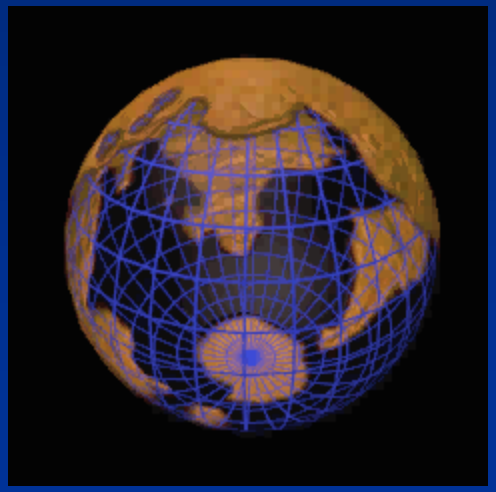
2002
OSISOFT USERS CONFERENCE
MONTEREY CALIFORNIA
MARCH 10-13 2002

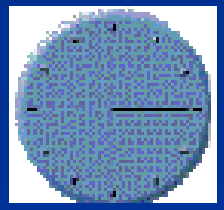
KISSing your way to decreasing batch cycle time



You have a goal in your job ...

The Assertion

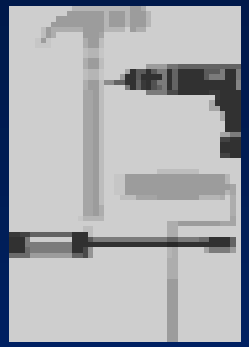
- *The Goal* by Dr. Eliyahu Goldratt
  - Increasing throughput is essential to growing profitability in the manufacturing environment
    - Identify the bottleneck(s) in your process
    - Focus on getting more production within the existing capacity



Visual Example - multi-step batching sequence

IDLE	IDLE	IDLE
READY TO FILL	READY TO FILL	READY TO FILL
FILL	FILL	FILL
HEAT	HEAT	HEAT
DWELL	DWELL	DWELL
READY TO DISCHARGE	READY TO DISCHARGE	READY TO DISCHARGE
DISCHARGE	DISCHARGE	DISCHARGE

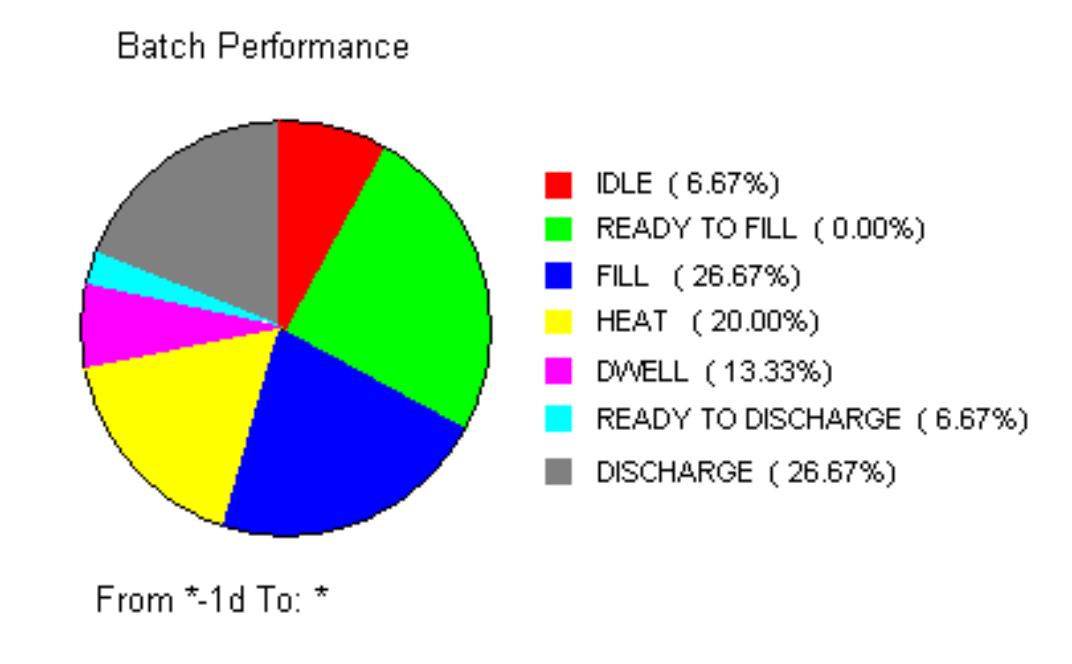
Four Tools to:



- Help analyze your processes and process units
- Provide insight into where you should be focusing your de-bottlenecking efforts

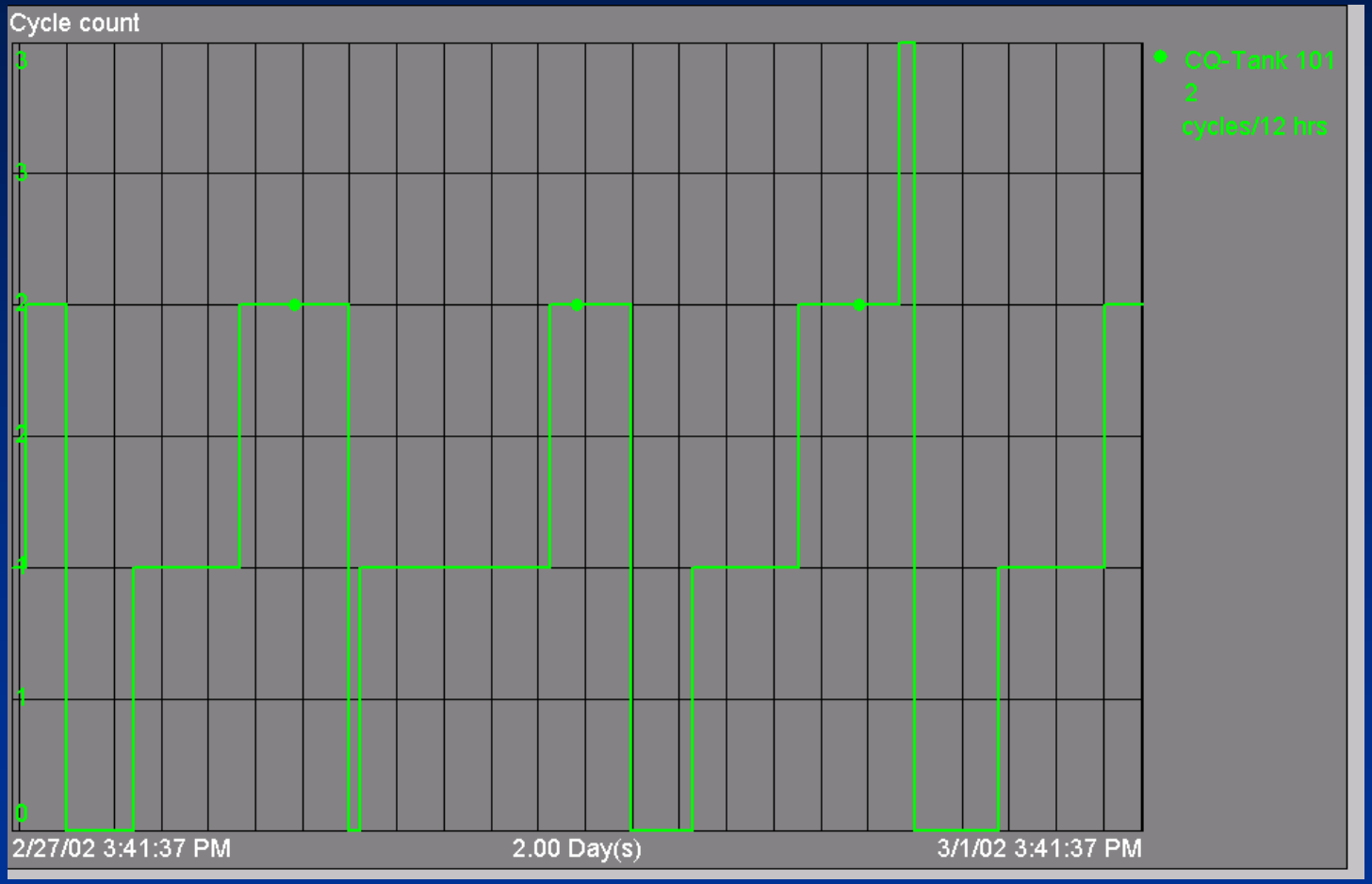
#1 - Digital State "PI" Chart

- Active-X control - Available on OSI Developers Network web pages



#2 - Totalizers: Cycle Counts

e.g. CQ-Tank 101 (counts when = "READY TO DISCHARGE")



#2 - Totalizers: Cycle Counts

- Use three tags to accomplish this:

1. Use a digital 'Source' tag with multiple states.

   e.g. Tank 101: undefined, IDLE, READY TO FILL, HEAT, DWELL, etc.

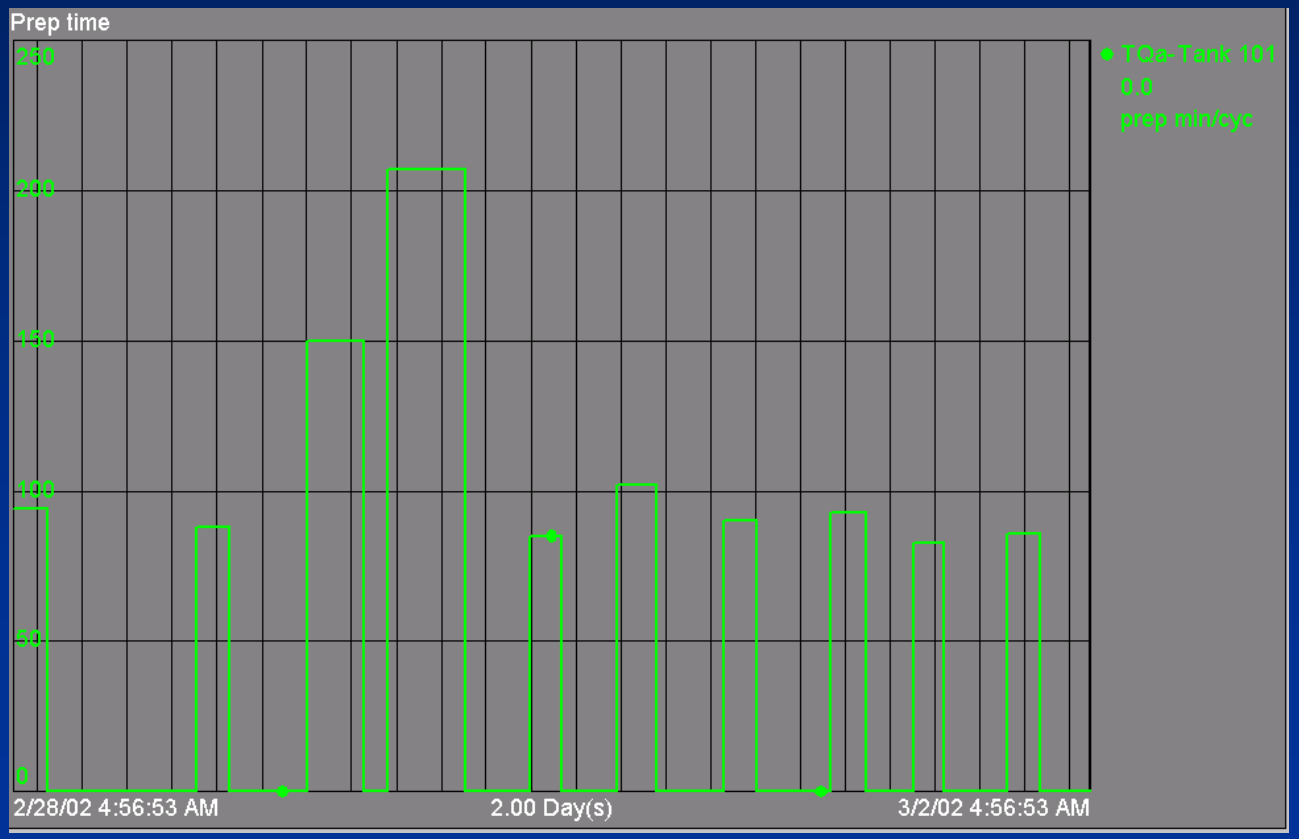
2. Use a two-state 'reset' tag

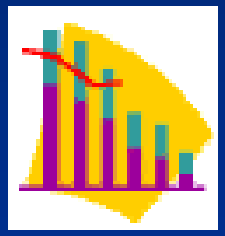
   e.g. 12 hr shift trigger: 0 or 1

3. Create the totalizer tag that counts cycles

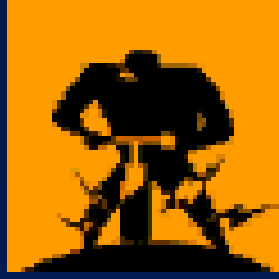
#3 - Totalizers: Record time while tag <="state X"

- Report how long unit takes to get to "Ready to Discharge" state



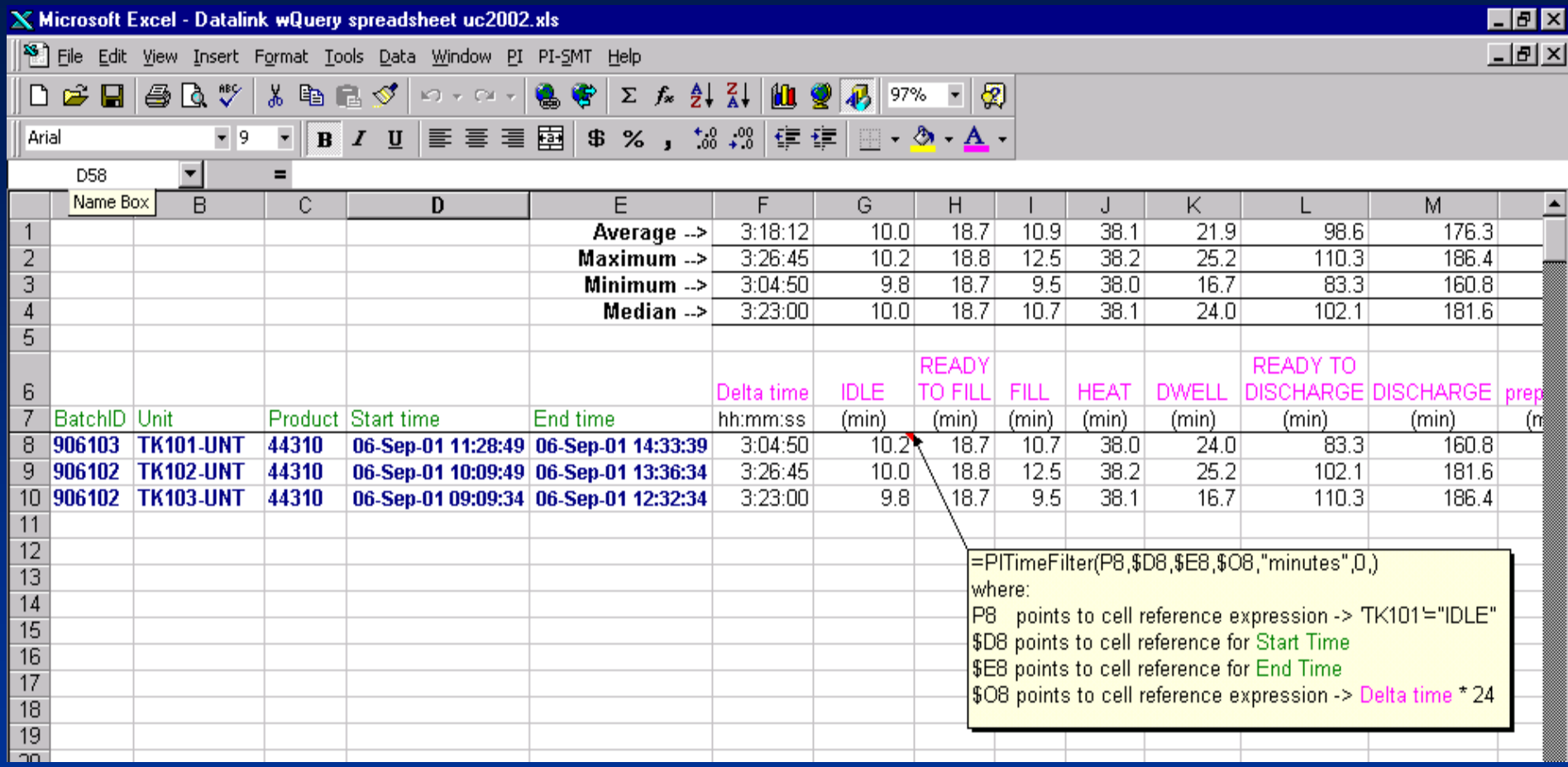


#4 - Datalink w/batch query



- Statistical data on your batch state times
- Deliverables:
  - Listing of all selected state times for multiple batches.
  - Average, Max, Min, and Median state times for multiple batches

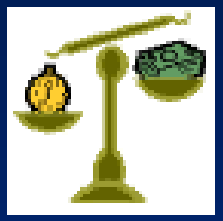
#4 - Datalink w/batch query



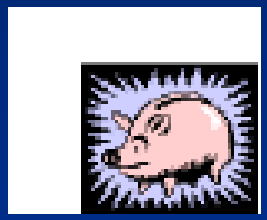
1					Average -->	3:18:12	10.0	18.7	10.9	38.1	21.9	98.6	176.3
2					Maximum -->	3:26:45	10.2	18.8	12.5	38.2	25.2	110.3	186.4
3					Minimum -->	3:04:50	9.8	18.7	9.5	38.0	16.7	83.3	160.8
4					Median -->	3:23:00	10.0	18.7	10.7	38.1	24.0	102.1	181.6
5													
6						Delta time	IDLE	READY TO FILL	FILL	HEAT	DWELL	READY TO DISCHARGE	DISCHARGE
7	BatchID	Unit	Product	Start time	End time	hh:mm:ss	(min)	(min)	(min)	(min)	(min)	(min)	(min)
8	906103	TK101-UNT	44310	06-Sep-01 11:28:49	06-Sep-01 14:33:39	3:04:50	10.2	18.7	10.7	38.0	24.0	83.3	160.8
9	906102	TK102-UNT	44310	06-Sep-01 10:09:49	06-Sep-01 13:36:34	3:26:45	10.0	18.8	12.5	38.2	25.2	102.1	181.6
10	906102	TK103-UNT	44310	06-Sep-01 09:09:34	06-Sep-01 12:32:34	3:23:00	9.8	18.7	9.5	38.1	16.7	110.3	186.4

Summary

- Reducing batch cycle time increases your company's *Return on Assets*.



- VB programming proficiency isn't necessary to increase your *Return on Investment*.



- A Keep-It-Simple-Stupid approach can deliver significant "bang-for-the-buck"


The End