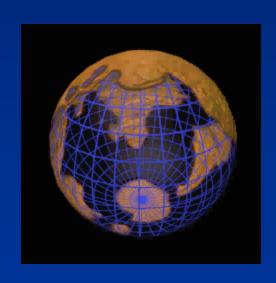


# KISSing your way to decreasing batch cycle time



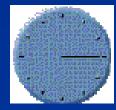


# You have a goal in your job ...



#### 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

READY TO FILL

FILL

HEAT

**DWELL** 

READY TO DISCHARGE

DISCHARGE

IDLE

READY TO FILL

FILL

HEAT DVELL

READY TO DISCHARGE

DISCHARGE

IDLE

READY TO FILL

FILL

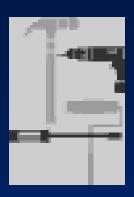
HEAT

**DWELL** 

READY TO DISCHARGE

DISCHARGE

#### Four Tools to:

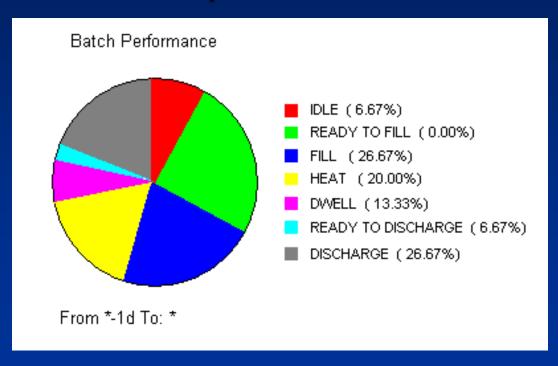


- Help analyze your processes and process units
- Provide insight into where you should be focusing your debottlenecking efforts



# #1 - Digital State "PI" Chart

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

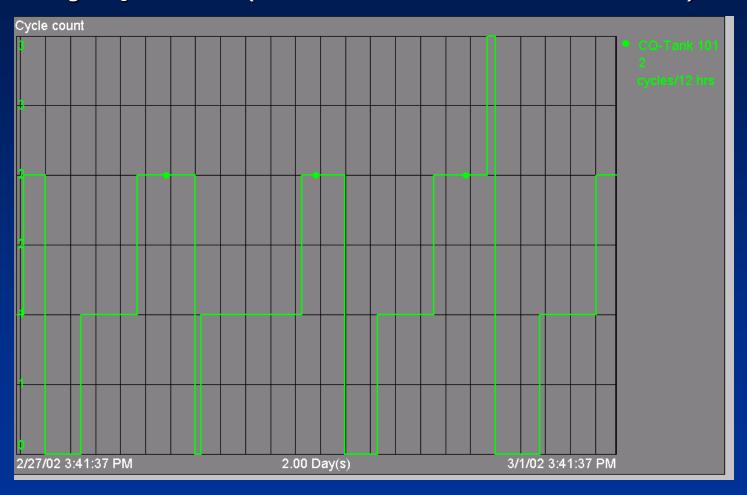




# #2 - Totalizers: Cycle Counts



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.

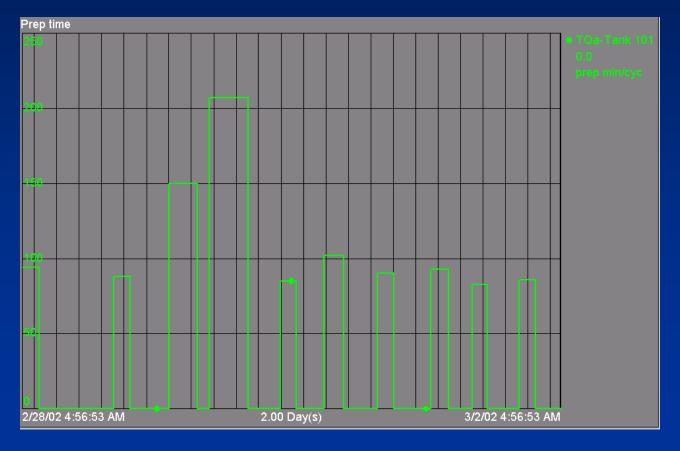
  e.g. Tank 101: undefined, IDLE, READY TO FILL, HEAT, DWELL, etc.
- 2. Use a two-state 'reset' tag
  e.g. 12 hr shift trigger: 0 or 1
- 3. Create the totalizer tag that counts cycles



# #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

	X Microsoft Excel - Datalink wQuery spreadsheet uc2002.xls														
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	Name Bo	× B	С	D	E	F	G	Н		J	K	L	М	<u> </u>	
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		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															
								READY				READY TO			
6						Delta time	IDLE [	TO FILL	FILL	HEAT	DWELL	DISCHARGE	DISCHARGE	prep	
7	BatchID		Product	Start time	End time	hh:mm:ss	(min)	(min)	(min)	(min)	(min)	(min)	(min)	(n	
		TK101-UNT	44310	06-Sep-01 11:28:49	06-Sep-01 14:33:39	3:04:50	10.2		10.7	38.0	24.0	83.3	160.8		
		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	TR402 HMT											101.0		
	300 102	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		
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11 12 13 14 15 16	300102	TR 103-UN1	44310	06-Sep-01 09:09:34	06-Sep-01 12:32:34	3:23:00	9.8	=F wh P8 \$D \$E	PITimeFil ere: points 8 points 8 points	38.1 ter(P8,\$I to cell ri to cell ri to cell ri	16.7 08,\$E8,\$O eference e: eference fo eference fo	110.3 8,"minutes",0, pression -> T r Start Time	186.4 ) K101'="IDLE"		

#### 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"



