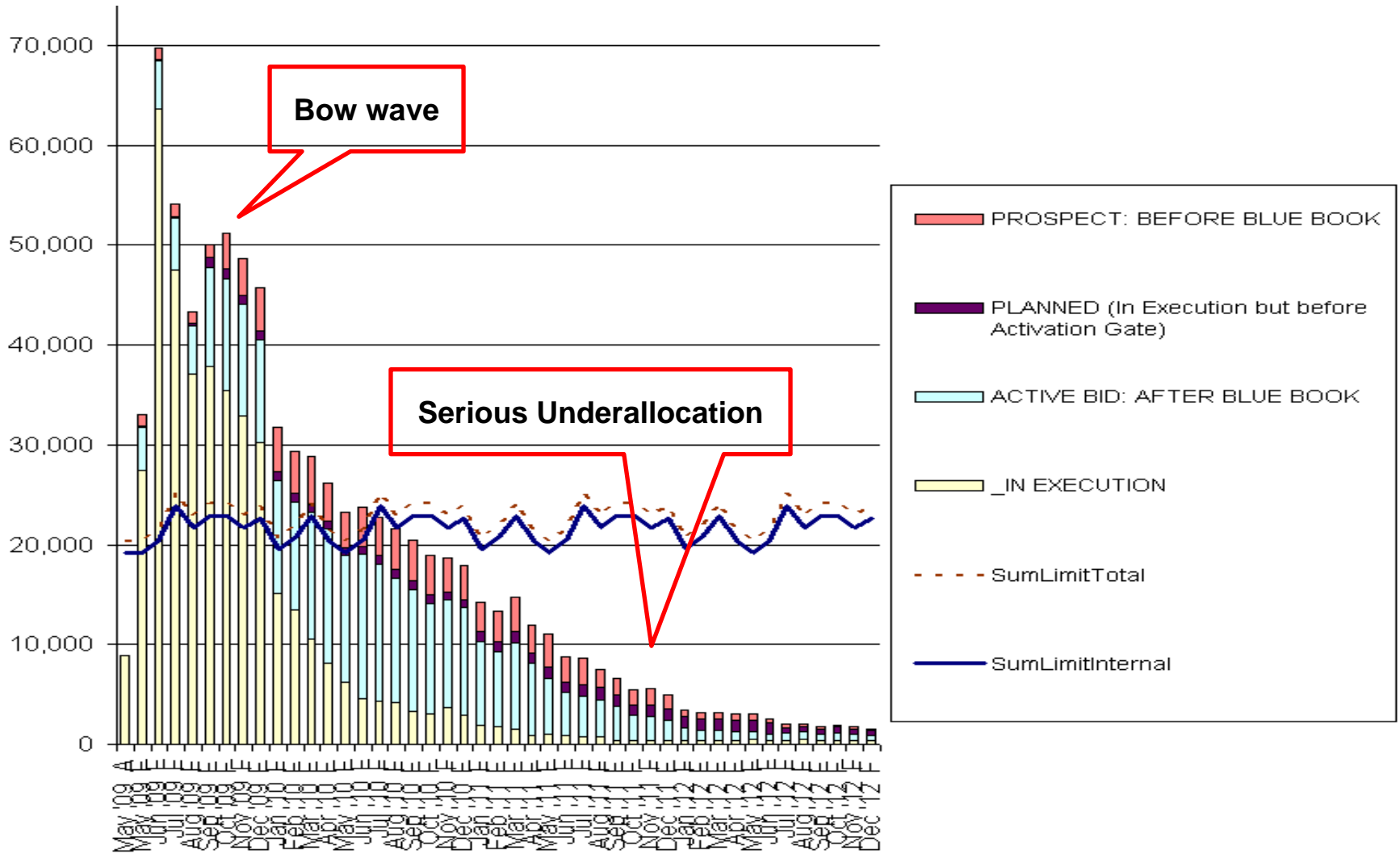
- **2000 Users (300 PM)**
- **Timebooking directly in projects**
- **700-800 active projects**
- **Many exported directly from ERP systems at start of implementation**

- **Primavera P6 v6.2.1 (official)**
- **MS Project (unofficial)**
- **Excel, Visio, Powerpoint...**

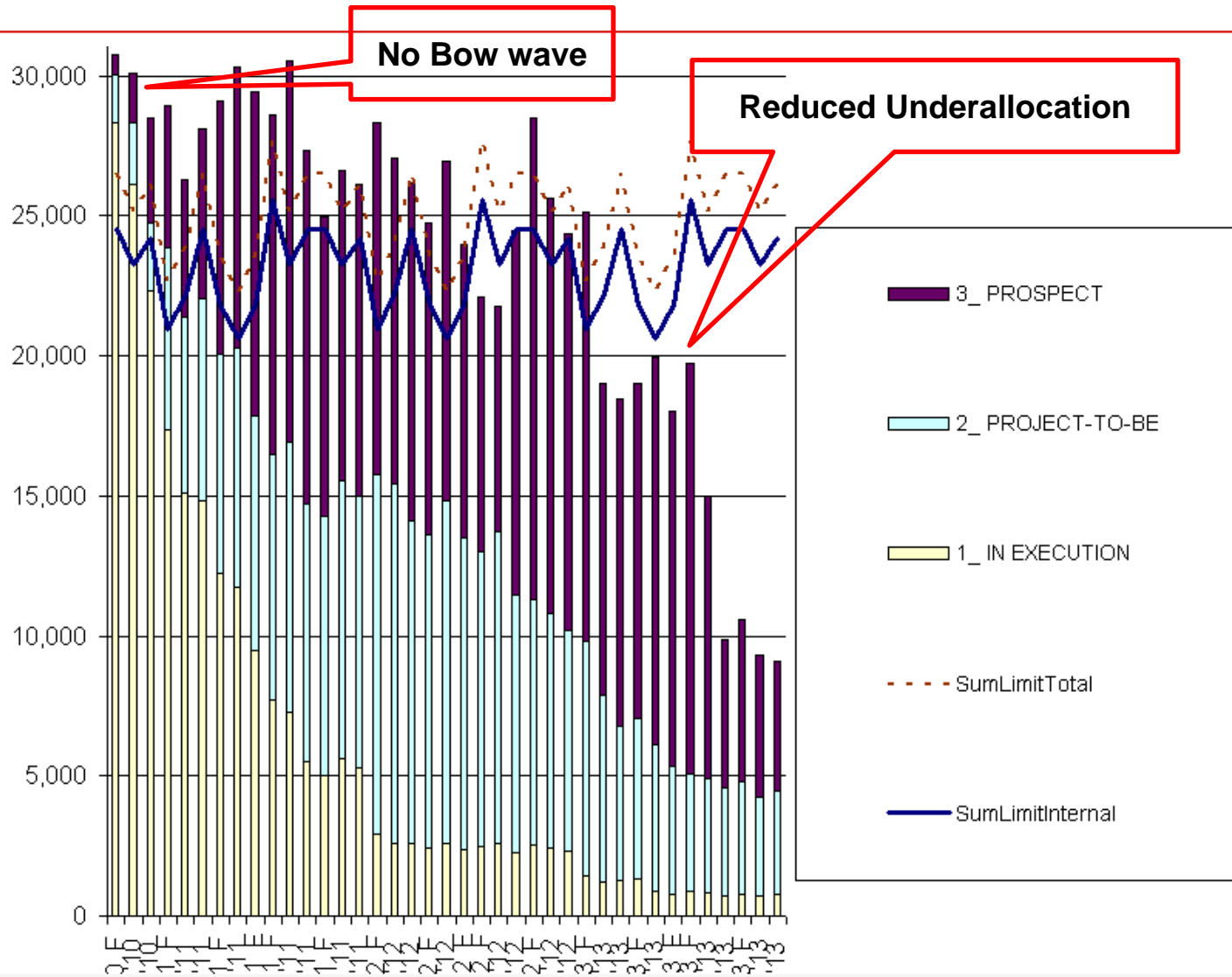
Why is Schedule Quality important?

- **Resource capacity planning**
- **QSRA**

Resource Planning May 2009 (2.5 Year Horizon)

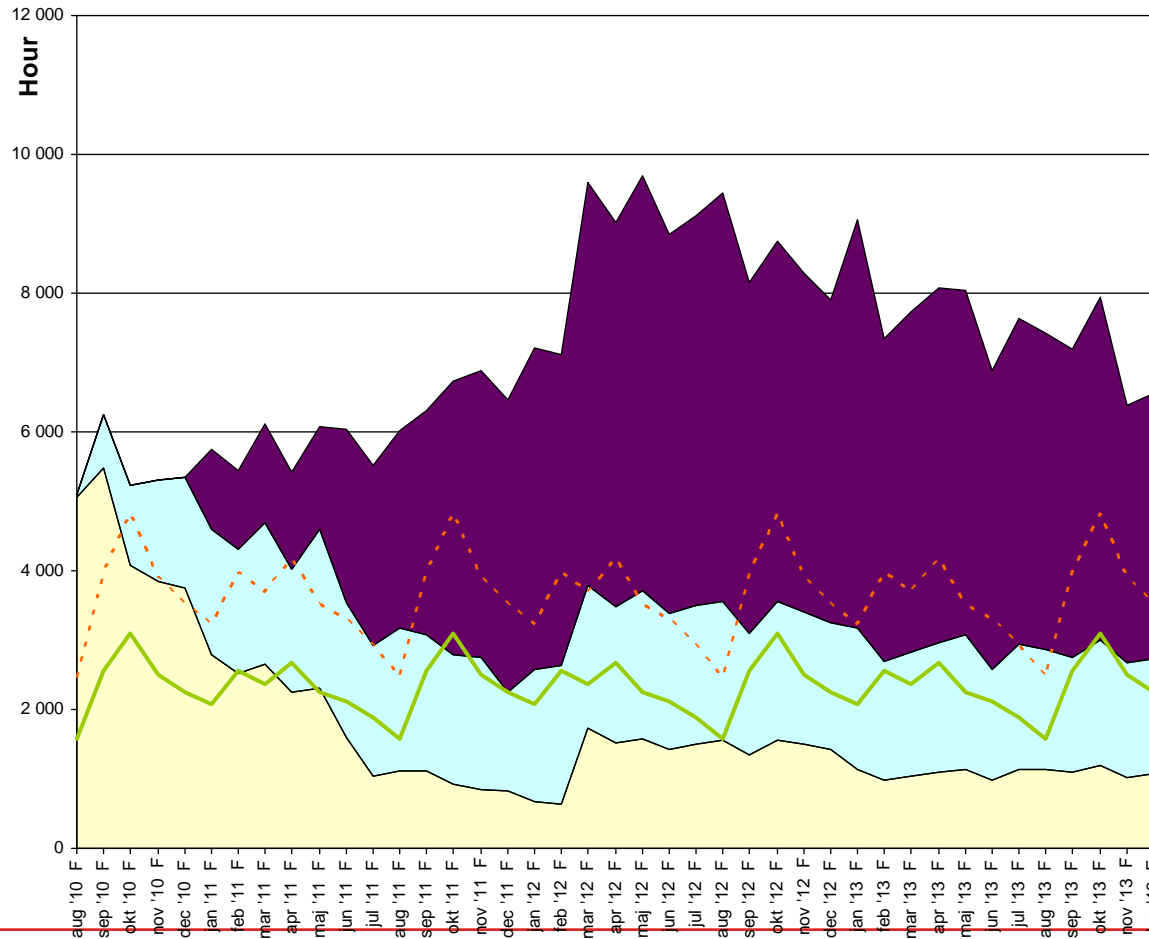


Resource Planning Dec 2010 (2.5 Year Horizon)



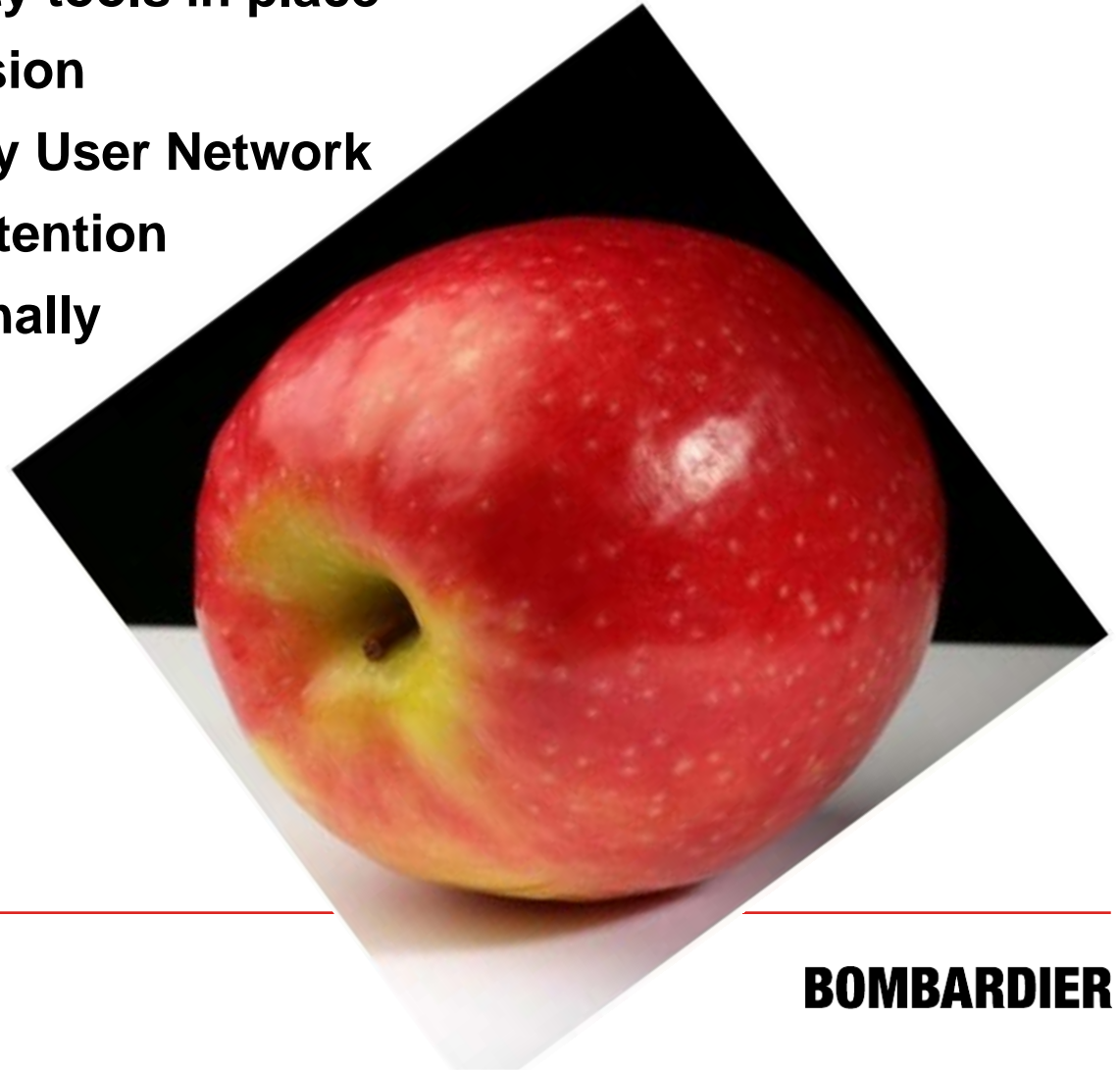
Decisions now being based on Resource Planning

- „Onboard Engineering stays in SE but 2012 demand indicates it needs to double in size“.



We think we're doing OK...

- **Rolls Royce of tools**
- **Reporting and 3rd Party tools in place**
- **Skills available in Division**
- **Active and capable Key User Network**
- **Senior Management attention**
- **Good reputation externally**



...But what if the underlying schedule quality is sub-standard?



Current Schedule Health Check

Project ID	22000SG-SP10955 new		55	100
Project Name	SP.10955 - RCS HSP 250.I			
Date Reviewed	25/01/2010 22:57			
Actual Start (from project dates tab)	01/04/2004			
Finish (from project dates tab)	22/08/2013 17:00			
Baseline Finish (Project Baseline)	22/08/2013 17:00			
Variance Baseline / Finish Date	0			
Budgeted Hours (Project Baseline)	14698			
Actual Hours	4540.79			
Remaining Hours	10175			
At Completion Hours	14715.79			
Variance BL / At Completion Hours	-17.79			
Critical Path plausible?	See screenshot next sheet		0	25
% Activities with no Predecessor	4%	< 10% = G, 10-25% = Y, > 25% = R	15	15
% Activities with no Successor	6%	< 10% = G, 10-25% = Y, > 25% = R	15	15
% Activities with Constraints	8%	< 10% = G, 10-25% = Y, > 25% = R	15	15
% Activities in Progress	5%			
% Activities Finished	51%			
Standard WBS?	N		0	5
All Budget, Roles, Resources at SP level or lower?	Not valid		0	5
Project Baseline?	Y		5	5
Updated in last month?	N	WBS Milestones in use? MANUAL ENTRY	0	5
Project contains actual hours for previous month?	N	Role / Resource Transition in use? MANUAL ENTRY	0	5
All Activities with Budget have either Resource or P	Y		5	5

Parameters which are scored

- **Standard WBS**
- **Resource Planning at right level (ARIS Sub-Process)**
- **Critical path plausible**
 - (subjective, how to assess automatically?)
- **Open Ends (no PRE, no SUCC)**
 - Problem with WBS summaries
- **Hard Constraints**
- **Schedule baselined**
- **WBS Milestones in use**
- **Role / Resource transition in use**



Sample



Multi-Project

Criteria for Critical Path

- Path starts with a constrained milestone or activity, not at project start or data date
- Path contains very long activities or summary activities
- Path contains irrelevant activities (such as PM, Monthly Progress Meetings etc)
- Path does not lead to project end or a significant milestone
- More than 10% of Activities have no PRE
- More than 10% of Activities have no SUCC
- Activities on path are not well defined (action clearly described)

Other Parameters

Not scored for now

- **Variance against Baseline dates (not yet in use)**
- **Variance against Baseline budget (not yet in use)**
- **% Activities in progress**
- **% Activities finished**

No longer used

- **Project updated in last month**
- **Project contains actual hours for last month**

Plans for 2011

- **Include 9 points from DCMA**
- **Make Auto Schedule Health Check available to all users via Client through Citrix**
- **Review PMBOK and other standards (US 880 / 881) for additional input**

The DCMA 14 Point Schedule Assessment

- **Developed by DCMA**
 - Defense Contract Management Agency (US)
- **Fast becoming an established standard**
- **14 separate checks run against CPM project schedules**
- **Assess quality and structure**
- **Focus on integrity**
- **Touch on performance during execution**

DCMA 14 Point Assessment Metrics, summary

Metric	What it is	Goal
Logic	Predecessors and Successors	1 ea. task
Leads	Overlap/Concurrency between tasks (negative lag)	0
Lags	Delay between linked tasks	$\leq 5\%$
Relationship Types	Other than Finish to Start (FS)	$\geq 90\%$
Hard Constraints	Must start or finish & no later than	$\leq 5\%$
High Float	Float > 2 months	$\leq 5\%$
Negative Float	Float < 0 days	0
High Duration	Tasks > 2 months	$\leq 5\%$
Invalid Dates	<u>Forecast dates prior to or actual dates after</u> current status date	0
Resources	Hours/Dollars for each tasks	All resource loaded
Missed Tasks	Negative completion variance	$\leq 5\%$
Critical Path Test	Broken logic due to missing dependencies	No large neg. float
Critical Path Length Index (CPLI)	$\frac{\text{Critical Path Length} + \text{Total Float}}{\text{Critical Path Length}}$	≥ 1.00
Baseline Execution Index (BEI)	Ratio of completed tasks to tasks planned to be complete	≥ 1.00



2012?: Primavera P6 v8

Schedule Check Report created on 03-jan-11 04:01 em

Projects checked

Project ID	Project Description	Data Date	Total Activities	Complete Activities	Total Links
EC00610	Harbour Pointe Assisted Living Center	01-maj-11 12:00 fm	131	18	212

Projects checked have links to the following Closed Projects

None found

Check Summary

Check	Description	Target	Actual	Found	Total
Logic	Activities missing predecessors or successors	< 5%	1%	1	113
Negative Lags	Relationships with a lag duration of less than 0	< 1%	12%	24	200
Positive Lags	Relationships with a positive lag duration	< 5%	13%	25	200
Long Lags	Relationships with a lag duration greater than 352 hours	< 5%	1%	1	200
Relationship Types	The majority of relationships should be Finish to Start	> 90%	35%	170	200
Hard Constraints	Constraints that prevent activities being moved	< 1%	0%	0	113
Soft Constraints	Constraints that do not prevent activities being moved	< 5%	4%	4	113
Large Float	Activities with total float greater than 352 hours	< 1%	76%	86	113
Negative Float	Activities with a total float less than 0	< 1%	0%	0	113
Large Durations	Activities that have a remaining duration greater than 352 hours	< 5%	46%	46	101
Invalid Progress Dates (before the data date)	Incomplete activities before the data date	< 1%	0%	0	113

V8 Check