



SCHEDULE QUALITY ASSURANCE

2014 Construction, Pavements, and Materials Conference

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TxDOT ePMO

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Work is organized around our customers and integrated solutions.

Enables us to:

- Turn feedback from customers into action – delivering on expectations
- Provide a single point-of-contact
- Provide value-driven services
- Work together as an ePMO team



TXDOT ePMO - Key Focus for Sections

Customer Service

BUSINESS PARTNERING

Focus on partnering with customers to deliver solutions and fulfill unique needs.

PM Practices

STANDARDS, RISK & INNOVATION

Focus on developing initiative and policy design, as well as sharing PM best practices.

Process Delivery

REPORTING & OPERATIONS

Focus on reporting/analyzing and maintaining PM tools.

ePMO

Structural Integrity of a CPM Schedule

- How can we check if a CPM schedule is built using appropriate scheduling techniques?
- What components do we analyze to ensure quality?
- How do we measure quality within the schedule framework?

DCMA 14 Point Assessment



What is DCMA 14 point assessment?

- Guidelines created by the Defense Contract Military Agency in 2007; modified in 2009.
- Becoming an industry standard for schedule quality checks and measuring performance.
- Assess quality and structural integrity through 14 metrics:
 1. Logic
 2. Leads
 3. Lags
 4. Relationships
 5. Hard Constraints
 6. High Float
 7. Negative Float
 8. High Duration
 9. Invalid Dates
 10. Resources
 11. Missed Activities
 12. Critical Path Test
 13. CPLI
 14. BEI



What are the Benefits?

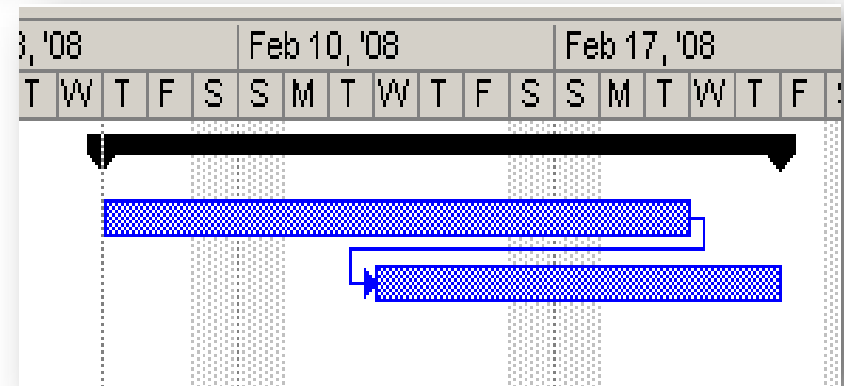
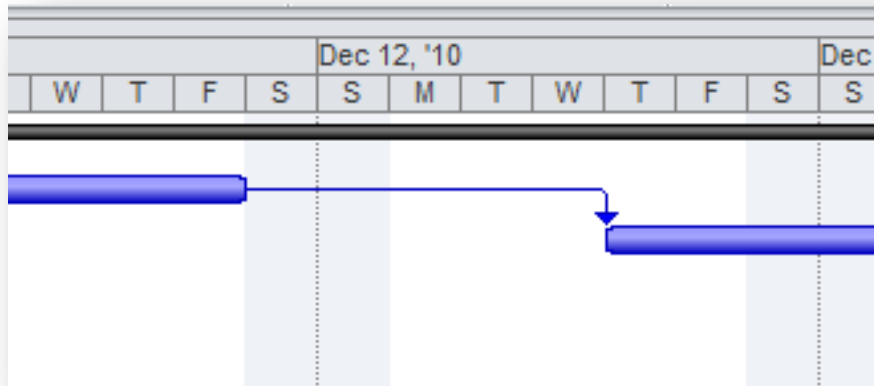
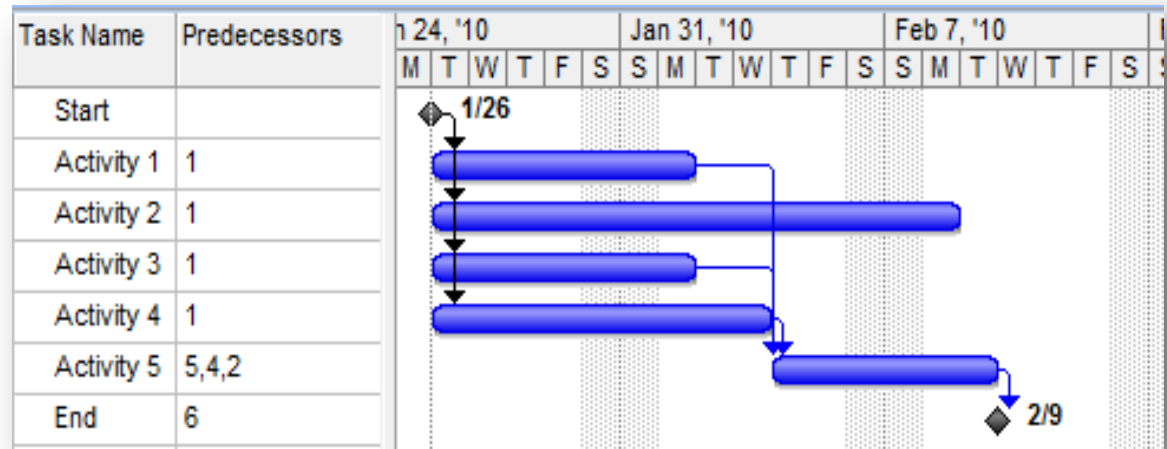
- Measure 14 metrics; Proven CPM Scheduling Techniques
- Compares and evaluates baseline schedule with status updates.
- Provides a consistent approach to schedule analysis.
- Provides more rigor to the schedule review process.
- Increases the likelihood of completing the project “on-time”.



What are the 14 Points?

Relationships and Logic Checks:

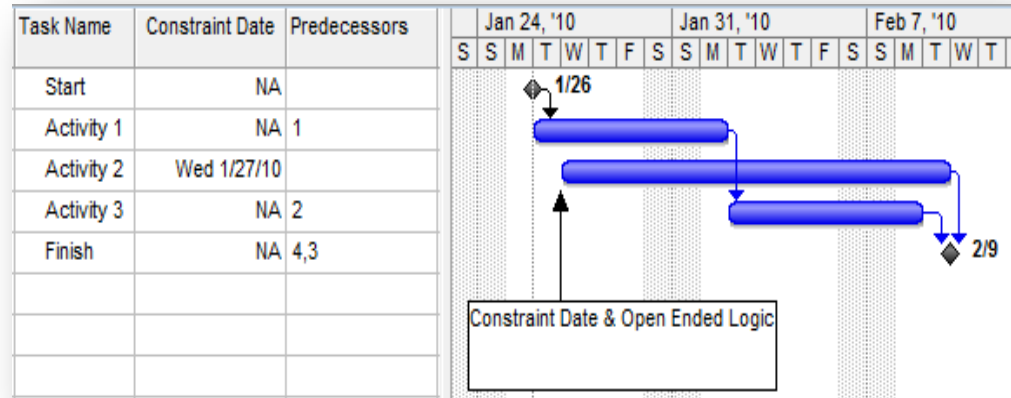
1. Logic
2. Leads
3. Lags
4. Relationships



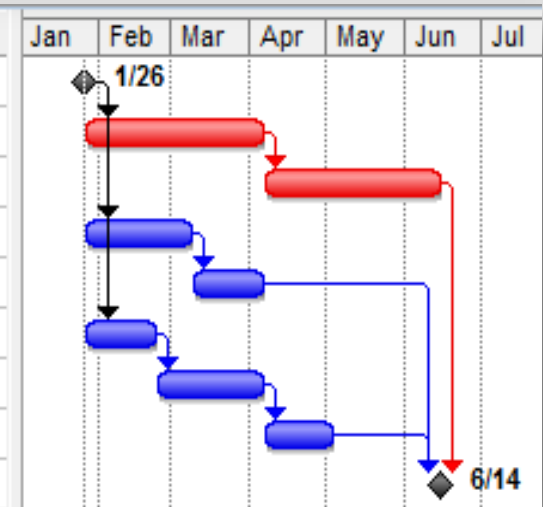
What are the 14 Points?

Constraints, Float, Duration, and Schedule Path Analysis:

5. Hard Constraints
6. High Float
7. Negative Float
8. High Duration



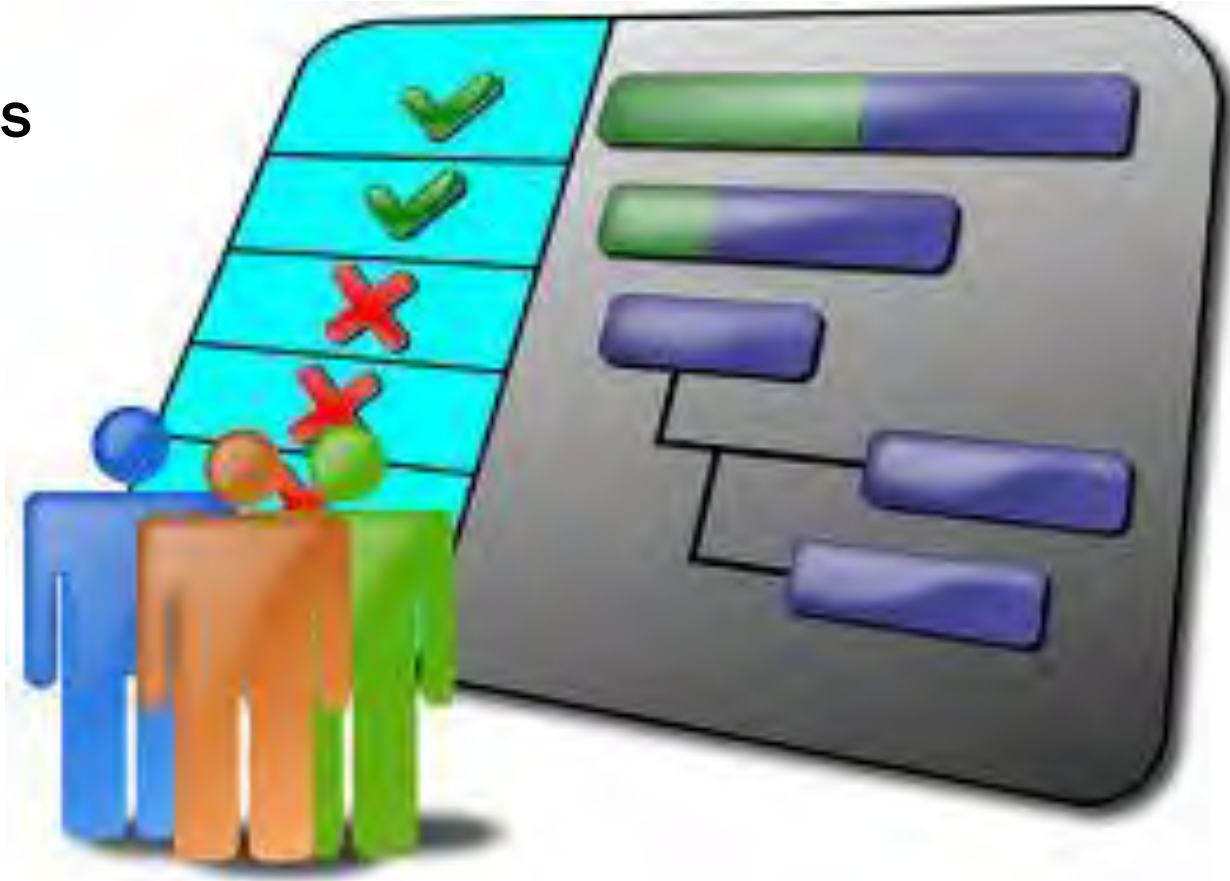
Task Name	Duration	Start	Finish	Total Slack	Predecessors
Start	0 days	Tue 1/26/10	Tue 1/26/10	0 days	
1	50 days	Tue 1/26/10	Mon 4/5/10	0 days	1
2	50 days	Tue 4/6/10	Mon 6/14/10	0 days	2
3	30 days	Tue 1/26/10	Mon 3/8/10	50 days	1
4	20 days	Tue 3/9/10	Mon 4/5/10	50 days	4
5	20 days	Tue 1/26/10	Mon 2/22/10	30 days	1
6	30 days	Tue 2/23/10	Mon 4/5/10	30 days	6
7	20 days	Tue 4/6/10	Mon 5/3/10	30 days	7
Finish	0 days	Mon 6/14/10	Mon 6/14/10	0 days	3,5,8



What are the 14 Points?

Project Performance Checks:

- 9. Invalid Dates
- 10. Resources
- 11. Missing Activities

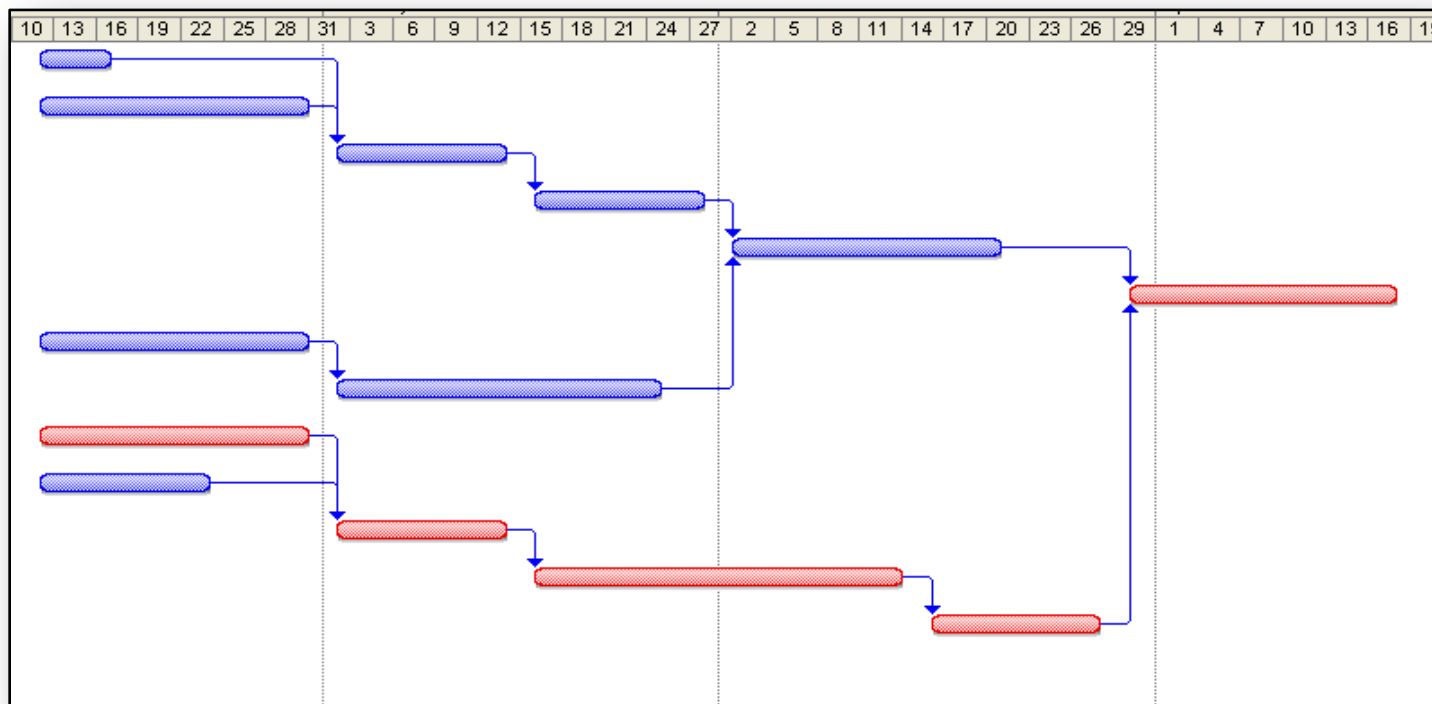


Critical Path Tests:

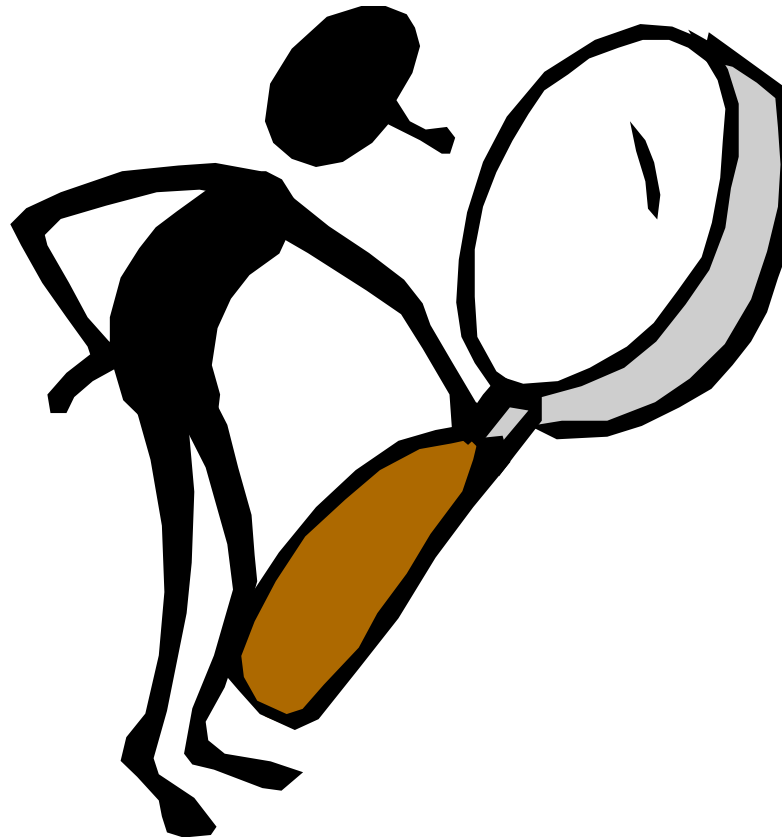
12. Critical Path Test

13. The Critical Path Length Index

14. Baseline Execution Index



How can we perform this Analysis?

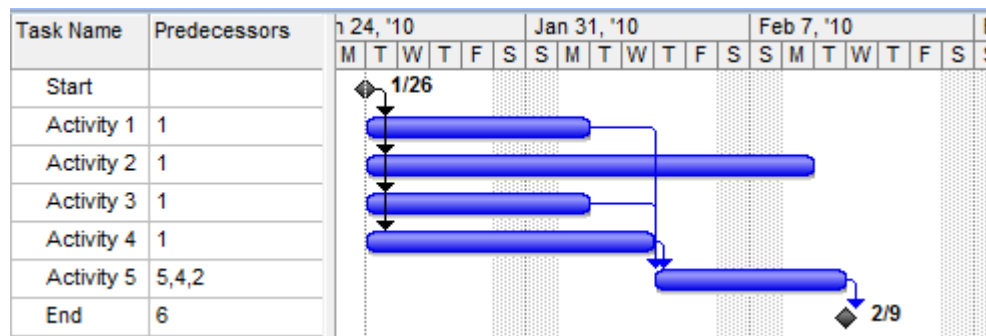


What is the ePMO currently doing?

1. Developing QA procedure for pre-construction scheduling.
2. Increase the probability of successful letting dates.
3. Implementing software to run 14 point Assessment (Acumen Fuse).
4. Developing training for QA metrics and use of Acumen Fuse.

WBS Level: 1	Timeline				Ribbon Analyzer														
	2010	2011	2012	2013	1. Logic	2. Leads	3. Lags	4. FS Relat..	5. Hard Constr..	6. High Float	7. High Negati..	8. High Durati..	9. Invalid..	10. Resou..	11. Misse..	12. Critica..	13. CPU	14. BEI	Score ▲
Current Schedule.0010 Concept					1 (100%)	0 (0%)	0 (0%)	0 (0%)	1 (100%)	0 (0%)	1 (100%)	0 (0%)	0 (0%)	0 (0%)	6 (86%)	✓	0.48	0.86	0%
Current Schedule.0050 Procurement					0 (0%)	0 (0%)	8 (80%)	7 (70%)	1 (14%)	2 (29%)	5 (71%)	2 (29%)	0 (0%)	0 (0%)	1 (14%)	✓	0.56	0.00	0%
Current Schedule.0020 Early Design					N/A	N/A	N/A	N/A	N/A	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3 (75%)	✓	N/A	1.00	0%
Current Schedule.0030 FEED					1 (33%)	0 (0%)	3 (75%)	2 (50%)	1 (33%)	1 (33%)	2 (67%)	1 (33%)	0 (0%)	0 (0%)	3 (60%)	✓	0.87	0.67	0%
Current Schedule					N/A	N/A	N/A	N/A	N/A	0 (0%)	0 (0%)	0 (0%)	N/A	0 (0%)	0 (0%)	✓	N/A	N/A	0%
Current Schedule.0040 Detailed Design					0 (0%)	0 (0%)	7 (100%)	5 (71%)	2 (40%)	0 (0%)	5 (100%)	1 (20%)	0 (0%)	0 (0%)	4 (67%)	✓	0.48	0.25	0%
Current Schedule.0060 Manufacturing					1 (10%)	1 (10%)	6 (60%)	10 (100%)	1 (10%)	2 (20%)	3 (30%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	✓	0.93	N/A	10%
Current Schedule.0080 Commissioning					0 (0%)	1 (25%)	1 (25%)	3 (75%)	0 (0%)	0 (0%)	0 (0%)	1 (25%)	0 (0%)	0 (0%)	0 (0%)	✓	1.00	N/A	20%
Current Schedule.0070 Construction					1 (13%)	0 (0%)	1 (10%)	10 (100%)	0 (0%)	3 (38%)	0 (0%)	1 (13%)	0 (0%)	0 (0%)	0 (0%)	✓	1.00	N/A	50%

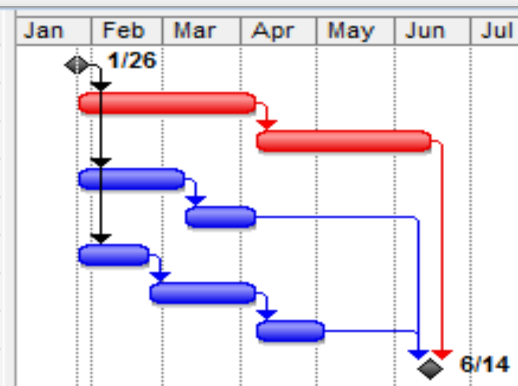
Logic Checks



Ribbons / Phases	Time Line			Ribbon Analyzer	
	1/24/2010	1/31/2010	2/7/2010	1. Logic	Logic Density
Activity 1	[Bar]			0 (0%)	2.00
Activity 2	[Bar]			1 (100%)	1.00
Activity 3	[Bar]			0 (0%)	2.00
Activity 4	[Bar]			0 (0%)	2.00
Activity 5	[Bar]			0 (0%)	4.00
End	[Bar]			0	
Start	[Bar]			0	

Float and Duration Checks

Task Name	Duration	Start	Finish	Total Slack	Predecessors	Jan	Feb	Mar	Apr	May	Jun	Jul
Start	0 days	Tue 1/26/10	Tue 1/26/10	0 days			1/26					
1	50 days	Tue 1/26/10	Mon 4/5/10	0 days	1							
2	50 days	Tue 4/6/10	Mon 6/14/10	0 days	2							
3	30 days	Tue 1/26/10	Mon 3/8/10	50 days	1							
4	20 days	Tue 3/9/10	Mon 4/5/10	50 days	4							
5	20 days	Tue 1/26/10	Mon 2/22/10	30 days	1							
6	30 days	Tue 2/23/10	Mon 4/5/10	30 days	6							
7	20 days	Tue 4/6/10	Mon 5/3/10	30 days	7							
Finish	0 days	Mon 6/14/10	Mon 6/14/10	0 days	3,5,8							6/14



Ribbons / Phases	Time Line						Ribbon Analyzer				
	1/2010	2/2010	3/2010	4/2010	5/2010	6/2010	6. High Float	Rem. Dur.	Ribbon Length	1. Logic	5. Hard Constr
Path #1							0 (0%)	100 (45%)	139	0 (0%)	0 (0%)
Path #2							2 (100%)	50 (23%)	139	0 (0%)	0 (0%)
Path #3							0 (0%)	70 (32%)	139	0 (0%)	0 (0%)

Summary and Conclusion

- DMCA 14 Point Assessment
 - Provides a consistent approach to analyzing technical components of a schedule.
 - Measures quality against proven CPM scheduling metrics.
- Ensuring quality of a schedule increases probability of “on-Time” success!



Questions ?

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